```
Cys Arg Ser Ser Trp Thr Ala Ala Met Glu Leu Ser Ala Glu Tyr Leu
            20                  25                  30

Arg Glu Lys Leu Gln Arg Asp Leu Glu Ala Glu His Val Leu Pro Ser
        35                  40                  45

Pro Gly Gly Val Gly Gln Val Arg Gly Glu Thr Ala Ala Ser Glu Thr
    50                  55                  60

Gln Ala Gly Glu Arg Val Pro Ser Arg Arg Ala Pro Ala His Pro Cys
65                  70                  75                  80

Leu
```

<210> 9286
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1884; "

<220>
<221> source
<223> /note="Gene Symbol: BOLA2B; "

<220>
<221> source
<223> /note="Gene Name:
bolA family
member 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457995"

<400> 9286

```
Phe Pro Ala Glu Val Ala Pro Val Arg Gln Gln Gly Ser Val Ala Gly
1               5                   10                  15

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

Ala Ala Met Glu Leu Ser Ala Glu Tyr Leu Arg Glu Lys Leu Gln Arg
        35                  40                  45

Asp Leu Glu Ala Glu His Val Glu Val Glu Asp Thr Thr Leu Asn Arg
```

```
    50                  55                  60

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

Lys Pro Leu Leu Gln Arg His Arg
                85


<210> 9287
<211> 101
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1885; "

<220>
<221> source
<223> /note="Gene Symbol: BOLA3; "

<220>
<221> source
<223> /note="Gene Name:
      bolA family
      member 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q53S33; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295326"

<400> 9287
Met Ala Ala Trp Ser Pro Ala Ala Ala Ala Pro Leu Leu Arg Gly Ile
1               5                  10                  15

Arg Gly Leu Pro Leu His His Arg Met Phe Ala Thr Gln Thr Glu Gly
            20                  25                  30

Glu Leu Arg Val Thr Gln Ile Leu Lys Glu Lys Phe Pro Arg Ala Thr
        35                  40                  45

Ala Ile Lys Val Thr Asp Ile Ser Gly Thr Lys Arg Arg Asn Gln Arg
    50                  55                  60

Asp Ala Trp Ile Ala Asp Ile Tyr Leu Cys Pro Gln Thr Leu Thr Thr
65                  70                  75                  80
```

```
Pro Trp Leu His Arg Cys Cys Cys Leu Arg Pro Trp Met Asn Phe Thr
                85                  90                  95

Asp Ile Ile Leu Pro
            100


<210> 9288
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1885; "

<220>
<221> source
<223> /note="Gene Symbol: BOLA3; "

<220>
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<223> /note="Gene Name:
      bolA family
      member 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q53S33; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000331369"

<400> 9288
Met Ala Ala Trp Ser Pro Ala Ala Ala Ala Pro Leu Leu Arg Gly Ile
1               5                  10                  15

Arg Gly Leu Pro Leu His His Arg Met Phe Ala Thr Gln Thr Glu Gly
            20                  25                  30

Glu Leu Arg Val Thr Gln Ile Leu Lys Glu Lys Phe Pro Arg Ala Thr
        35                  40                  45

Ala Ile Lys Val Thr Asp Ile Ser Gly Gly Cys Gly Ala Met Tyr Glu
    50                  55                  60

Ile Lys Ile Glu Ser Glu Glu Phe Lys Glu Lys Arg Thr Val Gln Gln
65                  70                  75                  80
```

```
His Gln Met Val Asn Gln Ala Leu Lys Glu Glu Ile Lys Glu Met His
                85                  90                  95


Gly Leu Arg Ile Phe Thr Ser Val Pro Lys Arg
            100                 105


<210> 9289
<211> 399
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1886; "

<220>
<221> source
<223> /note="Gene Symbol: BRS3; "

<220>
<221> source
<223> /note="Gene Name:
      bombesin-like receptor 3; "

<220>
<221> source
<223> /note="Uniprot ID:  P32247; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359682"

<400> 9289
Met Ala Gln Arg Gln Pro His Ser Pro Asn Gln Thr Leu Ile Ser Ile
1               5                   10                  15


Thr Asn Asp Thr Glu Ser Ser Ser Ser Val Val Ser Asn Asp Asn Thr
            20                  25                  30


Asn Lys Gly Trp Ser Gly Asp Asn Ser Pro Gly Ile Glu Ala Leu Cys
        35                  40                  45


Ala Ile Tyr Ile Thr Tyr Ala Val Ile Ile Ser Val Gly Ile Leu Gly
    50                  55                  60


Asn Ala Ile Leu Ile Lys Val Phe Phe Lys Thr Lys Ser Met Gln Thr
65                  70                  75                  80


Val Pro Asn Ile Phe Ile Thr Ser Leu Ala Phe Gly Asp Leu Leu Leu
```

```
                85                  90                  95

Leu Leu Thr Cys Val Pro Val Asp Ala Thr His Tyr Leu Ala Glu Gly
            100                 105                 110

Trp Leu Phe Gly Arg Ile Gly Cys Lys Val Leu Ser Phe Ile Arg Leu
        115                 120                 125

Thr Ser Val Gly Val Ser Val Phe Thr Leu Thr Ile Leu Ser Ala Asp
    130                 135                 140

Arg Tyr Lys Ala Val Val Lys Pro Leu Glu Arg Gln Pro Ser Asn Ala
145                 150                 155                 160

Ile Leu Lys Thr Cys Val Lys Ala Gly Cys Val Trp Ile Val Ser Met
                165                 170                 175

Ile Phe Ala Leu Pro Glu Ala Ile Phe Ser Asn Val Tyr Thr Phe Arg
            180                 185                 190

Asp Pro Asn Lys Asn Met Thr Phe Glu Ser Cys Thr Ser Tyr Pro Val
        195                 200                 205

Ser Lys Lys Leu Leu Gln Glu Ile His Ser Leu Leu Cys Phe Leu Val
    210                 215                 220

Phe Tyr Ile Ile Pro Leu Ser Ile Ile Ser Val Tyr Tyr Ser Leu Ile
225                 230                 235                 240

Ala Arg Thr Leu Tyr Lys Ser Thr Leu Asn Ile Pro Thr Glu Glu Gln
                245                 250                 255

Ser His Ala Arg Lys Gln Ile Glu Ser Arg Lys Arg Ile Ala Arg Thr
            260                 265                 270

Val Leu Val Leu Val Ala Leu Phe Ala Leu Cys Trp Leu Pro Asn His
        275                 280                 285

Leu Leu Tyr Leu Tyr His Ser Phe Thr Ser Gln Thr Tyr Val Asp Pro
    290                 295                 300

Ser Ala Met His Phe Ile Phe Thr Ile Phe Ser Arg Val Leu Ala Phe
305                 310                 315                 320
```

```
Ser Asn Ser Cys Val Asn Pro Phe Ala Leu Tyr Trp Leu Ser Lys Ser
                325                 330                 335


Phe Gln Lys His Phe Lys Ala Gln Leu Phe Cys Cys Lys Ala Glu Arg
            340                 345                 350


Pro Glu Pro Pro Val Ala Asp Thr Ser Leu Thr Thr Leu Ala Val Met
        355                 360                 365


Gly Thr Val Pro Gly Thr Gly Ser Ile Gln Met Ser Glu Ile Ser Val
    370                 375                 380


Thr Ser Phe Thr Gly Cys Ser Val Lys Gln Ala Glu Asp Arg Phe
385                 390                 395


<210> 9290
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1887; "

<220>
<221> source
<223> /note="Gene Symbol: BGLAP; "

<220>
<221> source
<223> /note="Gene Name:
      bone gamma-carboxyglutamate (gla) prt; "

<220>
<221> source
<223> /note="Uniprot ID:  P02818; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357255"

<400> 9290
Met Arg Ala Leu Thr Leu Leu Ala Leu Leu Ala Leu Ala Ala Leu Cys
1               5                   10                  15


Ile Ala Gly Gln Ala Gly Ala Lys Pro Ser Gly Ala Glu Ser Ser Lys
            20                  25                  30
```

```
Gly Ala Ala Phe Val Ser Lys Gln Glu Gly Ser Glu Val Val Lys Arg
        35                  40                  45

Pro Arg Arg Tyr Leu Tyr Gln Trp Leu Gly Ala Pro Val Pro Tyr Pro
    50                  55                  60

Asp Pro Leu Glu Pro Arg Arg Glu Val Cys Glu Leu Asn Pro Asp Cys
65                  70                  75                  80

Asp Glu Leu Ala Asp His Ile Gly Phe Gln Glu Ala Tyr Arg Arg Phe
                85                  90                  95

Tyr Gly Pro Val
            100


<210> 9291
<211> 318
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1888; "

<220>
<221> source
<223> /note="Gene Symbol: BST1; "

<220>
<221> source
<223> /note="Gene Name:
      bone marrow stromal cell antigen 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q10588; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265016"

<400> 9291
Met Ala Ala Gln Gly Cys Ala Ala Ser Arg Leu Leu Gln Leu Leu Leu
1               5                   10                  15

Gln Leu Leu Leu Leu Leu Leu Leu Leu Ala Ala Gly Gly Ala Arg Ala
            20                  25                  30

Arg Trp Arg Gly Glu Gly Thr Ser Ala His Leu Arg Asp Ile Phe Leu
        35                  40                  45
```

```
Gly Arg Cys Ala Glu Tyr Arg Ala Leu Leu Ser Pro Glu Gln Arg Asn
    50                  55                  60

Lys Asn Cys Thr Ala Ile Trp Glu Ala Phe Lys Val Ala Leu Asp Lys
65                  70                  75                  80

Asp Pro Cys Ser Val Leu Pro Ser Asp Tyr Asp Leu Phe Ile Asn Leu
                85                  90                  95

Ser Arg His Ser Ile Pro Arg Asp Lys Ser Leu Phe Trp Glu Asn Ser
            100                 105                 110

His Leu Leu Val Asn Ser Phe Ala Asp Asn Thr Arg Arg Phe Met Pro
        115                 120                 125

Leu Ser Asp Val Leu Tyr Gly Arg Val Ala Asp Phe Leu Ser Trp Cys
    130                 135                 140

Arg Gln Lys Asn Asp Ser Gly Leu Asp Tyr Gln Ser Cys Pro Thr Ser
145                 150                 155                 160

Glu Asp Cys Glu Asn Asn Pro Val Asp Ser Phe Trp Lys Arg Ala Ser
                165                 170                 175

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

Gly Ser Glu Pro Thr Gly Ala Tyr Pro Ile Lys Gly Phe Phe Ala Asp
        195                 200                 205

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

Trp Val Met His Glu Ile Gly Gly Pro Asn Val Glu Ser Cys Gly Glu
225                 230                 235                 240

Gly Ser Met Lys Val Leu Glu Lys Arg Leu Lys Asp Met Gly Phe Gln
                245                 250                 255

Tyr Ser Cys Ile Asn Asp Tyr Arg Pro Val Lys Leu Leu Gln Cys Val
            260                 265                 270
```

```
Asp His Ser Thr His Pro Asp Cys Ala Leu Lys Ser Ala Ala Ala Ala
        275                 280                 285

Thr Gln Arg Lys Ala Pro Ser Leu Tyr Thr Glu Gln Arg Ala Gly Leu
    290                 295                 300

Ile Ile Pro Leu Phe Leu Val Leu Ala Ser Arg Thr Gln Leu
305                 310                 315


<210> 9292
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1888; "

<220>
<221> source
<223> /note="Gene Symbol: BST1; "

<220>
<221> source
<223> /note="Gene Name:
      bone marrow stromal cell antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371783"

<400> 9292
Met Ala Ala Gln Gly Cys Ala Ala Ser Arg Leu Leu Gln Leu Leu Leu
1               5                   10                  15

Gln Leu Leu Leu Leu Leu Leu Leu Leu Ala Ala Gly Gly Ala Arg Ala
            20                  25                  30

Arg Trp Arg Gly Glu Gly Thr Ser Ala His Leu Arg Asp Ile Phe Leu
        35                  40                  45

Gly Arg Cys Ala Glu Tyr Arg Ala Leu Leu Ser Pro Glu Gln Arg Gln
    50                  55                  60

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

Asn Cys Thr Ala Ile Trp Glu Ala Phe Lys Val Ala Leu Asp Lys Asp
```

```
                85                  90                  95

Pro Cys Ser Val Leu Pro Ser Asp Tyr Asp Leu Phe Ile Asn Leu Ser
            100                 105                 110

Arg His Ser Ile Pro Arg Asp Lys Ser Leu Phe Trp Glu Asn Ser His
        115                 120                 125

Leu Leu Val Asn Ser Phe Ala Asp Asn Thr Arg Arg Phe Met Pro Leu
    130                 135                 140

Ser Asp Val Leu Tyr Gly Arg Val Ala Asp Phe Leu Ser Trp Cys Arg
145                 150                 155                 160

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

Asp Cys Glu Asn Asn Pro Val Asp Ser Phe Trp Lys Arg Ala Ser Ile
            180                 185                 190

Gln Tyr Ser Lys Asp Ser Ser Gly Val Ile His Val Met Leu Asn Gly
        195                 200                 205

Ser Glu Pro Thr Gly Ala Tyr Pro Ile Lys Gly Phe Phe Ala Asp Tyr
    210                 215                 220

Glu Ile Pro Asn Leu Gln Lys Glu Lys Ile Thr Arg Ile Glu Ile Trp
225                 230                 235                 240

Val Met His Glu Ile Gly Gly Pro Asn Val Glu Ser Cys Gly Glu Gly
                245                 250                 255

Ser Met Lys Val Leu Glu Lys Arg Leu Lys Asp Met Gly Phe Gln Tyr
            260                 265                 270

Ser Cys Ile Asn Asp Tyr Arg Pro Val Lys Leu Leu Gln Cys Val Asp
        275                 280                 285

His Ser Thr His Pro Asp Cys Ala Leu Lys Ser Ala Ala Ala Ala Thr
    290                 295                 300

Gln Arg Lys Ala Pro Ser Leu Tyr Thr Glu Gln Arg Ala Gly Leu Ile
305                 310                 315                 320
```

```
Ile Pro Leu Phe Leu Val Leu Ala Ser Arg Thr Gln Leu
                325                 330


<210> 9293
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1888; "

<220>
<221> source
<223> /note="Gene Symbol: BST1; "

<220>
<221> source
<223> /note="Gene Name:
      bone marrow stromal cell antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420925"

<400> 9293
Gly Leu Asp Tyr Gln Ser Cys Pro Thr Ser Glu Asp Cys Glu Asn Asn
1               5                  10                  15


Pro Val Asp Ser Phe Trp Lys Arg Ala Ser Ile Gln Tyr Ser Lys Asp
            20                  25                  30


Ser Ser Gly Val Ile His Val Met Leu Asn Gly Ser Glu Pro Thr Gly
        35                  40                  45


Ala Tyr Pro Ile Lys Gly Phe Phe Ala Asp Tyr Glu Ile Pro Asn Leu
    50                  55                  60


Gln Lys Glu Lys Ile Thr Arg Ile Glu Ile Trp Val Met His Glu Ile
65                  70                  75                  80


Gly Gly Pro Asn Val Glu Ser Cys Gly Glu Gly Ser Met Lys Val Leu
                85                  90                  95


Glu Lys Arg Leu Lys Asp Met Gly Phe Gln Tyr Ser Cys Ile Asn Asp
            100                 105                 110
```

```
Tyr Arg Pro Val Lys Leu Leu Gln Cys Val Asp His Ser Thr His Pro
        115                 120                 125


Asp Cys Ala Leu Lys Ser Pro Lys Arg Leu Cys Gly Thr Leu Gly Val
    130                 135                 140


Arg Pro Arg Ala Glu Pro Tyr Asn Arg Arg Phe
145                 150                 155


<210> 9294
<211> 186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1888; "

<220>
<221> source
<223> /note="Gene Symbol: BST1; "

<220>
<221> source
<223> /note="Gene Name:
      bone marrow stromal cell antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423357"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9294
Xaa Ser Leu Phe Trp Glu Asn Ser His Leu Leu Val Asn Ser Phe Ala
1               5                   10                  15


Asp Asn Thr Arg Arg Phe Met Pro Leu Ser Asp Val Leu Tyr Gly Arg
            20                  25                  30


Val Ala Asp Phe Leu Ser Trp Cys Arg Gln Lys Asn Asp Ser Gly Leu
        35                  40                  45


Asp Tyr Gln Ser Cys Pro Thr Ser Glu Asp Cys Glu Asn Asn Pro Val
    50                  55                  60
```

```
Asp Ser Phe Trp Lys Arg Ala Ser Ile Gln Tyr Ser Lys Asp Ser Ser
65                  70                  75                  80

Gly Val Ile His Val Met Leu Asn Gly Ser Glu Pro Thr Gly Ala Tyr
                85                  90                  95

Pro Ile Lys Gly Phe Phe Ala Asp Tyr Glu Ile Pro Asn Leu Gln Lys
            100                 105                 110

Glu Lys Ile Thr Arg Ile Glu Ile Trp Val Met His Glu Ile Gly Gly
        115                 120                 125

Pro Asn Val Glu Ser Cys Gly Glu Gly Ser Met Lys Val Leu Glu Lys
    130                 135                 140

Arg Leu Lys Asp Met Gly Phe Gln Tyr Ser Cys Ile Asn Asp Tyr Arg
145                 150                 155                 160

Pro Val Lys Leu Leu Gln Cys Val Asp His Ser Thr His Pro Asp Cys
                165                 170                 175

Ala Leu Lys Ser Asp Gly Val Ser Pro Cys
            180                 185


<210> 9295
<211> 97
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1888; "

<220>
<221> source
<223> /note="Gene Symbol: BST1; "

<220>
<221> source
<223> /note="Gene Name:
      bone marrow stromal cell antigen 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424761"


<220>
<221> MOD_RES
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<222> (1)..(1)
<223> Any amino acid

<400> 9295
Xaa Ser Glu Pro Thr Gly Ala Tyr Pro Ile Lys Gly Phe Phe Ala Asp
1 5 10 15

Tyr Glu Ile Pro Asn Leu Gln Lys Glu Lys Ile Thr Arg Ile Glu Ile
20 25 30

Trp Val Met His Glu Ile Gly Gly Pro Asn Val Glu Ser Cys Gly Glu
35 40 45

Gly Ser Met Lys Val Leu Glu Lys Arg Leu Lys Asp Met Gly Phe Gln
50 55 60

Tyr Ser Cys Ile Asn Asp Tyr Arg Pro Val Lys Leu Leu Gln Cys Val
65 70 75 80

Asp His Ser Thr His Pro Asp Cys Ala Leu Lys Ser Lys Leu Trp Glu
85 90 95

Pro

<210> 9296
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1889; "

<220>
<221> source
<223> /note="Gene Symbol: BST2; "

<220>
<221> source
<223> /note="Gene Name:
bone marrow stromal cell antigen 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q10589; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000252593"

<400> 9296
Met Ala Ser Thr Ser Tyr Asp Tyr Cys Arg Val Pro Met Glu Asp Gly
1 5 10 15

Asp Lys Arg Cys Lys Leu Leu Leu Gly Ile Gly Ile Leu Val Leu Leu
20 25 30

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

Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg
50 55 60

Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly
65 70 75 80

Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met
85 90 95

Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys
100 105 110

Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln
115 120 125

Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu
130 135 140

Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser
145 150 155 160

Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser
165 170 175

Ala Leu Leu Gln
180

<210> 9297
<211> 986
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1890; "

<220>
<221> source
<223> /note="Gene Symbol: BMP1; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: P13497; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000305714"

<400> 9297

```
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                  10                  15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
```

145 150 155 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
165 170 175

Val Phe Thr Tyr Arg Pro Cys Gly Cys Cys Ser Tyr Val Gly Arg Arg
180 185 190

Gly Gly Gly Pro Gln Ala Ile Ser Ile Gly Lys Asn Cys Asp Lys Phe
195 200 205

Gly Ile Val Val His Glu Leu Gly His Val Val Gly Phe Trp His Glu
210 215 220

His Thr Arg Pro Asp Arg Asp Arg His Val Ser Ile Val Arg Glu Asn
225 230 235 240

Ile Gln Pro Gly Gln Glu Tyr Asn Phe Leu Lys Met Glu Pro Gln Glu
245 250 255

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

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

Lys Tyr Glu Val Asn Gly Val Lys Pro Pro Ile Gly Gln Arg Thr Arg
290 295 300

Leu Ser Lys Gly Asp Ile Ala Gln Ala Arg Lys Leu Tyr Lys Cys Pro
305 310 315 320

Ala Cys Gly Glu Thr Leu Gln Asp Ser Thr Gly Asn Phe Ser Ser Pro
325 330 335

Glu Tyr Pro Asn Gly Tyr Ser Ala His Met His Cys Val Trp Arg Ile
340 345 350

Ser Val Thr Pro Gly Glu Lys Ile Ile Leu Asn Phe Thr Ser Leu Asp
355 360 365

Leu Tyr Arg Ser Arg Leu Cys Trp Tyr Asp Tyr Val Glu Val Arg Asp
370 375 380

```
Gly Phe Trp Arg Lys Ala Pro Leu Arg Gly Arg Phe Cys Gly Ser Lys
385                 390                 395                 400

Leu Pro Glu Pro Ile Val Ser Thr Asp Ser Arg Leu Trp Val Glu Phe
                405                 410                 415

Arg Ser Ser Ser Asn Trp Val Gly Lys Gly Phe Phe Ala Val Tyr Glu
            420                 425                 430

Ala Ile Cys Gly Gly Asp Val Lys Lys Asp Tyr Gly His Ile Gln Ser
        435                 440                 445

Pro Asn Tyr Pro Asp Asp Tyr Arg Pro Ser Lys Val Cys Ile Trp Arg
    450                 455                 460

Ile Gln Val Ser Glu Gly Phe His Val Gly Leu Thr Phe Gln Ser Phe
465                 470                 475                 480

Glu Ile Glu Arg His Asp Ser Cys Ala Tyr Asp Tyr Leu Glu Val Arg
                485                 490                 495

Asp Gly His Ser Glu Ser Ser Thr Leu Ile Gly Arg Tyr Cys Gly Tyr
            500                 505                 510

Glu Lys Pro Asp Asp Ile Lys Ser Thr Ser Ser Arg Leu Trp Leu Lys
        515                 520                 525

Phe Val Ser Asp Gly Ser Ile Asn Lys Ala Gly Phe Ala Val Asn Phe
    530                 535                 540

Phe Lys Glu Val Asp Glu Cys Ser Arg Pro Asn Arg Gly Gly Cys Glu
545                 550                 555                 560

Gln Arg Cys Leu Asn Thr Leu Gly Ser Tyr Lys Cys Ser Cys Asp Pro
                565                 570                 575

Gly Tyr Glu Leu Ala Pro Asp Lys Arg Arg Cys Glu Ala Ala Cys Gly
            580                 585                 590

Gly Phe Leu Thr Lys Leu Asn Gly Ser Ile Thr Ser Pro Gly Trp Pro
        595                 600                 605
```

```
Lys Glu Tyr Pro Pro Asn Lys Asn Cys Ile Trp Gln Leu Val Ala Pro
    610                 615                 620

Thr Gln Tyr Arg Ile Ser Leu Gln Phe Asp Phe Phe Glu Thr Glu Gly
625                 630                 635                 640

Asn Asp Val Cys Lys Tyr Asp Phe Val Glu Val Arg Ser Gly Leu Thr
                645                 650                 655

Ala Asp Ser Lys Leu His Gly Lys Phe Cys Gly Ser Glu Lys Pro Glu
            660                 665                 670

Val Ile Thr Ser Gln Tyr Asn Asn Met Arg Val Glu Phe Lys Ser Asp
        675                 680                 685

Asn Thr Val Ser Lys Lys Gly Phe Lys Ala His Phe Phe Ser Asp Lys
    690                 695                 700

Asp Glu Cys Ser Lys Asp Asn Gly Gly Cys Gln Gln Asp Cys Val Asn
705                 710                 715                 720

Thr Phe Gly Ser Tyr Glu Cys Gln Cys Arg Ser Gly Phe Val Leu His
                725                 730                 735

Asp Asn Lys His Asp Cys Lys Glu Ala Gly Cys Asp His Lys Val Thr
            740                 745                 750

Ser Thr Ser Gly Thr Ile Thr Ser Pro Asn Trp Pro Asp Lys Tyr Pro
        755                 760                 765

Ser Lys Lys Glu Cys Thr Trp Ala Ile Ser Ser Thr Pro Gly His Arg
    770                 775                 780

Val Lys Leu Thr Phe Met Glu Met Asp Ile Glu Ser Gln Pro Glu Cys
785                 790                 795                 800

Ala Tyr Asp His Leu Glu Val Phe Asp Gly Arg Asp Ala Lys Ala Pro
                805                 810                 815

Val Leu Gly Arg Phe Cys Gly Ser Lys Lys Pro Glu Pro Val Leu Ala
            820                 825                 830
```

```
Thr Gly Ser Arg Met Phe Leu Arg Phe Tyr Ser Asp Asn Ser Val Gln
        835                 840                 845

Arg Lys Gly Phe Gln Ala Ser His Ala Thr Glu Cys Gly Gly Gln Val
    850                 855                 860

Arg Ala Asp Val Lys Thr Lys Asp Leu Tyr Ser His Ala Gln Phe Gly
865                 870                 875                 880

Asp Asn Asn Tyr Pro Gly Gly Val Asp Cys Glu Trp Val Ile Val Ala
                885                 890                 895

Glu Glu Gly Tyr Gly Val Glu Leu Val Phe Gln Thr Phe Glu Val Glu
            900                 905                 910

Glu Glu Thr Asp Cys Gly Tyr Asp Tyr Met Glu Leu Phe Asp Gly Tyr
        915                 920                 925

Asp Ser Thr Ala Pro Arg Leu Gly Arg Tyr Cys Gly Ser Gly Pro Pro
    930                 935                 940

Glu Glu Val Tyr Ser Ala Gly Asp Ser Val Leu Val Lys Phe His Ser
945                 950                 955                 960

Asp Asp Thr Ile Thr Lys Lys Gly Phe His Leu Arg Tyr Thr Ser Thr
                965                 970                 975

Lys Phe Gln Asp Thr Leu His Ser Arg Lys
            980                 985


<210> 9298
<211> 730
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1890; "

<220>
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<223> /note="Gene Symbol: BMP1; "

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<223> /note="Gene Name:
      bone morphogenetic prt 1; "
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<220>
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<223> /note="Uniprot ID: P13497; "

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<400> 9298
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1   5   10   15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20   25   30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35   40   45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50   55   60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65   70   75   80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85   90   95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100   105   110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115   120   125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130   135   140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145   150   155   160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165   170   175

Val Phe Thr Tyr Arg Pro Cys Gly Cys Cys Ser Tyr Val Gly Arg Arg
            180   185   190

```
Gly Gly Gly Pro Gln Ala Ile Ser Ile Gly Lys Asn Cys Asp Lys Phe
        195                 200                 205

Gly Ile Val Val His Glu Leu Gly His Val Val Gly Phe Trp His Glu
    210                 215                 220

His Thr Arg Pro Asp Arg Asp Arg His Val Ser Ile Val Arg Glu Asn
225                 230                 235                 240

Ile Gln Pro Gly Gln Glu Tyr Asn Phe Leu Lys Met Glu Pro Gln Glu
                245                 250                 255

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

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

Lys Tyr Glu Val Asn Gly Val Lys Pro Pro Ile Gly Gln Arg Thr Arg
    290                 295                 300

Leu Ser Lys Gly Asp Ile Ala Gln Ala Arg Lys Leu Tyr Lys Cys Pro
305                 310                 315                 320

Ala Cys Gly Glu Thr Leu Gln Asp Ser Thr Gly Asn Phe Ser Ser Pro
                325                 330                 335

Glu Tyr Pro Asn Gly Tyr Ser Ala His Met His Cys Val Trp Arg Ile
            340                 345                 350

Ser Val Thr Pro Gly Glu Lys Ile Ile Leu Asn Phe Thr Ser Leu Asp
        355                 360                 365

Leu Tyr Arg Ser Arg Leu Cys Trp Tyr Asp Tyr Val Glu Val Arg Asp
    370                 375                 380

Gly Phe Trp Arg Lys Ala Pro Leu Arg Gly Arg Phe Cys Gly Ser Lys
385                 390                 395                 400

Leu Pro Glu Pro Ile Val Ser Thr Asp Ser Arg Leu Trp Val Glu Phe
                405                 410                 415
```

Arg Ser Ser Ser Asn Trp Val Gly Lys Gly Phe Phe Ala Val Tyr Glu
420 425 430

Ala Ile Cys Gly Gly Asp Val Lys Lys Asp Tyr Gly His Ile Gln Ser
435 440 445

Pro Asn Tyr Pro Asp Asp Tyr Arg Pro Ser Lys Val Cys Ile Trp Arg
450 455 460

Ile Gln Val Ser Glu Gly Phe His Val Gly Leu Thr Phe Gln Ser Phe
465 470 475 480

Glu Ile Glu Arg His Asp Ser Cys Ala Tyr Asp Tyr Leu Glu Val Arg
485 490 495

Asp Gly His Ser Glu Ser Ser Thr Leu Ile Gly Arg Tyr Cys Gly Tyr
500 505 510

Glu Lys Pro Asp Asp Ile Lys Ser Thr Ser Ser Arg Leu Trp Leu Lys
515 520 525

Phe Val Ser Asp Gly Ser Ile Asn Lys Ala Gly Phe Ala Val Asn Phe
530 535 540

Phe Lys Glu Val Asp Glu Cys Ser Arg Pro Asn Arg Gly Gly Cys Glu
545 550 555 560

Gln Arg Cys Leu Asn Thr Leu Gly Ser Tyr Lys Cys Ser Cys Asp Pro
565 570 575

Gly Tyr Glu Leu Ala Pro Asp Lys Arg Arg Cys Glu Ala Ala Cys Gly
580 585 590

Gly Phe Leu Thr Lys Leu Asn Gly Ser Ile Thr Ser Pro Gly Trp Pro
595 600 605

Lys Glu Tyr Pro Pro Asn Lys Asn Cys Ile Trp Gln Leu Val Ala Pro
610 615 620

Thr Gln Tyr Arg Ile Ser Leu Gln Phe Asp Phe Phe Glu Thr Glu Gly
625 630 635 640

Asn Asp Val Cys Lys Tyr Asp Phe Val Glu Val Arg Ser Gly Leu Thr

```
                645                 650                 655

Ala Asp Ser Lys Leu His Gly Lys Phe Cys Gly Ser Glu Lys Pro Glu
            660                 665                 670

Val Ile Thr Ser Gln Tyr Asn Asn Met Arg Val Glu Phe Lys Ser Asp
        675                 680                 685

Asn Thr Val Ser Lys Lys Gly Phe Lys Ala His Phe Phe Ser Glu Lys
    690                 695                 700

Arg Pro Ala Leu Gln Pro Pro Arg Gly Arg Pro His Gln Leu Lys Phe
705                 710                 715                 720

Arg Val Gln Lys Arg Asn Arg Thr Pro Gln
                725                 730


<210> 9299
<211> 302
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1890; "

<220>
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<223> /note="Gene Symbol: BMP1; "

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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000346941"

<400> 9299
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                   10                  15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45
```

```
Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175

Val Phe Thr Tyr Arg Pro Cys Gly Cys Cys Ser Tyr Val Gly Arg Arg
            180                 185                 190

Gly Gly Gly Pro Gln Ala Ile Ser Ile Gly Lys Asn Cys Asp Lys Phe
        195                 200                 205

Gly Ile Val Val His Glu Leu Gly His Val Val Gly Phe Trp His Glu
    210                 215                 220

His Thr Arg Pro Asp Arg Asp Arg His Val Ser Ile Val Arg Glu Asn
225                 230                 235                 240

Ile Gln Pro Gly Val Leu His Ser Ser Leu Leu Leu Leu Ser Cys Gly
                245                 250                 255

Ser Arg Asn Gly Ala Ser Phe Pro Cys Ser Leu Glu Ser Ser Ile His
            260                 265                 270
```

```
Gln Ala Leu Cys Trp Thr Gly Leu Phe Leu Arg Pro Ser Pro Phe Pro
        275                 280                 285


Arg Leu Pro Leu Ala Ala Pro Arg Thr Leu Arg Ala Gly Val
    290                 295                 300


<210> 9300
<211> 189
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1890; "

<220>
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<223> /note="Gene Symbol: BMP1; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000380915"

<400> 9300
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                   10                  15


Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30


Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45


Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60


Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80


Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95


Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110
```

```
Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175

Val Phe Thr Tyr Arg Pro Cys Gly Ser Gly Pro Pro Pro
            180                 185


<210> 9301
<211> 189
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000427950"

<400> 9301
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                   10                  15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45
```

```
Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175

Val Phe Thr Tyr Arg Pro Cys Gly Ser Gly Pro Pro Pro
            180                 185


<210> 9302
<211> 302
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1890; "

<220>
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<223> /note="Gene Symbol: BMP1; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 1; "

<220>
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<223> /note="ENSP ID: ENSP00000428249"
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<400> 9302
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1 5 10 15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
20 25 30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
35 40 45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
50 55 60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65 70 75 80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
85 90 95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
100 105 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
115 120 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
130 135 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145 150 155 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
165 170 175

Val Phe Thr Tyr Arg Pro Cys Gly Cys Cys Ser Tyr Val Gly Arg Arg
180 185 190

Gly Gly Gly Pro Gln Ala Ile Ser Ile Gly Lys Asn Cys Asp Lys Phe
195 200 205

Gly Ile Val Val His Glu Leu Gly His Val Val Gly Phe Trp His Glu
210 215 220

```
His Thr Arg Pro Asp Arg Asp Arg His Val Ser Ile Val Arg Glu Asn
225                 230                 235                 240


Ile Gln Pro Gly Val Leu His Ser Ser Leu Leu Leu Leu Ser Cys Gly
                245                 250                 255


Ser Arg Asn Gly Ala Ser Phe Pro Cys Ser Leu Glu Ser Ser Ile His
            260                 265                 270


Gln Ala Leu Cys Trp Thr Gly Leu Phe Leu Arg Pro Ser Pro Phe Pro
        275                 280                 285


Arg Leu Pro Leu Ala Ala Pro Arg Thr Leu Arg Ala Gly Val
    290                 295                 300


<210> 9303
<211> 730
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1890; "

<220>
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<223> /note="Gene Symbol: BMP1; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID:  P13497; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428332"

<400> 9303
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                   10                  15


Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30


Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
```

```
        35                  40                  45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175

Val Phe Thr Tyr Arg Pro Cys Gly Cys Cys Ser Tyr Val Gly Arg Arg
            180                 185                 190

Gly Gly Gly Pro Gln Ala Ile Ser Ile Gly Lys Asn Cys Asp Lys Phe
        195                 200                 205

Gly Ile Val Val His Glu Leu Gly His Val Val Gly Phe Trp His Glu
    210                 215                 220

His Thr Arg Pro Asp Arg Asp Arg His Val Ser Ile Val Arg Glu Asn
225                 230                 235                 240

Ile Gln Pro Gly Gln Glu Tyr Asn Phe Leu Lys Met Glu Pro Gln Glu
                245                 250                 255

Val Glu Ser Leu Gly Glu Thr Tyr Asp Phe Asp Ser Ile Met His Tyr
            260                 265                 270
```

```
Ala Arg Asn Thr Phe Ser Arg Gly Ile Phe Leu Asp Thr Ile Val Pro
        275                 280                 285

Lys Tyr Glu Val Asn Gly Val Lys Pro Pro Ile Gly Gln Arg Thr Arg
    290                 295                 300

Leu Ser Lys Gly Asp Ile Ala Gln Ala Arg Lys Leu Tyr Lys Cys Pro
305                 310                 315                 320

Ala Cys Gly Glu Thr Leu Gln Asp Ser Thr Gly Asn Phe Ser Ser Pro
                325                 330                 335

Glu Tyr Pro Asn Gly Tyr Ser Ala His Met His Cys Val Trp Arg Ile
            340                 345                 350

Ser Val Thr Pro Gly Glu Lys Ile Ile Leu Asn Phe Thr Ser Leu Asp
        355                 360                 365

Leu Tyr Arg Ser Arg Leu Cys Trp Tyr Asp Tyr Val Glu Val Arg Asp
    370                 375                 380

Gly Phe Trp Arg Lys Ala Pro Leu Arg Gly Arg Phe Cys Gly Ser Lys
385                 390                 395                 400

Leu Pro Glu Pro Ile Val Ser Thr Asp Ser Arg Leu Trp Val Glu Phe
                405                 410                 415

Arg Ser Ser Ser Asn Trp Val Gly Lys Gly Phe Phe Ala Val Tyr Glu
            420                 425                 430

Ala Ile Cys Gly Gly Asp Val Lys Lys Asp Tyr Gly His Ile Gln Ser
        435                 440                 445

Pro Asn Tyr Pro Asp Asp Tyr Arg Pro Ser Lys Val Cys Ile Trp Arg
    450                 455                 460

Ile Gln Val Ser Glu Gly Phe His Val Gly Leu Thr Phe Gln Ser Phe
465                 470                 475                 480

Glu Ile Glu Arg His Asp Ser Cys Ala Tyr Asp Tyr Leu Glu Val Arg
                485                 490                 495
```

Asp Gly His Ser Glu Ser Ser Thr Leu Ile Gly Arg Tyr Cys Gly Tyr
500 505 510

Glu Lys Pro Asp Asp Ile Lys Ser Thr Ser Ser Arg Leu Trp Leu Lys
515 520 525

Phe Val Ser Asp Gly Ser Ile Asn Lys Ala Gly Phe Ala Val Asn Phe
530 535 540

Phe Lys Glu Val Asp Glu Cys Ser Arg Pro Asn Arg Gly Gly Cys Glu
545 550 555 560

Gln Arg Cys Leu Asn Thr Leu Gly Ser Tyr Lys Cys Ser Cys Asp Pro
565 570 575

Gly Tyr Glu Leu Ala Pro Asp Lys Arg Arg Cys Glu Ala Ala Cys Gly
580 585 590

Gly Phe Leu Thr Lys Leu Asn Gly Ser Ile Thr Ser Pro Gly Trp Pro
595 600 605

Lys Glu Tyr Pro Pro Asn Lys Asn Cys Ile Trp Gln Leu Val Ala Pro
610 615 620

Thr Gln Tyr Arg Ile Ser Leu Gln Phe Asp Phe Phe Glu Thr Glu Gly
625 630 635 640

Asn Asp Val Cys Lys Tyr Asp Phe Val Glu Val Arg Ser Gly Leu Thr
645 650 655

Ala Asp Ser Lys Leu His Gly Lys Phe Cys Gly Ser Glu Lys Pro Glu
660 665 670

Val Ile Thr Ser Gln Tyr Asn Asn Met Arg Val Glu Phe Lys Ser Asp
675 680 685

Asn Thr Val Ser Lys Lys Gly Phe Lys Ala His Phe Phe Ser Glu Lys
690 695 700

Arg Pro Ala Leu Gln Pro Pro Arg Gly Arg Pro His Gln Leu Lys Phe
705 710 715 720

Arg Val Gln Lys Arg Asn Arg Thr Pro Gln
725 730

<210> 9304
<211> 622
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1890; "

<220>
<221> source
<223> /note="Gene Symbol: BMP1; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: P13497; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428665"

<400> 9304
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1 5 10 15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
20 25 30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
35 40 45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
50 55 60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65 70 75 80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
85 90 95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
100 105 110

```
Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175

Val Phe Thr Tyr Arg Pro Cys Gly Cys Cys Ser Tyr Val Gly Arg Arg
            180                 185                 190

Gly Gly Gly Pro Gln Ala Ile Ser Ile Gly Lys Asn Cys Asp Lys Phe
        195                 200                 205

Gly Ile Val Val His Glu Leu Gly His Val Val Gly Phe Trp His Glu
    210                 215                 220

His Thr Arg Pro Asp Arg Asp Arg His Val Ser Ile Val Arg Glu Asn
225                 230                 235                 240

Ile Gln Pro Gly Gln Glu Tyr Asn Phe Leu Lys Met Glu Pro Gln Glu
                245                 250                 255

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

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

Lys Tyr Glu Val Asn Gly Val Lys Pro Pro Ile Gly Gln Arg Thr Arg
    290                 295                 300

Leu Ser Lys Gly Asp Ile Ala Gln Ala Arg Lys Leu Tyr Lys Cys Pro
305                 310                 315                 320

Ala Cys Gly Glu Thr Leu Gln Asp Ser Thr Gly Asn Phe Ser Ser Pro
                325                 330                 335
```

```
Glu Tyr Pro Asn Gly Tyr Ser Ala His Met His Cys Val Trp Arg Ile
            340                 345                 350

Ser Val Thr Pro Gly Glu Lys Ile Ile Leu Asn Phe Thr Ser Leu Asp
        355                 360                 365

Leu Tyr Arg Ser Arg Leu Cys Trp Tyr Asp Tyr Val Glu Val Arg Asp
    370                 375                 380

Gly Phe Trp Arg Lys Ala Pro Leu Arg Gly Arg Phe Cys Gly Ser Lys
385                 390                 395                 400

Leu Pro Glu Pro Ile Val Ser Thr Asp Ser Arg Leu Trp Val Glu Phe
                405                 410                 415

Arg Ser Ser Ser Asn Trp Val Gly Lys Gly Phe Phe Ala Val Tyr Glu
            420                 425                 430

Ala Ile Cys Gly Gly Asp Val Lys Lys Asp Tyr Gly His Ile Gln Ser
        435                 440                 445

Pro Asn Tyr Pro Asp Asp Tyr Arg Pro Ser Lys Val Cys Ile Trp Arg
    450                 455                 460

Ile Gln Val Ser Glu Gly Phe His Val Gly Leu Thr Phe Gln Ser Phe
465                 470                 475                 480

Glu Ile Glu Arg His Asp Ser Cys Ala Tyr Asp Tyr Leu Glu Val Arg
                485                 490                 495

Asp Gly His Ser Glu Ser Ser Thr Leu Ile Gly Arg Tyr Cys Gly Tyr
            500                 505                 510

Glu Lys Pro Asp Asp Ile Lys Ser Thr Ser Ser Arg Leu Trp Leu Lys
        515                 520                 525

Phe Val Ser Asp Gly Ser Ile Asn Lys Ala Gly Phe Ala Val Asn Phe
    530                 535                 540

Phe Lys Glu Val Asp Glu Cys Ser Arg Pro Asn Arg Gly Gly Cys Glu
545                 550                 555                 560
```

```
Gln Arg Cys Leu Asn Thr Leu Gly Ser Tyr Lys Cys Ser Cys Asp Pro
                565                 570                 575

Gly Tyr Glu Leu Ala Pro Asp Lys Arg Arg Cys Glu Gly Cys Tyr Asp
            580                 585                 590

Leu Gln Val Gly Lys Pro Leu Leu Trp Asp Arg His Cys Phe Arg Leu
        595                 600                 605

Ser Thr His Gly Pro Glu Met Leu Gly Thr Ala Leu Arg Gly
    610                 615                 620
```

<210> 9305
<211> 189
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1890; "

<220>
<221> source
<223> /note="Gene Symbol: BMP1; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000428798"

<400> 9305

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Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                   10                  15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80
```

```
Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175

Val Phe Thr Tyr Arg Pro Cys Gly Ser Gly Pro Pro Pro
            180                 185


<210> 9306
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1890; "

<220>
<221> source
<223> /note="Gene Symbol: BMP1; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430015"

<400> 9306
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                   10                  15
```

```
Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45

Leu Pro Phe Leu Gly Thr Leu Pro Trp Thr Lys Arg Thr
    50                  55                  60
```

<210> 9307
<211> 717
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1890; "

<220>
<221> source
<223> /note="Gene Symbol: BMP1; "

<220>
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<223> /note="Gene Name:
bone morphogenetic prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: P13497; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430406"

<400> 9307

```
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                  10                  15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80
```

```
Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175

Val Phe Thr Tyr Arg Pro Cys Gly Cys Cys Ser Tyr Val Gly Arg Arg
            180                 185                 190

Gly Gly Gly Pro Gln Ala Ile Ser Ile Gly Lys Asn Cys Asp Lys Phe
        195                 200                 205

Gly Ile Val Val His Glu Leu Gly His Val Val Gly Phe Trp His Glu
    210                 215                 220

His Thr Arg Pro Asp Arg Asp Arg His Val Ser Ile Val Arg Glu Asn
225                 230                 235                 240

Ile Gln Pro Gly Gln Glu Tyr Asn Phe Leu Lys Met Glu Pro Gln Glu
                245                 250                 255

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

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

Lys Tyr Glu Val Asn Gly Val Lys Pro Pro Ile Gly Gln Arg Thr Arg
    290                 295                 300
```

```
Leu Ser Lys Gly Asp Ile Ala Gln Ala Arg Lys Leu Tyr Lys Cys Pro
305                 310                 315                 320

Ala Cys Gly Glu Thr Leu Gln Asp Ser Thr Gly Asn Phe Ser Ser Pro
                325                 330                 335

Glu Tyr Pro Asn Gly Tyr Ser Ala His Met His Cys Val Trp Arg Ile
            340                 345                 350

Ser Val Thr Pro Gly Glu Lys Ile Ile Leu Asn Phe Thr Ser Leu Asp
        355                 360                 365

Leu Tyr Arg Ser Arg Leu Cys Trp Tyr Asp Tyr Val Glu Val Arg Asp
    370                 375                 380

Gly Phe Trp Arg Lys Ala Pro Leu Arg Gly Arg Phe Cys Gly Ser Lys
385                 390                 395                 400

Leu Pro Glu Pro Ile Val Ser Thr Asp Ser Arg Leu Trp Val Glu Phe
                405                 410                 415

Arg Ser Ser Ser Asn Trp Val Gly Lys Gly Phe Phe Ala Val Tyr Glu
            420                 425                 430

Ala Ile Cys Gly Gly Asp Val Lys Lys Asp Tyr Gly His Ile Gln Ser
        435                 440                 445

Pro Asn Tyr Pro Asp Asp Tyr Arg Pro Ser Lys Val Cys Ile Trp Arg
    450                 455                 460

Ile Gln Val Ser Glu Gly Phe His Val Gly Leu Thr Phe Gln Ser Phe
465                 470                 475                 480

Glu Ile Glu Arg His Asp Ser Cys Ala Tyr Asp Tyr Leu Glu Val Arg
                485                 490                 495

Asp Gly His Ser Glu Ser Ser Thr Leu Ile Gly Arg Tyr Cys Gly Tyr
            500                 505                 510

Glu Lys Pro Asp Asp Ile Lys Ser Thr Ser Ser Arg Leu Trp Leu Lys
        515                 520                 525
```

```
Phe Val Ser Asp Gly Ser Ile Asn Lys Ala Gly Phe Ala Val Asn Phe
    530                 535                 540

Phe Lys Glu Val Asp Glu Cys Ser Arg Pro Asn Arg Gly Gly Cys Glu
545                 550                 555                 560

Gln Arg Cys Leu Asn Thr Leu Gly Ser Tyr Lys Cys Ser Cys Asp Pro
                565                 570                 575

Gly Tyr Glu Leu Ala Pro Asp Lys Arg Arg Cys Glu Ala Ala Cys Gly
            580                 585                 590

Gly Phe Leu Thr Lys Leu Asn Gly Ser Ile Thr Ser Pro Gly Trp Pro
        595                 600                 605

Lys Glu Tyr Pro Pro Asn Lys Asn Cys Ile Trp Gln Leu Val Ala Pro
    610                 615                 620

Thr Gln Tyr Arg Ile Ser Leu Gln Phe Asp Phe Phe Glu Thr Glu Gly
625                 630                 635                 640

Asn Asp Val Cys Lys Tyr Asp Phe Val Glu Val Arg Ser Gly Leu Thr
                645                 650                 655

Ala Asp Ser Lys Leu His Gly Lys Phe Cys Gly Ser Glu Lys Pro Glu
            660                 665                 670

Val Ile Thr Ser Gln Tyr Asn Asn Met Arg Val Glu Phe Lys Ser Asp
        675                 680                 685

Asn Thr Val Ser Lys Lys Gly Phe Lys Ala His Phe Phe Ser Gly Gly
    690                 695                 700

Glu Leu Phe Gly Leu Leu Gly His Pro Pro Arg Arg Pro
705                 710                 715


<210> 9308
<211> 189
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1890; "
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<220>
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<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000430977"

<400> 9308

```
Met Pro Gly Val Ala Arg Leu Pro Leu Leu Leu Gly Leu Leu Leu Leu
1               5                  10                  15

Pro Arg Pro Gly Arg Pro Leu Asp Leu Ala Asp Tyr Thr Tyr Asp Leu
            20                  25                  30

Ala Glu Glu Asp Asp Ser Glu Pro Leu Asn Tyr Lys Asp Pro Cys Lys
        35                  40                  45

Ala Ala Ala Phe Leu Gly Asp Ile Ala Leu Asp Glu Glu Asp Leu Arg
    50                  55                  60

Ala Phe Gln Val Gln Gln Ala Val Asp Leu Arg Arg His Thr Ala Arg
65                  70                  75                  80

Lys Ser Ser Ile Lys Ala Ala Val Pro Gly Asn Thr Ser Thr Pro Ser
                85                  90                  95

Cys Gln Ser Thr Asn Gly Gln Pro Gln Arg Gly Ala Cys Gly Arg Trp
            100                 105                 110

Arg Gly Arg Ser Arg Ser Arg Arg Ala Ala Thr Ser Arg Pro Glu Arg
        115                 120                 125

Val Trp Pro Asp Gly Val Ile Pro Phe Val Ile Gly Gly Asn Phe Thr
    130                 135                 140

Gly Ser Gln Arg Ala Val Phe Arg Gln Ala Met Arg His Trp Glu Lys
145                 150                 155                 160

His Thr Cys Val Thr Phe Leu Glu Arg Thr Asp Glu Asp Ser Tyr Ile
                165                 170                 175
```

```
Val Phe Thr Tyr Arg Pro Cys Gly Ser Gly Pro Pro Pro
            180                 185


<210> 9309
<211> 424
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1891; "

<220>
<221> source
<223> /note="Gene Symbol: BMP10; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 10; "

<220>
<221> source
<223> /note="Uniprot ID:  O95393; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295379"

<400> 9309
Met Gly Ser Leu Val Leu Thr Leu Cys Ala Leu Phe Cys Leu Ala Ala
1               5                   10                  15


Tyr Leu Val Ser Gly Ser Pro Ile Met Asn Leu Glu Gln Ser Pro Leu
            20                  25                  30


Glu Glu Asp Met Ser Leu Phe Gly Asp Val Phe Ser Glu Gln Asp Gly
        35                  40                  45


Val Asp Phe Asn Thr Leu Leu Gln Ser Met Lys Asp Glu Phe Leu Lys
    50                  55                  60


Thr Leu Asn Leu Ser Asp Ile Pro Thr Gln Asp Ser Ala Lys Val Asp
65                  70                  75                  80


Pro Pro Glu Tyr Met Leu Glu Leu Tyr Asn Lys Phe Ala Thr Asp Arg
                85                  90                  95


Thr Ser Met Pro Ser Ala Asn Ile Ile Arg Ser Phe Lys Asn Glu Asp
```

100 105 110

Leu Phe Ser Gln Pro Val Ser Phe Asn Gly Leu Arg Lys Tyr Pro Leu
115 120 125

Leu Phe Asn Val Ser Ile Pro His His Glu Glu Val Ile Met Ala Glu
130 135 140

Leu Arg Leu Tyr Thr Leu Val Gln Arg Asp Arg Met Ile Tyr Asp Gly
145 150 155 160

Val Asp Arg Lys Ile Thr Ile Phe Glu Val Leu Glu Ser Lys Gly Asp
165 170 175

Asn Glu Gly Glu Arg Asn Met Leu Val Leu Val Ser Gly Glu Ile Tyr
180 185 190

Gly Thr Asn Ser Glu Trp Glu Thr Phe Asp Val Thr Asp Ala Ile Arg
195 200 205

Arg Trp Gln Lys Ser Gly Ser Ser Thr His Gln Leu Glu Val His Ile
210 215 220

Glu Ser Lys His Asp Glu Ala Glu Asp Ala Ser Ser Gly Arg Leu Glu
225 230 235 240

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

Ser Asp Asp Gln Ser Ser Asp Lys Glu Arg Lys Glu Glu Leu Asn Glu
260 265 270

Met Ile Ser His Glu Gln Leu Pro Glu Leu Asp Asn Leu Gly Leu Asp
275 280 285

Ser Phe Ser Ser Gly Pro Gly Glu Glu Ala Leu Leu Gln Met Arg Ser
290 295 300

Asn Ile Ile Tyr Asp Ser Thr Ala Arg Ile Arg Arg Asn Ala Lys Gly
305 310 315 320

Asn Tyr Cys Lys Arg Thr Pro Leu Tyr Ile Asp Phe Lys Glu Ile Gly
325 330 335

```
Trp Asp Ser Trp Ile Ile Ala Pro Pro Gly Tyr Glu Ala Tyr Glu Cys
            340                 345                 350

Arg Gly Val Cys Asn Tyr Pro Leu Ala Glu His Leu Thr Pro Thr Lys
        355                 360                 365

His Ala Ile Ile Gln Ala Leu Val His Leu Lys Asn Ser Gln Lys Ala
    370                 375                 380

Ser Lys Ala Cys Cys Val Pro Thr Lys Leu Glu Pro Ile Ser Ile Leu
385                 390                 395                 400

Tyr Leu Asp Lys Gly Val Val Thr Tyr Lys Phe Lys Tyr Glu Gly Met
                405                 410                 415

Ala Val Ser Glu Cys Gly Cys Arg
            420


<210> 9310
<211> 392
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1892; "

<220>
<221> source
<223> /note="Gene Symbol: BMP15; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 15; "

<220>
<221> source
<223> /note="Uniprot ID:  O95972; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000252677"

<400> 9310
Met Val Leu Leu Ser Ile Leu Arg Ile Leu Phe Leu Cys Glu Leu Val
1               5                   10                  15
```

```
Leu Phe Met Glu His Arg Ala Gln Met Ala Glu Gly Gly Gln Ser Ser
            20                  25                  30

Ile Ala Leu Leu Ala Glu Ala Pro Thr Leu Pro Leu Ile Glu Glu Leu
        35                  40                  45

Leu Glu Glu Ser Pro Gly Glu Gln Pro Arg Lys Pro Arg Leu Leu Gly
    50                  55                  60

His Ser Leu Arg Tyr Met Leu Glu Leu Tyr Arg Arg Ser Ala Asp Ser
65                  70                  75                  80

His Gly His Pro Arg Glu Asn Arg Thr Ile Gly Ala Thr Met Val Arg
                85                  90                  95

Leu Val Lys Pro Leu Thr Asn Val Ala Arg Pro His Arg Gly Thr Trp
            100                 105                 110

His Ile Gln Ile Leu Gly Phe Pro Leu Arg Pro Asn Arg Gly Leu Tyr
        115                 120                 125

Gln Leu Val Arg Ala Thr Val Val Tyr Arg His His Leu Gln Leu Thr
    130                 135                 140

Arg Phe Asn Leu Ser Cys His Val Glu Pro Trp Val Gln Lys Asn Pro
145                 150                 155                 160

Thr Asn His Phe Pro Ser Ser Glu Gly Asp Ser Ser Lys Pro Ser Leu
                165                 170                 175

Met Ser Asn Ala Trp Lys Glu Met Asp Ile Thr Gln Leu Val Gln Gln
            180                 185                 190

Arg Phe Trp Asn Asn Lys Gly His Arg Ile Leu Arg Leu Arg Phe Met
        195                 200                 205

Cys Gln Gln Gln Lys Asp Ser Gly Gly Leu Glu Leu Trp His Gly Thr
    210                 215                 220

Ser Ser Leu Asp Ile Ala Phe Leu Leu Leu Tyr Phe Asn Asp Thr His
225                 230                 235                 240

Lys Ser Ile Arg Lys Ala Lys Phe Leu Pro Arg Gly Met Glu Glu Phe
```

```
                245                 250                 255

Met Glu Arg Glu Ser Leu Leu Arg Arg Thr Arg Gln Ala Asp Gly Ile
            260                 265                 270

Ser Ala Glu Val Thr Ala Ser Ser Ser Lys His Ser Gly Pro Glu Asn
        275                 280                 285

Asn Gln Cys Ser Leu His Pro Phe Gln Ile Ser Phe Arg Gln Leu Gly
    290                 295                 300

Trp Asp His Trp Ile Ile Ala Pro Pro Phe Tyr Thr Pro Asn Tyr Cys
305                 310                 315                 320

Lys Gly Thr Cys Leu Arg Val Leu Arg Asp Gly Leu Asn Ser Pro Asn
                325                 330                 335

His Ala Ile Ile Gln Asn Leu Ile Asn Gln Leu Val Asp Gln Ser Val
            340                 345                 350

Pro Arg Pro Ser Cys Val Pro Tyr Lys Tyr Val Pro Ile Ser Val Leu
        355                 360                 365

Met Ile Glu Ala Asn Gly Ser Ile Leu Tyr Lys Glu Tyr Glu Gly Met
    370                 375                 380

Ile Ala Glu Ser Cys Thr Cys Arg
385                 390


<210> 9311
<211> 396
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1893; "

<220>
<221> source
<223> /note="Gene Symbol: BMP2; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 2; "
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<220>
<221> source
<223> /note="Uniprot ID: P12643; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368104"

<400> 9311
Met Val Ala Gly Thr Arg Cys Leu Leu Ala Leu Leu Leu Pro Gln Val
1   5   10   15

Leu Leu Gly Gly Ala Ala Gly Leu Val Pro Glu Leu Gly Arg Arg Lys
            20   25   30

Phe Ala Ala Ala Ser Ser Gly Arg Pro Ser Ser Gln Pro Ser Asp Glu
        35   40   45

Val Leu Ser Glu Phe Glu Leu Arg Leu Leu Ser Met Phe Gly Leu Lys
    50   55   60

Gln Arg Pro Thr Pro Ser Arg Asp Ala Val Val Pro Pro Tyr Met Leu
65   70   75   80

Asp Leu Tyr Arg Arg His Ser Gly Gln Pro Gly Ser Pro Ala Pro Asp
                85   90   95

His Arg Leu Glu Arg Ala Ala Ser Arg Ala Asn Thr Val Arg Ser Phe
            100   105   110

His His Glu Glu Ser Leu Glu Glu Leu Pro Glu Thr Ser Gly Lys Thr
        115   120   125

Thr Arg Arg Phe Phe Phe Asn Leu Ser Ser Ile Pro Thr Glu Glu Phe
    130   135   140

Ile Thr Ser Ala Glu Leu Gln Val Phe Arg Glu Gln Met Gln Asp Ala
145   150   155   160

Leu Gly Asn Asn Ser Ser Phe His His Arg Ile Asn Ile Tyr Glu Ile
                165   170   175

Ile Lys Pro Ala Thr Ala Asn Ser Lys Phe Pro Val Thr Arg Leu Leu
            180   185   190

```
Asp Thr Arg Leu Val Asn Gln Asn Ala Ser Arg Trp Glu Ser Phe Asp
        195                 200                 205

Val Thr Pro Ala Val Met Arg Trp Thr Ala Gln Gly His Ala Asn His
    210                 215                 220

Gly Phe Val Val Glu Val Ala His Leu Glu Glu Lys Gln Gly Val Ser
225                 230                 235                 240

Lys Arg His Val Arg Ile Ser Arg Ser Leu His Gln Asp Glu His Ser
                245                 250                 255

Trp Ser Gln Ile Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly Lys
            260                 265                 270

Gly His Pro Leu His Lys Arg Glu Lys Arg Gln Ala Lys His Lys Gln
        275                 280                 285

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

Phe Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr
305                 310                 315                 320

His Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro Leu Ala Asp His
                325                 330                 335

Leu Asn Ser Thr Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val
            340                 345                 350

Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala
        355                 360                 365

Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val Val Leu Lys Asn
    370                 375                 380

Tyr Gln Asp Met Val Val Glu Gly Cys Gly Cys Arg
385                 390                 395
```

<210> 9312
<211> 472
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1894; "

<220>
<221> source
<223> /note="Gene Symbol: BMP3; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 3; "

<220>
<221> source
<223> /note="Uniprot ID: P12645; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000282701"

<400> 9312

```
Met Ala Gly Ala Ser Arg Leu Leu Phe Leu Trp Leu Gly Cys Phe Cys
1               5                  10                  15

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

Arg Lys Ala Val Pro Gly Asp Arg Thr Ala Gly Gly Gly Pro Asp Ser
        35                  40                  45

Glu Leu Gln Pro Gln Asp Lys Val Ser Glu His Met Leu Arg Leu Tyr
    50                  55                  60

Asp Arg Tyr Ser Thr Val Gln Ala Ala Arg Thr Pro Gly Ser Leu Glu
65                  70                  75                  80

Gly Gly Ser Gln Pro Trp Arg Pro Arg Leu Leu Arg Glu Gly Asn Thr
                85                  90                  95

Val Arg Ser Phe Arg Ala Ala Ala Ala Glu Thr Leu Glu Arg Lys Gly
            100                 105                 110

Leu Tyr Ile Phe Asn Leu Thr Ser Leu Thr Lys Ser Glu Asn Ile Leu
        115                 120                 125

Ser Ala Thr Leu Tyr Phe Cys Ile Gly Glu Leu Gly Asn Ile Ser Leu
    130                 135                 140
```

Ser Cys Pro Val Ser Gly Gly Cys Ser His His Ala Gln Arg Lys His
145 150 155 160

Ile Gln Ile Asp Leu Ser Ala Trp Thr Leu Lys Phe Ser Arg Asn Gln
165 170 175

Ser Gln Leu Leu Gly His Leu Ser Val Asp Met Ala Lys Ser His Arg
180 185 190

Asp Ile Met Ser Trp Leu Ser Lys Asp Ile Thr Gln Leu Leu Arg Lys
195 200 205

Ala Lys Glu Asn Glu Glu Phe Leu Ile Gly Phe Asn Ile Thr Ser Lys
210 215 220

Gly Arg Gln Leu Pro Lys Arg Arg Leu Pro Phe Pro Glu Pro Tyr Ile
225 230 235 240

Leu Val Tyr Ala Asn Asp Ala Ala Ile Ser Glu Pro Glu Ser Val Val
245 250 255

Ser Ser Leu Gln Gly His Arg Asn Phe Pro Thr Gly Thr Val Pro Lys
260 265 270

Trp Asp Ser His Ile Arg Ala Ala Leu Ser Ile Glu Arg Arg Lys Lys
275 280 285

Arg Ser Thr Gly Val Leu Leu Pro Leu Gln Asn Asn Glu Leu Pro Gly
290 295 300

Ala Glu Tyr Gln Tyr Lys Lys Asp Glu Val Trp Glu Glu Arg Lys Pro
305 310 315 320

Tyr Lys Thr Leu Gln Ala Gln Ala Pro Glu Lys Ser Lys Asn Lys Lys
325 330 335

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

Glu Gln Thr Leu Lys Lys Ala Arg Arg Lys Gln Trp Ile Glu Pro Arg
355 360 365

```
Asn Cys Ala Arg Arg Tyr Leu Lys Val Asp Phe Ala Asp Ile Gly Trp
    370                 375                 380

Ser Glu Trp Ile Ile Ser Pro Lys Ser Phe Asp Ala Tyr Tyr Cys Ser
385                 390                 395                 400

Gly Ala Cys Gln Phe Pro Met Pro Lys Ser Leu Lys Pro Ser Asn His
                405                 410                 415

Ala Thr Ile Gln Ser Ile Val Arg Ala Val Gly Val Val Pro Gly Ile
            420                 425                 430

Pro Glu Pro Cys Cys Val Pro Glu Lys Met Ser Ser Leu Ser Ile Leu
        435                 440                 445

Phe Phe Asp Glu Asn Lys Asn Val Val Leu Lys Val Tyr Pro Asn Met
    450                 455                 460

Thr Val Glu Ser Cys Ala Cys Arg
465                 470


<210> 9313
<211> 408
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1895; "

<220>
<221> source
<223> /note="Gene Symbol: BMP4; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 4; "

<220>
<221> source
<223> /note="Uniprot ID:  P12644; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000245451"

<400> 9313
Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln Val
1               5                   10                  15
```

```
Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly Lys
            20                  25                  30

Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser Gly
        35                  40                  45

Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln Met
    50                  55                  60

Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile Pro
65                  70                  75                  80

Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu Glu
                85                  90                  95

Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala Ser
            100                 105                 110

Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu Asn
        115                 120                 125

Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn Leu
    130                 135                 140

Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser Ala Glu Leu Arg Leu
145                 150                 155                 160

Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe His
                165                 170                 175

Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val Pro
            180                 185                 190

Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His Asn
        195                 200                 205

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

Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr His
225                 230                 235                 240
```

```
Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser Arg
                245                 250                 255

Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu Leu
            260                 265                 270

Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg Arg
        275                 280                 285

Arg Ala Lys Arg Ser Pro Lys His His Ser Gln Arg Ala Arg Lys Lys
    290                 295                 300

Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val
305                 310                 315                 320

Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr
                325                 330                 335

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

Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile
        355                 360                 365

Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu
    370                 375                 380

Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met
385                 390                 395                 400

Val Val Glu Gly Cys Gly Cys Arg
                405


<210> 9314
<211> 408
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1895; "

<220>
<221> source
<223> /note="Gene Symbol: BMP4; "
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<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 4; "

<220>
<221> source
<223> /note="Uniprot ID: P12644; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394165"

<400> 9314

```
Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln Val
1               5                  10                  15

Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly Lys
            20                  25                  30

Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser Gly
        35                  40                  45

Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln Met
    50                  55                  60

Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile Pro
65                  70                  75                  80

Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu Glu
                85                  90                  95

Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala Ser
            100                 105                 110

Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu Asn
        115                 120                 125

Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn Leu
    130                 135                 140

Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser Ala Glu Leu Arg Leu
145                 150                 155                 160

Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe His
                165                 170                 175
```

```
Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val Pro
            180                 185                 190

Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His Asn
        195                 200                 205

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

Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr His
225                 230                 235                 240

Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser Arg
                245                 250                 255

Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu Leu
            260                 265                 270

Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg Arg
        275                 280                 285

Arg Ala Lys Arg Ser Pro Lys His His Ser Gln Arg Ala Arg Lys Lys
    290                 295                 300

Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val
305                 310                 315                 320

Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr
                325                 330                 335

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

Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile
        355                 360                 365

Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu
    370                 375                 380

Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met
385                 390                 395                 400
```

Val Val Glu Gly Cys Gly Cys Arg
405

<210> 9315
<211> 271
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1895; "

<220>
<221> source
<223> /note="Gene Symbol: BMP4; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453365"

<400> 9315
Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile
1 5 10 15

Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu
20 25 30

Glu Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala
35 40 45

Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu
50 55 60

Asn Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn
65 70 75 80

Leu Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser Ala Glu Leu Arg
85 90 95

Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe
100 105 110

His Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val

```
        115                 120                 125

Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His
    130                 135                 140

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

Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr
                165                 170                 175

His Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser
            180                 185                 190

Arg Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu
        195                 200                 205

Leu Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg
    210                 215                 220

Arg Arg Ala Lys Arg Ser Pro Lys His His Ser Gln Arg Ala Arg Lys
225                 230                 235                 240

Lys Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp
                245                 250                 255

Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala
            260                 265                 270
```

<210> 9316
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1895; "

<220>
<221> source
<223> /note="Gene Symbol: BMP4; "

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<223> /note="Gene Name:
bone morphogenetic prt 4; "

<220>
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<223> /note="ENSP ID: ENSP00000453467"

<400> 9316
Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln Val
1   5   10   15

Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly Lys
            20   25   30

Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser Gly
        35   40   45

Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln Met
    50   55   60

Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile Pro
65   70   75   80

Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu Glu
                85   90   95

Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro
            100   105   110

<210> 9317
<211> 408
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1895; "

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000453485"

<400> 9317

```
Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln Val
1               5                  10                  15

Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly Lys
            20                  25                  30

Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser Gly
        35                  40                  45

Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln Met
    50                  55                  60

Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile Pro
65                  70                  75                  80

Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu Glu
                85                  90                  95

Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala Ser
            100                 105                 110

Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu Asn
        115                 120                 125

Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn Leu
    130                 135                 140

Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser Ala Glu Leu Arg Leu
145                 150                 155                 160

Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe His
                165                 170                 175

Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val Pro
            180                 185                 190

Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His Asn
        195                 200                 205

Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro Ala Val Leu Arg Trp
    210                 215                 220
```

```
Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr His
225                 230                 235                 240

Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser Arg
                245                 250                 255

Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu Leu
            260                 265                 270

Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg Arg
        275                 280                 285

Arg Ala Lys Arg Ser Pro Lys His His Ser Gln Arg Ala Arg Lys Lys
    290                 295                 300

Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val
305                 310                 315                 320

Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr
                325                 330                 335

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

Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile
        355                 360                 365

Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu
    370                 375                 380

Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met
385                 390                 395                 400

Val Val Glu Gly Cys Gly Cys Arg
                405
```

<210> 9318
<211> 104
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1895; "

<220>
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<223> /note="Gene Symbol: BMP4; "

<220>
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<223> /note="Gene Name:
bone morphogenetic prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453691"

<400> 9318
Leu Ile Pro Glu Thr Gly Lys Lys Lys Val Ala Glu Ile Gln Gly His
1 5 10 15

Ala Gly Gly Arg Arg Ser Gly Gln Ser His Glu Leu Leu Arg Asp Phe
20 25 30

Glu Ala Thr Leu Leu Gln Met Phe Gly Leu Arg Arg Arg Pro Gln Pro
35 40 45

Ser Lys Ser Ala Val Ile Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu
50 55 60

Gln Ser Gly Glu Glu Glu Glu Glu Gln Ile His Ser Thr Gly Leu Glu
65 70 75 80

Tyr Pro Glu Arg Pro Ala Ser Arg Ala Asn Thr Val Arg Ser Phe His
85 90 95

His Glu Ala Ser Leu Arg Thr Arg
100

<210> 9319
<211> 408
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1895; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000454134"

<400> 9319

```
Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln Val
1               5                  10                  15

Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly Lys
            20                  25                  30

Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser Gly
        35                  40                  45

Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln Met
    50                  55                  60

Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile Pro
65                  70                  75                  80

Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu Glu
                85                  90                  95

Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala Ser
            100                 105                 110

Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu Asn
        115                 120                 125

Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn Leu
    130                 135                 140

Ser Ser Ile Pro Glu Asn Glu Val Ile Ser Ser Ala Glu Leu Arg Leu
145                 150                 155                 160

Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe His
                165                 170                 175
```

```
Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val Pro
            180                 185                 190

Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His Asn
        195                 200                 205

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

Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr His
225                 230                 235                 240

Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser Arg
                245                 250                 255

Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu Leu
            260                 265                 270

Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg Arg
        275                 280                 285

Arg Ala Lys Arg Ser Pro Lys His His Ser Gln Arg Ala Arg Lys Lys
    290                 295                 300

Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val
305                 310                 315                 320

Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr
                325                 330                 335

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

Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser Ile
        355                 360                 365

Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu
    370                 375                 380

Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met
385                 390                 395                 400
```

Val Val Glu Gly Cys Gly Cys Arg
405

<210> 9320
<211> 29
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1895; "

<220>
<221> source
<223> /note="Gene Symbol: BMP4; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476690"

<400> 9320
Asn Thr Val Arg Ser Phe His His Glu Gly Gln Ser Leu Pro Pro Val
1 5 10 15

Cys Val Gly Glu Gly Trp Trp Asp Trp Leu Glu Gly Gln
20 25

<210> 9321
<211> 454
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1896; "

<220>
<221> source
<223> /note="Gene Symbol: BMP5; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 5; "

<220>
<221> source
<223> /note="Uniprot ID: P22003; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359866"

<400> 9321
Met His Leu Thr Val Phe Leu Leu Lys Gly Ile Val Gly Phe Leu Trp
1   5   10   15

Ser Cys Trp Val Leu Val Gly Tyr Ala Lys Gly Gly Leu Gly Asp Asn
            20   25   30

His Val His Ser Ser Phe Ile Tyr Arg Arg Leu Arg Asn His Glu Arg
        35   40   45

Arg Glu Ile Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu Pro His Arg
    50   55   60

Pro Arg Pro Phe Ser Pro Gly Lys Gln Ala Ser Ser Ala Pro Leu Phe
65   70   75   80

Met Leu Asp Leu Tyr Asn Ala Met Thr Asn Glu Glu Asn Pro Glu Glu
                85   90   95

Ser Glu Tyr Ser Val Arg Ala Ser Leu Ala Glu Glu Thr Arg Gly Ala
            100   105   110

Arg Lys Gly Tyr Pro Ala Ser Pro Asn Gly Tyr Pro Arg Arg Ile Gln
        115   120   125

Leu Ser Arg Thr Thr Pro Leu Thr Thr Gln Ser Pro Pro Leu Ala Ser
    130   135   140

Leu His Asp Thr Asn Phe Leu Asn Asp Ala Asp Met Val Met Ser Phe
145   150   155   160

Val Asn Leu Val Glu Arg Asp Lys Asp Phe Ser His Gln Arg Arg His
                165   170   175

Tyr Lys Glu Phe Arg Phe Asp Leu Thr Gln Ile Pro His Gly Glu Ala
            180   185   190

Val Thr Ala Ala Glu Phe Arg Ile Tyr Lys Asp Arg Ser Asn Asn Arg
        195   200   205

```
Phe Glu Asn Glu Thr Ile Lys Ile Ser Ile Tyr Gln Ile Ile Lys Glu
    210                 215                 220

Tyr Thr Asn Arg Asp Ala Asp Leu Phe Leu Leu Asp Thr Arg Lys Ala
225                 230                 235                 240

Gln Ala Leu Asp Val Gly Trp Leu Val Phe Asp Ile Thr Val Thr Ser
                245                 250                 255

Asn His Trp Val Ile Asn Pro Gln Asn Asn Leu Gly Leu Gln Leu Cys
            260                 265                 270

Ala Glu Thr Gly Asp Gly Arg Ser Ile Asn Val Lys Ser Ala Gly Leu
        275                 280                 285

Val Gly Arg Gln Gly Pro Gln Ser Lys Gln Pro Phe Met Val Ala Phe
    290                 295                 300

Phe Lys Ala Ser Glu Val Leu Leu Arg Ser Val Arg Ala Ala Asn Lys
305                 310                 315                 320

Arg Lys Asn Gln Asn Arg Asn Lys Ser Ser Ser His Gln Asp Ser Ser
                325                 330                 335

Arg Met Ser Ser Val Gly Asp Tyr Asn Thr Ser Glu Gln Lys Gln Ala
            340                 345                 350

Cys Lys Lys His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln
        355                 360                 365

Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ala Ala Phe Tyr Cys Asp Gly
    370                 375                 380

Glu Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His Ala
385                 390                 395                 400

Ile Val Gln Thr Leu Val His Leu Met Phe Pro Asp His Val Pro Lys
                405                 410                 415

Pro Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe
            420                 425                 430

Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val
```

```
        435                 440                 445

Arg Ser Cys Gly Cys His
    450


<210> 9322
<211> 513
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1897; "

<220>
<221> source
<223> /note="Gene Symbol: BMP6; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 6; "

<220>
<221> source
<223> /note="Uniprot ID:  P22004; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000283147"

<400> 9322
Met Pro Gly Leu Gly Arg Arg Ala Gln Trp Leu Cys Trp Trp Trp Gly
1               5                  10                  15


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


Ala Ala Ala Ala Ala Ala Ala Gly Gly Gln Leu Leu Gly Asp Gly Gly
        35                  40                  45


Ser Pro Gly Arg Thr Glu Gln Pro Pro Pro Ser Pro Gln Ser Ser Ser
    50                  55                  60


Gly Phe Leu Tyr Arg Arg Leu Lys Thr Gln Glu Lys Arg Glu Met Gln
65                  70                  75                  80


Lys Glu Ile Leu Ser Val Leu Gly Leu Pro His Arg Pro Arg Pro Leu
                85                  90                  95
```

```
His Gly Leu Gln Gln Pro Gln Pro Pro Ala Leu Arg Gln Gln Glu Glu
            100                 105                 110

Gln Gln Gln Gln Gln Gln Leu Pro Arg Gly Glu Pro Pro Pro Gly Arg
        115                 120                 125

Leu Lys Ser Ala Pro Leu Phe Met Leu Asp Leu Tyr Asn Ala Leu Ser
    130                 135                 140

Ala Asp Asn Asp Glu Asp Gly Ala Ser Glu Gly Glu Arg Gln Gln Ser
145                 150                 155                 160

Trp Pro His Glu Ala Ala Ser Ser Ser Gln Arg Arg Gln Pro Pro Pro
                165                 170                 175

Gly Ala Ala His Pro Leu Asn Arg Lys Ser Leu Leu Ala Pro Gly Ser
            180                 185                 190

Gly Ser Gly Gly Ala Ser Pro Leu Thr Ser Ala Gln Asp Ser Ala Phe
        195                 200                 205

Leu Asn Asp Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu Tyr
    210                 215                 220

Asp Lys Glu Phe Ser Pro Arg Gln Arg His His Lys Glu Phe Lys Phe
225                 230                 235                 240

Asn Leu Ser Gln Ile Pro Glu Gly Glu Val Val Thr Ala Ala Glu Phe
                245                 250                 255

Arg Ile Tyr Lys Asp Cys Val Met Gly Ser Phe Lys Asn Gln Thr Phe
            260                 265                 270

Leu Ile Ser Ile Tyr Gln Val Leu Gln Glu His Gln His Arg Asp Ser
        275                 280                 285

Asp Leu Phe Leu Leu Asp Thr Arg Val Val Trp Ala Ser Glu Glu Gly
    290                 295                 300

Trp Leu Glu Phe Asp Ile Thr Ala Thr Ser Asn Leu Trp Val Val Thr
305                 310                 315                 320
```

```
Pro Gln His Asn Met Gly Leu Gln Leu Ser Val Val Thr Arg Asp Gly
                325                 330                 335

Val His Val His Pro Arg Ala Ala Gly Leu Val Gly Arg Asp Gly Pro
            340                 345                 350

Tyr Asp Lys Gln Pro Phe Met Val Ala Phe Phe Lys Val Ser Glu Val
        355                 360                 365

His Val Arg Thr Thr Arg Ser Ala Ser Ser Arg Arg Arg Gln Gln Ser
    370                 375                 380

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

Ser Asp Tyr Asn Ser Ser Glu Leu Lys Thr Ala Cys Arg Lys His Glu
                405                 410                 415

Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
            420                 425                 430

Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys Ser Phe Pro
        435                 440                 445

Leu Asn Ala His Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu
    450                 455                 460

Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys Ala Pro
465                 470                 475                 480

Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn Ser Asn
                485                 490                 495

Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys
            500                 505                 510

His
```

<210> 9323
<211> 431
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1898; "

<220>
<221> source
<223> /note="Gene Symbol: BMP7; "

<220>
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<223> /note="Gene Name:
bone morphogenetic prt 7; "

<220>
<221> source
<223> /note="Uniprot ID: P18075; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379204"

<400> 9323

```
Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
1               5                   10                  15

Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
            20                  25                  30

Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
        35                  40                  45

Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
    50                  55                  60

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65                  70                  75                  80

Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Gly Gly
                85                  90                  95

Gly Pro Gly Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser
            100                 105                 110

Thr Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr
        115                 120                 125

Asp Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys
    130                 135                 140
```

```
Glu Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu
145                 150                 155                 160

Ser Lys Ile Pro Glu Gly Glu Ala Val Thr Ala Ala Glu Phe Arg Ile
                165                 170                 175

Tyr Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Arg Ile
            180                 185                 190

Ser Val Tyr Gln Val Leu Gln Glu His Leu Gly Arg Glu Ser Asp Leu
        195                 200                 205

Phe Leu Leu Asp Ser Arg Thr Leu Trp Ala Ser Glu Glu Gly Trp Leu
    210                 215                 220

Val Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg
225                 230                 235                 240

His Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser
                245                 250                 255

Ile Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn
            260                 265                 270

Lys Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Phe
        275                 280                 285

Arg Ser Ile Arg Ser Thr Gly Ser Lys Gln Arg Ser Gln Asn Arg Ser
    290                 295                 300

Lys Thr Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Asn Val Ala Glu
305                 310                 315                 320

Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys His Glu Leu Tyr
                325                 330                 335

Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala Pro Glu
            340                 345                 350

Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro Leu Asn
        355                 360                 365
```

```
Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu Val His
    370                 375                 380

Phe Ile Asn Pro Glu Thr Val Pro Lys Pro Cys Cys Ala Pro Thr Gln
385                 390                 395                 400

Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn Val Ile
                405                 410                 415

Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys His
            420                 425                 430
```

<210> 9324
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1898; "

<220>
<221> source
<223> /note="Gene Symbol: BMP7; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379205"

<400> 9324

```
Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
1               5                   10                  15

Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
            20                  25                  30

Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
        35                  40                  45

Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
    50                  55                  60

Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65                  70                  75                  80
```

```
Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Gly Gly
                85                  90                  95

Gly Pro Gly Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser
            100                 105                 110

Thr Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr
        115                 120                 125

Asp Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys
    130                 135                 140

Glu Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu
145                 150                 155                 160

Ser Lys Ile Pro Glu Gly Glu Ala Val Thr Ala Ala Glu Phe Arg Ile
                165                 170                 175

Tyr Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Arg Ile
            180                 185                 190

Ser Val Tyr Gln Val Leu Gln Glu His Leu Gly Arg Glu Ser Asp Leu
        195                 200                 205

Phe Leu Leu Asp Ser Arg Thr Leu Trp Ala Ser Glu Glu Gly Trp Leu
    210                 215                 220

Val Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg
225                 230                 235                 240

His Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Glu Asn Ser
                245                 250                 255

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

Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala Pro Glu Gly Tyr
        275                 280                 285

Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro Leu Asn Ser Tyr
    290                 295                 300
```

```
Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu Val His Phe Ile
305                 310                 315                 320


Asn Pro Glu Thr Val Pro Lys Pro Cys Cys Ala Pro Thr Gln Leu Asn
                325                 330                 335


Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn Val Ile Leu Lys
            340                 345                 350


Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys His
        355                 360                 365


<210> 9325
<211> 297
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1898; "

<220>
<221> source
<223> /note="Gene Symbol: BMP7; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390814"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9325
Xaa Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr Asp Ala
1               5                   10                  15


Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys Glu Phe
            20                  25                  30


Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu Ser Lys
        35                  40                  45
```

```
Ile Pro Glu Gly Glu Ala Val Thr Ala Ala Glu Phe Arg Ile Tyr Lys
    50                  55                  60

Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Arg Ile Ser Val
65                  70                  75                  80

Tyr Gln Val Leu Gln Glu His Leu Gly Ser Thr Gly Thr Cys Cys Met
                85                  90                  95

Pro Cys Leu Arg Ala Ser Thr Arg Thr Asn Gln Thr Arg Val Pro Ala
            100                 105                 110

Leu Trp Lys Leu Thr Phe Gln Gln Arg Arg Gly His Gly Arg Glu Ser
        115                 120                 125

Asp Leu Phe Leu Leu Asp Ser Arg Thr Leu Trp Ala Ser Glu Glu Gly
    130                 135                 140

Trp Leu Val Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn
145                 150                 155                 160

Pro Arg His Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly
                165                 170                 175

Gln Ser Ile Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro
            180                 185                 190

Gln Asn Lys Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val
        195                 200                 205

His Phe Arg Ser Ile Arg Ser Thr Gly Ser Lys Gln Arg Ser Gln Asn
    210                 215                 220

Arg Ser Lys Thr Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Asn Val
225                 230                 235                 240

Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys His Glu
                245                 250                 255

Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
            260                 265                 270
```

```
Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro
        275                 280                 285


Leu Asn Ser Tyr Met Asn Ala Thr Asn
    290                 295


<210> 9326
<211> 412
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1898; "

<220>
<221> source
<223> /note="Gene Symbol: BMP7; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398687"

<400> 9326
Met His Val Arg Ser Leu Arg Ala Ala Ala Pro His Ser Phe Val Ala
1               5                   10                  15


Leu Trp Ala Pro Leu Phe Leu Leu Arg Ser Ala Leu Ala Asp Phe Ser
            20                  25                  30


Leu Asp Asn Glu Val His Ser Ser Phe Ile His Arg Arg Leu Arg Ser
        35                  40                  45


Gln Glu Arg Arg Glu Met Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu
    50                  55                  60


Pro His Arg Pro Arg Pro His Leu Gln Gly Lys His Asn Ser Ala Pro
65                  70                  75                  80


Met Phe Met Leu Asp Leu Tyr Asn Ala Met Ala Val Glu Glu Gly Gly
                85                  90                  95


Gly Pro Gly Gly Gln Gly Phe Ser Tyr Pro Tyr Lys Ala Val Phe Ser
            100                 105                 110
```

```
Thr Gln Gly Pro Pro Leu Ala Ser Leu Gln Asp Ser His Phe Leu Thr
        115                 120                 125

Asp Ala Asp Met Val Met Ser Phe Val Asn Leu Val Glu His Asp Lys
    130                 135                 140

Glu Phe Phe His Pro Arg Tyr His His Arg Glu Phe Arg Phe Asp Leu
145                 150                 155                 160

Ser Lys Ile Pro Glu Gly Glu Ala Val Thr Ala Ala Glu Phe Arg Ile
                165                 170                 175

Tyr Lys Asp Tyr Ile Arg Glu Arg Phe Asp Asn Glu Thr Phe Arg Ile
            180                 185                 190

Ser Val Tyr Gln Val Leu Gln Glu His Leu Gly Arg Glu Ser Asp Leu
        195                 200                 205

Phe Leu Leu Asp Ser Arg Thr Leu Trp Ala Ser Glu Glu Gly Trp Leu
    210                 215                 220

Val Phe Asp Ile Thr Ala Thr Ser Asn His Trp Val Val Asn Pro Arg
225                 230                 235                 240

His Asn Leu Gly Leu Gln Leu Ser Val Glu Thr Leu Asp Gly Gln Ser
                245                 250                 255

Ile Asn Pro Lys Leu Ala Gly Leu Ile Gly Arg His Gly Pro Gln Asn
            260                 265                 270

Lys Gln Pro Phe Met Val Ala Phe Phe Lys Ala Thr Glu Val His Phe
        275                 280                 285

Arg Ser Ile Arg Ser Thr Gly Ser Lys Gln Arg Ser Gln Asn Arg Ser
    290                 295                 300

Lys Thr Pro Lys Asn Gln Glu Ala Leu Arg Met Ala Asn Val Ala Glu
305                 310                 315                 320

Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys Lys Lys His Glu Leu Tyr
                325                 330                 335
```

```
Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala Pro Glu
            340                 345                 350

Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro Leu Asn
        355                 360                 365

Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu Val Gly
    370                 375                 380

Val Thr Pro Ser Trp Gly Val Val Thr Trp Ala Gly Gln Ala Ala Gly
385                 390                 395                 400

Pro Pro Asp Pro Ala Ala Ser Lys Leu Gly Pro Glu
                405                 410


<210> 9327
<211> 402
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1899; "

<220>
<221> source
<223> /note="Gene Symbol: BMP8A; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt 8a; "

<220>
<221> source
<223> /note="Uniprot ID:  Q7Z5Y6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000327440"

<400> 9327
Met Ala Ala Arg Pro Gly Pro Leu Trp Leu Leu Gly Leu Thr Leu Cys
1               5                   10                  15

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

Gln Arg Arg Leu Gly Ala Arg Glu Arg Arg Asp Val Gln Arg Glu Ile
```

```
        35                  40                  45

Leu Ala Val Leu Gly Leu Pro Gly Arg Pro Arg Pro Arg Ala Pro Pro
    50                  55                  60

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

Tyr His Ala Met Ala Gly Asp Asp Asp Glu Asp Gly Ala Pro Ala Glu
                85                  90                  95

Gln Arg Leu Gly Arg Ala Asp Leu Val Met Ser Phe Val Asn Met Val
            100                 105                 110

Glu Arg Asp Arg Ala Leu Gly His Gln Glu Pro His Trp Lys Glu Phe
        115                 120                 125

Arg Phe Asp Leu Thr Gln Ile Pro Ala Gly Glu Ala Val Thr Ala Ala
    130                 135                 140

Glu Phe Arg Ile Tyr Lys Val Pro Ser Ile His Leu Leu Asn Arg Thr
145                 150                 155                 160

Leu His Val Ser Met Phe Gln Val Val Gln Glu Gln Ser Asn Arg Glu
                165                 170                 175

Ser Asp Leu Phe Phe Leu Asp Leu Gln Thr Leu Arg Ala Gly Asp Glu
            180                 185                 190

Gly Trp Leu Val Leu Asp Val Thr Ala Ala Ser Asp Cys Trp Leu Leu
        195                 200                 205

Lys Arg His Lys Asp Leu Gly Leu Arg Leu Tyr Val Glu Thr Glu Asp
    210                 215                 220

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

Pro Arg Ser Gln Gln Pro Phe Val Val Thr Phe Phe Arg Ala Ser Pro
                245                 250                 255

Ser Pro Ile Arg Thr Pro Arg Ala Val Arg Pro Leu Arg Arg Arg Gln
            260                 265                 270
```

```
Pro Lys Lys Ser Asn Glu Leu Pro Gln Ala Asn Arg Leu Pro Gly Ile
        275                 280                 285

Phe Asp Asp Val Arg Gly Ser His Gly Arg Gln Val Cys Arg Arg His
    290                 295                 300

Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Leu Asp Trp Val Ile
305                 310                 315                 320

Ala Pro Gln Gly Tyr Ser Ala Tyr Tyr Cys Glu Gly Glu Cys Ser Phe
                325                 330                 335

Pro Leu Asp Ser Cys Met Asn Ala Thr Asn His Ala Ile Leu Gln Ser
            340                 345                 350

Leu Val His Leu Met Lys Pro Asn Ala Val Pro Lys Ala Cys Cys Ala
        355                 360                 365

Pro Thr Lys Leu Ser Ala Thr Ser Val Leu Tyr Tyr Asp Ser Ser Asn
    370                 375                 380

Asn Val Ile Leu Arg Lys His Arg Asn Met Val Val Lys Ala Cys Gly
385                 390                 395                 400

Cys His
```

<210> 9328
<211> 402
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1900; "

<220>
<221> source
<223> /note="Gene Symbol: BMP8B; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 8b; "

<220>

<221> source
<223> /note="Uniprot ID: P34820; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361915"

<400> 9328

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

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

Gln Arg Arg Leu Gly Ala Arg Glu Arg Arg Asp Val Gln Arg Glu Ile
        35                  40                  45

Leu Ala Val Leu Gly Leu Pro Gly Arg Pro Arg Pro Arg Ala Pro Pro
    50                  55                  60

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

Tyr His Ala Met Ala Gly Asp Asp Asp Glu Asp Gly Ala Pro Ala Glu
                85                  90                  95

Arg Arg Leu Gly Arg Ala Asp Leu Val Met Ser Phe Val Asn Met Val
            100                 105                 110

Glu Arg Asp Arg Ala Leu Gly His Gln Glu Pro His Trp Lys Glu Phe
        115                 120                 125

Arg Phe Asp Leu Thr Gln Ile Pro Ala Gly Glu Ala Val Thr Ala Ala
    130                 135                 140

Glu Phe Arg Ile Tyr Lys Val Pro Ser Ile His Leu Leu Asn Arg Thr
145                 150                 155                 160

Leu His Val Ser Met Phe Gln Val Val Gln Glu Gln Ser Asn Arg Glu
                165                 170                 175

Ser Asp Leu Phe Phe Leu Asp Leu Gln Thr Leu Arg Ala Gly Asp Glu
            180                 185                 190

Gly Trp Leu Val Leu Asp Val Thr Ala Ala Ser Asp Cys Trp Leu Leu
```

```
        195                 200                 205

Lys Arg His Lys Asp Leu Gly Leu Arg Leu Tyr Val Glu Thr Glu Asp
    210                 215                 220

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

Pro Arg Ser Gln Gln Pro Phe Val Val Thr Phe Phe Arg Ala Ser Pro
                245                 250                 255

Ser Pro Ile Arg Thr Pro Arg Ala Val Arg Pro Leu Arg Arg Arg Gln
            260                 265                 270

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

Phe Asp Asp Val His Gly Ser His Gly Arg Gln Val Cys Arg Arg His
    290                 295                 300

Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Leu Asp Trp Val Ile
305                 310                 315                 320

Ala Pro Gln Gly Tyr Ser Ala Tyr Tyr Cys Glu Gly Glu Cys Ser Phe
                325                 330                 335

Pro Leu Asp Ser Cys Met Asn Ala Thr Asn His Ala Ile Leu Gln Ser
            340                 345                 350

Leu Val His Leu Met Met Pro Asp Ala Val Pro Lys Ala Cys Cys Ala
        355                 360                 365

Pro Thr Lys Leu Ser Ala Thr Ser Val Leu Tyr Tyr Asp Ser Ser Asn
    370                 375                 380

Asn Val Ile Leu Arg Lys His Arg Asn Met Val Val Lys Ala Cys Gly
385                 390                 395                 400

Cys His
```

<210> 9329
<211> 349

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1900; "

<220>
<221> source
<223> /note="Gene Symbol: BMP8B; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt 8b; "

<220>
<221> source
<223> /note="Uniprot ID: P34820; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380518"

<400> 9329

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


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


Gln Arg Arg Leu Gly Ala Arg Glu Arg Arg Asp Val Gln Arg Glu Ile
        35                  40                  45


Leu Ala Val Leu Gly Leu Pro Gly Arg Pro Arg Pro Arg Ala Pro Pro
    50                  55                  60


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


Tyr His Ala Met Ala Gly Asp Asp Asp Glu Asp Gly Ala Pro Ala Glu
                85                  90                  95


Arg Arg Leu Gly Arg Ala Asp Leu Val Met Ser Phe Val Asn Met Val
            100                 105                 110


Glu Arg Asp Arg Ala Leu Gly His Gln Glu Pro His Trp Lys Glu Phe
        115                 120                 125
```

```
Arg Phe Asp Leu Thr Gln Ile Pro Ala Gly Glu Ala Val Thr Ala Ala
    130                 135                 140

Glu Phe Arg Ile Tyr Lys Val Pro Ser Ile His Leu Leu Asn Arg Thr
145                 150                 155                 160

Leu His Val Ser Met Phe Gln Val Val Gln Glu Gln Ser Asn Arg Glu
                165                 170                 175

Ser Asp Leu Phe Phe Leu Asp Leu Gln Thr Leu Arg Ala Gly Asp Glu
            180                 185                 190

Gly Trp Leu Val Leu Asp Val Thr Ala Ala Ser Asp Cys Trp Leu Leu
        195                 200                 205

Lys Arg His Lys Asp Leu Gly Leu Arg Leu Tyr Val Glu Thr Glu Asp
    210                 215                 220

Gly Glu Thr Trp Thr Gly Trp Gly Trp Thr Lys Asp Ser Arg Leu Gln
225                 230                 235                 240

Met Trp Lys Leu Arg Leu Ser Arg Thr Pro Trp Val Leu Ser Leu His
                245                 250                 255

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

Leu Gln Gly His Cys Pro Ala Ser Pro Ser Pro Ile Arg Thr Pro Arg
        275                 280                 285

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

Pro Gln Ala Asn Arg Leu Pro Gly Ile Phe Asp Asp Val His Gly Ser
305                 310                 315                 320

His Gly Arg Gln Val Cys Arg Arg His Glu Leu Tyr Val Ser Phe Gln
                325                 330                 335

Asp Leu Gly Trp Leu Val Ile Ala Asp Ser Ser Cys Phe
            340                 345
```

<210> 9330

<211> 532
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1901; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1A; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IA; "

<220>
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<223> /note="Uniprot ID: P36894; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361107"

<400> 9330

```
Met Pro Gln Leu Tyr Ile Tyr Ile Arg Leu Leu Gly Ala Tyr Leu Phe
1               5                  10                  15

Ile Ile Ser Arg Val Gln Gly Gln Asn Leu Asp Ser Met Leu His Gly
            20                  25                  30

Thr Gly Met Lys Ser Asp Ser Asp Gln Lys Lys Ser Glu Asn Gly Val
        35                  40                  45

Thr Leu Ala Pro Glu Asp Thr Leu Pro Phe Leu Lys Cys Tyr Cys Ser
    50                  55                  60

Gly His Cys Pro Asp Asp Ala Ile Asn Asn Thr Cys Ile Thr Asn Gly
65                  70                  75                  80

His Cys Phe Ala Ile Ile Glu Glu Asp Asp Gln Gly Glu Thr Thr Leu
                85                  90                  95

Ala Ser Gly Cys Met Lys Tyr Glu Gly Ser Asp Phe Gln Cys Lys Asp
            100                 105                 110

Ser Pro Lys Ala Gln Leu Arg Arg Thr Ile Glu Cys Cys Arg Thr Asn
        115                 120                 125
```

```
Leu Cys Asn Gln Tyr Leu Gln Pro Thr Leu Pro Pro Val Val Ile Gly
    130                 135                 140

Pro Phe Phe Asp Gly Ser Ile Arg Trp Leu Val Leu Leu Ile Ser Met
145                 150                 155                 160

Ala Val Cys Ile Ile Ala Met Ile Ile Phe Ser Ser Cys Phe Cys Tyr
                165                 170                 175

Lys His Tyr Cys Lys Ser Ile Ser Ser Arg Arg Arg Tyr Asn Arg Asp
            180                 185                 190

Leu Glu Gln Asp Glu Ala Phe Ile Pro Val Gly Glu Ser Leu Lys Asp
        195                 200                 205

Leu Ile Asp Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu Pro Leu
    210                 215                 220

Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Arg Gln Val
225                 230                 235                 240

Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg Gly Glu
                245                 250                 255

Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser Trp Phe
            260                 265                 270

Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu Asn Ile
        275                 280                 285

Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp Thr Gln
    290                 295                 300

Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr Asp Phe
305                 310                 315                 320

Leu Lys Cys Ala Thr Leu Asp Thr Arg Ala Leu Leu Lys Leu Ala Tyr
                325                 330                 335

Ser Ala Ala Cys Gly Leu Cys His Leu His Thr Glu Ile Tyr Gly Thr
            340                 345                 350
```

```
Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys Asn Ile
        355                 360                 365

Leu Ile Lys Lys Asn Gly Ser Cys Cys Ile Ala Asp Leu Gly Leu Ala
    370                 375                 380

Val Lys Phe Asn Ser Asp Thr Asn Glu Val Asp Val Pro Leu Asn Thr
385                 390                 395                 400

Arg Val Gly Thr Lys Arg Tyr Met Ala Pro Glu Val Leu Asp Glu Ser
                405                 410                 415

Leu Asn Lys Asn His Phe Gln Pro Tyr Ile Met Ala Asp Ile Tyr Ser
            420                 425                 430

Phe Gly Leu Ile Ile Trp Glu Met Ala Arg Arg Cys Ile Thr Gly Gly
        435                 440                 445

Ile Val Glu Glu Tyr Gln Leu Pro Tyr Tyr Asn Met Val Pro Ser Asp
    450                 455                 460

Pro Ser Tyr Glu Asp Met Arg Glu Val Val Cys Val Lys Arg Leu Arg
465                 470                 475                 480

Pro Ile Val Ser Asn Arg Trp Asn Ser Asp Glu Cys Leu Arg Ala Val
                485                 490                 495

Leu Lys Leu Met Ser Glu Cys Trp Ala His Asn Pro Ala Ser Arg Leu
            500                 505                 510

Thr Ala Leu Arg Ile Lys Lys Thr Leu Ala Lys Met Val Glu Ser Gln
        515                 520                 525

Asp Val Lys Ile
    530


<210> 9331
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1901; "
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<220>
<221> source
<223> /note="Gene Symbol: BMPR1A; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IA; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483569"

<400> 9331
Met Pro Gln Leu Tyr Ile Tyr Ile Arg Leu Leu Gly Ala Tyr Leu Phe
1 5 10 15

Ile Ile Ser Arg Val Gln Gly Gln Asn Leu Asp Ser Met Leu His Gly
20 25 30

Thr Gly Met Lys Ser Asp Ser Asp Gln
35 40

<210> 9332
<211> 502
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="Uniprot ID: O00238; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000264568"

<400> 9332
Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1 5 10 15

```
Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
            20                  25                  30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
        35                  40                  45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
    50                  55                  60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65                  70                  75                  80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
                85                  90                  95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
            100                 105                 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
        115                 120                 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
    130                 135                 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145                 150                 155                 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
                165                 170                 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
            180                 185                 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
        195                 200                 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
    210                 215                 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225                 230                 235                 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
```

245 250 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
260 265 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
275 280 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
290 295 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305 310 315 320

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

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
340 345 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
355 360 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
370 375 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385 390 395 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
405 410 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
420 425 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
435 440 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
450 455 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465 470 475 480

```
Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
                485                 490                 495

Ser Gln Asp Ile Lys Leu
            500
```

<210> 9333
<211> 502
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="Uniprot ID: O00238; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378389"

<400> 9333

```
Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1               5                   10                  15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
            20                  25                  30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
        35                  40                  45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
    50                  55                  60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65                  70                  75                  80
```

```
Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
                85                  90                  95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
            100                 105                 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
        115                 120                 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
    130                 135                 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145                 150                 155                 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
                165                 170                 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
            180                 185                 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
        195                 200                 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
    210                 215                 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225                 230                 235                 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
                245                 250                 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
            260                 265                 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
        275                 280                 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
    290                 295                 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
```

305 310 315 320

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

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
340 345 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
355 360 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
370 375 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385 390 395 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
405 410 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
420 425 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
435 440 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
450 455 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465 470 475 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
485 490 495

Ser Gln Asp Ile Lys Leu
500

<210> 9334
<211> 532
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
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<223> /note="Gene Name:
bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="Uniprot ID: O00238; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401907"

<400> 9334

```
Met Gly Trp Leu Glu Glu Leu Asn Trp Gln Leu His Ile Phe Leu Leu
1               5                  10                  15

Ile Leu Leu Ser Met His Thr Arg Ala Asn Phe Leu Asp Asn Met Leu
            20                  25                  30

Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu Asp Gly
        35                  40                  45

Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys Lys Cys
    50                  55                  60

His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser Thr Asp
65                  70                  75                  80

Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu Pro Val
                85                  90                  95

Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln Cys Arg
            100                 105                 110

Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys Thr Glu
        115                 120                 125

Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro Leu Lys
    130                 135                 140
```

```
Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu Leu Ile
145                 150                 155                 160

Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu Phe Cys
                165                 170                 175

Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser Ile Gly
            180                 185                 190

Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu Arg Asp
        195                 200                 205

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

Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys Gln Ile
225                 230                 235                 240

Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg Gly Glu
                245                 250                 255

Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser Trp Phe
            260                 265                 270

Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu Asn Ile
        275                 280                 285

Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp Thr Gln
    290                 295                 300

Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr Asp Tyr
305                 310                 315                 320

Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu Ala Tyr
                325                 330                 335

Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe Ser Thr
            340                 345                 350

Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys Asn Ile
        355                 360                 365

Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly Leu Ala
```

```
    370                 375                 380

Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro Asn Thr
385                 390                 395                 400

Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp Glu Ser
                405                 410                 415

Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met Tyr Ser
            420                 425                 430

Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser Gly Gly
        435                 440                 445

Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro Ser Asp
    450                 455                 460

Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys Leu Arg
465                 470                 475                 480

Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg Gln Met
                485                 490                 495

Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser Arg Leu
            500                 505                 510

Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu Ser Gln
        515                 520                 525

Asp Ile Lys Leu
    530


<210> 9335
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
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<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421144"

<400> 9335
Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1 5 10 15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
20 25 30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
35 40 45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
50 55 60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65 70 75 80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
85 90 95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
100 105 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His
115 120 125

<210> 9336
<211> 502
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
<221> source
<223> /note="Gene Name:

bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="Uniprot ID: O00238; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421671"

<400> 9336

```
Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1               5                  10                  15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
            20                  25                  30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
        35                  40                  45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
    50                  55                  60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65                  70                  75                  80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
                85                  90                  95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
            100                 105                 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
        115                 120                 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
    130                 135                 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145                 150                 155                 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
                165                 170                 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
            180                 185                 190
```

```
Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
        195                 200                 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
    210                 215                 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225                 230                 235                 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
                245                 250                 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
            260                 265                 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
        275                 280                 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
    290                 295                 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305                 310                 315                 320

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

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
            340                 345                 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
        355                 360                 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
    370                 375                 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385                 390                 395                 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
                405                 410                 415
```

```
Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
            420                 425                 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
        435                 440                 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
    450                 455                 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465                 470                 475                 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
                485                 490                 495

Ser Gln Asp Ile Lys Leu
            500
```

<210> 9337
<211> 114
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424693"

<400> 9337

```
Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1               5                   10                  15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
            20                  25                  30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
```

```
        35                  40                  45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
    50                  55                  60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65                  70                  75                  80

Cys Arg Val Arg Thr Leu Pro Phe Leu Ile Lys Glu Asp Gln Leu Asn
                85                  90                  95

Ala Ala Gln Lys Gly Thr Asn Val Ile Lys Thr Tyr Thr Leu His Cys
            100                 105                 110

Leu His
```

<210> 9338
<211> 502
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="Uniprot ID: O00238; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425444"

<400> 9338

```
Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1               5                   10                  15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
            20                  25                  30
```

```
Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
        35                  40                  45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
    50                  55                  60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65                  70                  75                  80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
                85                  90                  95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
            100                 105                 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
        115                 120                 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
    130                 135                 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145                 150                 155                 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
                165                 170                 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
            180                 185                 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
        195                 200                 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
    210                 215                 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225                 230                 235                 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
                245                 250                 255
```

```
Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
            260                 265                 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
        275                 280                 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
    290                 295                 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305                 310                 315                 320

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

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
            340                 345                 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
        355                 360                 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
    370                 375                 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385                 390                 395                 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
                405                 410                 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
            420                 425                 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
        435                 440                 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
    450                 455                 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465                 470                 475                 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
```

485 490 495

Ser Gln Asp Ile Lys Leu
500

<210> 9339
<211> 502
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1902; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR1B; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type IB; "

<220>
<221> source
<223> /note="Uniprot ID: O00238; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426617"

<400> 9339
Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1 5 10 15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
20 25 30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
35 40 45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
50 55 60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65 70 75 80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
85 90 95

```
Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
            100                 105                 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
        115                 120                 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
    130                 135                 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145                 150                 155                 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
                165                 170                 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
            180                 185                 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
        195                 200                 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
    210                 215                 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225                 230                 235                 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
                245                 250                 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
            260                 265                 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
        275                 280                 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
    290                 295                 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305                 310                 315                 320
```

```
Ser Thr Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys
                325                 330                 335

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
            340                 345                 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
        355                 360                 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
    370                 375                 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385                 390                 395                 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
                405                 410                 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
            420                 425                 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
        435                 440                 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
    450                 455                 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465                 470                 475                 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
                485                 490                 495

Ser Gln Asp Ile Lys Leu
            500
```

<210> 9340
<211> 530
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1903; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR2; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt receptor, type II
(serine/threonine kinase); "

<220>
<221> source
<223> /note="Uniprot ID: Q13873; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000363702"

<400> 9340

```
Met Thr Ser Ser Leu Gln Arg Pro Trp Arg Val Pro Trp Leu Pro Trp
1               5                  10                  15

Thr Ile Leu Leu Val Ser Thr Ala Ala Ala Ser Gln Asn Gln Glu Arg
            20                  25                  30

Leu Cys Ala Phe Lys Asp Pro Tyr Gln Gln Asp Leu Gly Ile Gly Glu
        35                  40                  45

Ser Arg Ile Ser His Glu Asn Gly Thr Ile Leu Cys Ser Lys Gly Ser
    50                  55                  60

Thr Cys Tyr Gly Leu Trp Glu Lys Ser Lys Gly Asp Ile Asn Leu Val
65                  70                  75                  80

Lys Gln Gly Cys Trp Ser His Ile Gly Asp Pro Gln Glu Cys His Tyr
                85                  90                  95

Glu Glu Cys Val Val Thr Thr Thr Pro Pro Ser Ile Gln Asn Gly Thr
            100                 105                 110

Tyr Arg Phe Cys Cys Cys Ser Thr Asp Leu Cys Asn Val Asn Phe Thr
        115                 120                 125

Glu Asn Phe Pro Pro Pro Asp Thr Thr Pro Leu Ser Pro Pro His Ser
    130                 135                 140

Phe Asn Arg Asp Glu Thr Ile Ile Ile Ala Leu Ala Ser Val Ser Val
145                 150                 155                 160
```

```
Leu Ala Val Leu Ile Val Ala Leu Cys Phe Gly Tyr Arg Met Leu Thr
                165                 170                 175

Gly Asp Arg Lys Gln Gly Leu His Ser Met Asn Met Met Glu Ala Ala
            180                 185                 190

Ala Ser Glu Pro Ser Leu Asp Leu Asp Asn Leu Lys Leu Leu Glu Leu
        195                 200                 205

Ile Gly Arg Gly Arg Tyr Gly Ala Val Tyr Lys Gly Ser Leu Asp Glu
    210                 215                 220

Arg Pro Val Ala Val Lys Val Phe Ser Phe Ala Asn Arg Gln Asn Phe
225                 230                 235                 240

Ile Asn Glu Lys Asn Ile Tyr Arg Val Pro Leu Met Glu His Asp Asn
                245                 250                 255

Ile Ala Arg Phe Ile Val Gly Asp Glu Arg Val Thr Ala Asp Gly Arg
            260                 265                 270

Met Glu Tyr Leu Leu Val Met Glu Tyr Tyr Pro Asn Gly Ser Leu Cys
        275                 280                 285

Lys Tyr Leu Ser Leu His Thr Ser Asp Trp Val Ser Ser Cys Arg Leu
    290                 295                 300

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

Arg Gly Asp His Tyr Lys Pro Ala Ile Ser His Arg Asp Leu Asn Ser
                325                 330                 335

Arg Asn Val Leu Val Lys Asn Asp Gly Thr Cys Val Ile Ser Asp Phe
            340                 345                 350

Gly Leu Ser Met Arg Leu Thr Gly Asn Arg Leu Val Arg Pro Gly Glu
        355                 360                 365

Glu Asp Asn Ala Ala Ile Ser Glu Val Gly Thr Ile Arg Tyr Met Ala
    370                 375                 380
```

```
Pro Glu Val Leu Glu Gly Ala Val Asn Leu Arg Asp Cys Glu Ser Ala
385                 390                 395                 400

Leu Lys Gln Val Asp Met Tyr Ala Leu Gly Leu Ile Tyr Trp Glu Ile
                405                 410                 415

Phe Met Arg Cys Thr Asp Leu Phe Pro Gly Glu Ser Val Pro Glu Tyr
            420                 425                 430

Gln Met Ala Phe Gln Thr Glu Val Gly Asn His Pro Thr Phe Glu Asp
        435                 440                 445

Met Gln Val Leu Val Ser Arg Glu Lys Gln Arg Pro Lys Phe Pro Glu
    450                 455                 460

Ala Trp Lys Glu Asn Ser Leu Ala Val Arg Ser Leu Lys Glu Thr Ile
465                 470                 475                 480

Glu Asp Cys Trp Asp Gln Asp Ala Glu Ala Arg Leu Thr Ala Gln Cys
                485                 490                 495

Ala Glu Glu Arg Met Ala Glu Leu Met Met Ile Trp Glu Arg Asn Lys
            500                 505                 510

Ser Val Ser Pro Thr Val Asn Pro Met Ser Thr Ala Met Gln Asn Glu
        515                 520                 525

Arg Arg
    530


<210> 9341
<211> 1038
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1903; "

<220>
<221> source
<223> /note="Gene Symbol: BMPR2; "

<220>
<221> source
<223> /note="Gene Name:
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bone morphogenetic prt receptor, type II
(serine/threonine kinase); "

<220>
<221> source
<223> /note="Uniprot ID: Q13873; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000363708"

<400> 9341

```
Met Thr Ser Ser Leu Gln Arg Pro Trp Arg Val Pro Trp Leu Pro Trp
1               5                  10                  15

Thr Ile Leu Leu Val Ser Thr Ala Ala Ala Ser Gln Asn Gln Glu Arg
            20                  25                  30

Leu Cys Ala Phe Lys Asp Pro Tyr Gln Gln Asp Leu Gly Ile Gly Glu
        35                  40                  45

Ser Arg Ile Ser His Glu Asn Gly Thr Ile Leu Cys Ser Lys Gly Ser
    50                  55                  60

Thr Cys Tyr Gly Leu Trp Glu Lys Ser Lys Gly Asp Ile Asn Leu Val
65                  70                  75                  80

Lys Gln Gly Cys Trp Ser His Ile Gly Asp Pro Gln Glu Cys His Tyr
                85                  90                  95

Glu Glu Cys Val Val Thr Thr Thr Pro Pro Ser Ile Gln Asn Gly Thr
            100                 105                 110

Tyr Arg Phe Cys Cys Cys Ser Thr Asp Leu Cys Asn Val Asn Phe Thr
        115                 120                 125

Glu Asn Phe Pro Pro Pro Asp Thr Thr Pro Leu Ser Pro Pro His Ser
    130                 135                 140

Phe Asn Arg Asp Glu Thr Ile Ile Ile Ala Leu Ala Ser Val Ser Val
145                 150                 155                 160

Leu Ala Val Leu Ile Val Ala Leu Cys Phe Gly Tyr Arg Met Leu Thr
                165                 170                 175

Gly Asp Arg Lys Gln Gly Leu His Ser Met Asn Met Met Glu Ala Ala
```

```
            180                 185                 190

Ala Ser Glu Pro Ser Leu Asp Leu Asp Asn Leu Lys Leu Leu Glu Leu
        195                 200                 205

Ile Gly Arg Gly Arg Tyr Gly Ala Val Tyr Lys Gly Ser Leu Asp Glu
    210                 215                 220

Arg Pro Val Ala Val Lys Val Phe Ser Phe Ala Asn Arg Gln Asn Phe
225                 230                 235                 240

Ile Asn Glu Lys Asn Ile Tyr Arg Val Pro Leu Met Glu His Asp Asn
                245                 250                 255

Ile Ala Arg Phe Ile Val Gly Asp Glu Arg Val Thr Ala Asp Gly Arg
            260                 265                 270

Met Glu Tyr Leu Leu Val Met Glu Tyr Tyr Pro Asn Gly Ser Leu Cys
        275                 280                 285

Lys Tyr Leu Ser Leu His Thr Ser Asp Trp Val Ser Ser Cys Arg Leu
    290                 295                 300

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

Arg Gly Asp His Tyr Lys Pro Ala Ile Ser His Arg Asp Leu Asn Ser
                325                 330                 335

Arg Asn Val Leu Val Lys Asn Asp Gly Thr Cys Val Ile Ser Asp Phe
            340                 345                 350

Gly Leu Ser Met Arg Leu Thr Gly Asn Arg Leu Val Arg Pro Gly Glu
        355                 360                 365

Glu Asp Asn Ala Ala Ile Ser Glu Val Gly Thr Ile Arg Tyr Met Ala
    370                 375                 380

Pro Glu Val Leu Glu Gly Ala Val Asn Leu Arg Asp Cys Glu Ser Ala
385                 390                 395                 400

Leu Lys Gln Val Asp Met Tyr Ala Leu Gly Leu Ile Tyr Trp Glu Ile
                405                 410                 415
```

```
Phe Met Arg Cys Thr Asp Leu Phe Pro Gly Glu Ser Val Pro Glu Tyr
            420                 425                 430

Gln Met Ala Phe Gln Thr Glu Val Gly Asn His Pro Thr Phe Glu Asp
        435                 440                 445

Met Gln Val Leu Val Ser Arg Glu Lys Gln Arg Pro Lys Phe Pro Glu
    450                 455                 460

Ala Trp Lys Glu Asn Ser Leu Ala Val Arg Ser Leu Lys Glu Thr Ile
465                 470                 475                 480

Glu Asp Cys Trp Asp Gln Asp Ala Glu Ala Arg Leu Thr Ala Gln Cys
                485                 490                 495

Ala Glu Glu Arg Met Ala Glu Leu Met Met Ile Trp Glu Arg Asn Lys
            500                 505                 510

Ser Val Ser Pro Thr Val Asn Pro Met Ser Thr Ala Met Gln Asn Glu
        515                 520                 525

Arg Asn Leu Ser His Asn Arg Arg Val Pro Lys Ile Gly Pro Tyr Pro
    530                 535                 540

Asp Tyr Ser Ser Ser Ser Tyr Ile Glu Asp Ser Ile His His Thr Asp
545                 550                 555                 560

Ser Ile Val Lys Asn Ile Ser Ser Glu His Ser Met Ser Ser Thr Pro
                565                 570                 575

Leu Thr Ile Gly Glu Lys Asn Arg Asn Ser Ile Asn Tyr Glu Arg Gln
            580                 585                 590

Gln Ala Gln Ala Arg Ile Pro Ser Pro Glu Thr Ser Val Thr Ser Leu
        595                 600                 605

Ser Thr Asn Thr Thr Thr Thr Asn Thr Thr Gly Leu Thr Pro Ser Thr
    610                 615                 620

Gly Met Thr Thr Ile Ser Glu Met Pro Tyr Pro Asp Glu Thr Asn Leu
625                 630                 635                 640
```

```
His Thr Thr Asn Val Ala Gln Ser Ile Gly Pro Thr Pro Val Cys Leu
                645                 650                 655

Gln Leu Thr Glu Glu Asp Leu Glu Thr Asn Lys Leu Asp Pro Lys Glu
            660                 665                 670

Val Asp Lys Asn Leu Lys Glu Ser Ser Asp Glu Asn Leu Met Glu His
        675                 680                 685

Ser Leu Lys Gln Phe Ser Gly Pro Asp Pro Leu Ser Ser Thr Ser Ser
    690                 695                 700

Ser Leu Leu Tyr Pro Leu Ile Lys Leu Ala Val Glu Ala Thr Gly Gln
705                 710                 715                 720

Gln Asp Phe Thr Gln Thr Ala Asn Gly Gln Ala Cys Leu Ile Pro Asp
                725                 730                 735

Val Leu Pro Thr Gln Ile Tyr Pro Leu Pro Lys Gln Gln Asn Leu Pro
            740                 745                 750

Lys Arg Pro Thr Ser Leu Pro Leu Asn Thr Lys Asn Ser Thr Lys Glu
        755                 760                 765

Pro Arg Leu Lys Phe Gly Ser Lys His Lys Ser Asn Leu Lys Gln Val
    770                 775                 780

Glu Thr Gly Val Ala Lys Met Asn Thr Ile Asn Ala Ala Glu Pro His
785                 790                 795                 800

Val Val Thr Val Thr Met Asn Gly Val Ala Gly Arg Asn His Ser Val
                805                 810                 815

Asn Ser His Ala Ala Thr Thr Gln Tyr Ala Asn Gly Thr Val Leu Ser
            820                 825                 830

Gly Gln Thr Thr Asn Ile Val Thr His Arg Ala Gln Glu Met Leu Gln
        835                 840                 845

Asn Gln Phe Ile Gly Glu Asp Thr Arg Leu Asn Ile Asn Ser Ser Pro
    850                 855                 860
```

```
Asp Glu His Glu Pro Leu Leu Arg Arg Glu Gln Gln Ala Gly His Asp
865                 870                 875                 880

Glu Gly Val Leu Asp Arg Leu Val Asp Arg Arg Glu Arg Pro Leu Glu
                885                 890                 895

Gly Gly Arg Thr Asn Ser Asn Asn Asn Asn Ser Asn Pro Cys Ser Glu
            900                 905                 910

Gln Asp Val Leu Ala Gln Gly Val Pro Ser Thr Ala Ala Asp Pro Gly
        915                 920                 925

Pro Ser Lys Pro Arg Arg Ala Gln Arg Pro Asn Ser Leu Asp Leu Ser
    930                 935                 940

Ala Thr Asn Val Leu Asp Gly Ser Ser Ile Gln Ile Gly Glu Ser Thr
945                 950                 955                 960

Gln Asp Gly Lys Ser Gly Ser Gly Glu Lys Ile Lys Lys Arg Val Lys
                965                 970                 975

Thr Pro Tyr Ser Leu Lys Arg Trp Arg Pro Ser Thr Trp Val Ile Ser
            980                 985                 990

Thr Glu Ser Leu Asp Cys Glu Val  Asn Asn Asn Gly Ser  Asn Arg
Ala
        995                 1000                1005

Val His  Ser Lys Ser Ser Thr  Ala Val Tyr Leu Ala  Glu Gly Gly
    1010                1015                1020

Thr Ala  Thr Thr Met Val Ser  Lys Asp Ile Gly Met  Asn Cys Leu
    1025                1030                1035


<210> 9342
<211> 761
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1904; "

<220>
<221> source
<223> /note="Gene Symbol: BRINP1; "
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<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt/retinoic acid inducible
neural-specific 1; "

<220>
<221> source
<223> /note="Uniprot ID: O60477; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265922"

<400> 9342
Met Asn Trp Arg Phe Val Glu Leu Leu Tyr Phe Leu Phe Ile Trp Gly
1   5   10   15

Arg Ile Ser Val Gln Pro Ser His Gln Glu Pro Ala Gly Thr Asp Gln
            20   25   30

His Val Ser Lys Glu Phe Asp Trp Leu Ile Ser Asp Arg Gly Pro Phe
        35   40   45

His His Ser Arg Ser Tyr Leu Ser Phe Val Glu Arg His Arg Gln Gly
    50   55   60

Phe Thr Thr Arg Tyr Lys Ile Tyr Arg Glu Phe Ala Arg Trp Lys Val
65   70   75   80

Arg Asn Thr Ala Ile Glu Arg Arg Asp Leu Val Arg His Pro Val Pro
                85   90   95

Leu Met Pro Glu Phe Gln Arg Ser Ile Arg Leu Leu Gly Arg Arg Pro
            100   105   110

Thr Thr Gln Gln Phe Ile Asp Thr Ile Ile Lys Lys Tyr Gly Thr His
        115   120   125

Leu Leu Ile Ser Ala Thr Leu Gly Gly Glu Glu Ala Leu Thr Met Tyr
    130   135   140

Met Asp Lys Ser Arg Leu Asp Arg Lys Ser Gly Asn Ala Thr Gln Ser
145   150   155   160

Val Glu Ala Leu His Gln Leu Ala Ser Ser Tyr Phe Val Asp Arg Asp

```
                165                 170                 175

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

Lys Val Thr Glu Thr Arg Thr Gly Pro Leu Gly Cys Asn Ser Tyr Asp
        195                 200                 205

Asn Leu Asp Ser Val Ser Ser Val Leu Leu Gln Ser Thr Glu Ser Lys
    210                 215                 220

Leu His Leu Gln Gly Leu Gln Ile Ile Phe Pro Gln Tyr Leu Gln Glu
225                 230                 235                 240

Lys Phe Val Gln Ser Ala Leu Ser Tyr Ile Met Cys Asn Gly Glu Gly
                245                 250                 255

Glu Tyr Leu Cys Gln Asn Ser Gln Cys Arg Cys Gln Cys Ala Glu Glu
            260                 265                 270

Phe Pro Gln Cys Asn Cys Pro Ile Thr Asp Ile Gln Ile Met Glu Tyr
        275                 280                 285

Thr Leu Ala Asn Met Ala Lys Ser Trp Ala Glu Ala Tyr Lys Asp Leu
    290                 295                 300

Glu Asn Ser Asp Glu Phe Lys Ser Phe Met Lys Arg Leu Pro Ser Asn
305                 310                 315                 320

His Phe Leu Thr Ile Gly Ser Ile His Gln His Trp Gly Asn Asp Trp
                325                 330                 335

Asp Leu Gln Asn Arg Tyr Lys Leu Leu Gln Ser Ala Thr Glu Ala Gln
            340                 345                 350

Arg Gln Lys Ile Gln Arg Thr Ala Arg Lys Leu Phe Gly Leu Ser Val
        355                 360                 365

Arg Cys Arg His Asn Pro Asn His Gln Leu Pro Arg Glu Arg Thr Ile
    370                 375                 380

Gln Gln Trp Leu Ala Arg Val Gln Ser Leu Leu Tyr Cys Asn Glu Asn
385                 390                 395                 400
```

```
Gly Phe Trp Gly Thr Phe Leu Glu Ser Gln Arg Ser Cys Val Cys His
                405                 410                 415

Gly Ser Thr Thr Leu Cys Gln Arg Pro Ile Pro Cys Val Ile Gly Gly
            420                 425                 430

Asn Asn Ser Cys Ala Met Cys Ser Leu Ala Asn Ile Ser Leu Cys Gly
        435                 440                 445

Ser Cys Asn Lys Gly Tyr Lys Leu Tyr Arg Gly Arg Cys Glu Pro Gln
    450                 455                 460

Asn Val Asp Ser Glu Arg Ser Glu Gln Phe Ile Ser Phe Glu Thr Asp
465                 470                 475                 480

Leu Asp Phe Gln Asp Leu Glu Leu Lys Tyr Leu Leu Gln Lys Met Asp
                485                 490                 495

Ser Arg Leu Tyr Val His Thr Thr Phe Ile Ser Asn Glu Ile Arg Leu
            500                 505                 510

Asp Thr Phe Phe Asp Pro Arg Trp Arg Lys Arg Met Ser Leu Thr Leu
        515                 520                 525

Lys Ser Asn Lys Asn Arg Met Asp Phe Ile His Met Val Ile Gly Met
    530                 535                 540

Ser Met Arg Ile Cys Gln Met Arg Asn Ser Ser Leu Asp Pro Met Phe
545                 550                 555                 560

Phe Val Tyr Val Asn Pro Phe Ser Gly Ser His Ser Glu Gly Trp Asn
                565                 570                 575

Met Pro Phe Gly Glu Phe Gly Tyr Pro Arg Trp Glu Lys Ile Arg Leu
            580                 585                 590

Gln Asn Ser Gln Cys Tyr Asn Trp Thr Leu Leu Leu Gly Asn Arg Trp
        595                 600                 605

Lys Thr Phe Phe Glu Thr Val His Ile Tyr Leu Arg Ser Arg Thr Arg
    610                 615                 620
```

```
Leu Pro Thr Leu Leu Arg Asn Glu Thr Gly Gln Gly Pro Val Asp Leu
625                 630                 635                 640

Ser Asp Pro Ser Lys Arg Gln Phe Tyr Ile Lys Ile Ser Asp Val Gln
                645                 650                 655

Val Phe Gly Tyr Ser Leu Arg Phe Asn Ala Asp Leu Leu Arg Ser Ala
            660                 665                 670

Val Gln Gln Val Asn Gln Ser Tyr Thr Gln Gly Gly Gln Phe Tyr Ser
        675                 680                 685

Ser Ser Ser Val Met Leu Leu Leu Leu Asp Ile Arg Asp Arg Ile Asn
    690                 695                 700

Arg Leu Ala Pro Pro Val Ala Pro Gly Lys Pro Gln Leu Asp Leu Phe
705                 710                 715                 720

Ser Cys Met Leu Lys His Arg Leu Lys Leu Thr Asn Ser Glu Ile Ile
                725                 730                 735

Arg Val Asn His Ala Leu Asp Leu Tyr Asn Thr Glu Ile Leu Lys Gln
            740                 745                 750

Ser Asp Gln Met Thr Ala Lys Leu Cys
        755                 760


<210> 9343
<211> 320
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1904; "

<220>
<221> source
<223> /note="Gene Symbol: BRINP1; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt/retinoic acid inducible
      neural-specific 1; "

<220>
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<221> source
<223> /note="Uniprot ID: O60477; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000363075"

<400> 9343
Met Asn Trp Arg Phe Val Glu Leu Leu Tyr Phe Leu Phe Ile Trp Gly
1   5   10   15

Arg Ile Ser Val Gln Pro Ser His Gln Glu Pro Ala Gly Thr Asp Gln
            20   25   30

His Val Ser Lys Glu Phe Asp Trp Leu Ile Ser Asp Arg Gly Pro Phe
        35   40   45

His His Ser Arg Ser Tyr Leu Ser Phe Val Glu Arg His Arg Gln Gly
    50   55   60

Phe Thr Thr Arg Tyr Lys Ile Tyr Arg Glu Phe Ala Arg Trp Lys Val
65   70   75   80

Arg Asn Thr Ala Ile Glu Arg Arg Asp Leu Val Arg His Pro Val Pro
                85   90   95

Leu Met Pro Glu Phe Gln Arg Ser Ile Arg Leu Leu Gly Arg Arg Pro
            100   105   110

Thr Thr Gln Gln Phe Ile Asp Thr Ile Ile Lys Lys Tyr Gly Thr His
        115   120   125

Leu Leu Ile Ser Ala Thr Leu Gly Gly Glu Glu Ala Leu Thr Met Tyr
    130   135   140

Met Asp Lys Ser Arg Leu Asp Arg Lys Ser Gly Asn Ala Thr Gln Ser
145   150   155   160

Val Glu Ala Leu His Gln Leu Ala Ser Ser Tyr Phe Val Asp Arg Asp
                165   170   175

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

Lys Val Thr Glu Thr Arg Thr Gly Pro Leu Gly Cys Asn Ser Tyr Asp

```
        195                 200                 205

Asn Leu Asp Ser Val Ser Ser Val Leu Leu Gln Ser Thr Glu Ser Lys
    210                 215                 220

Leu His Leu Gln Gly Leu Gln Ile Ile Phe Pro Gln Tyr Leu Gln Glu
225                 230                 235                 240

Lys Phe Val Gln Ser Ala Leu Ser Tyr Ile Met Cys Asn Gly Glu Gly
                245                 250                 255

Glu Tyr Leu Cys Gln Asn Ser Gln Cys Arg Cys Gln Cys Ala Glu Glu
            260                 265                 270

Phe Pro Gln Cys Asn Cys Pro Ile Thr Asp Ile Gln Ile Met Glu Tyr
        275                 280                 285

Thr Leu Ala Asn Met Ala Lys Ser Trp Ala Glu Ala Tyr Lys Asp Leu
    290                 295                 300

Glu Asn Ser Gly Arg Glu Ser His Ser Val Pro Leu His Glu Trp Pro
305                 310                 315                 320
```

<210> 9344
<211> 783
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1905; "

<220>
<221> source
<223> /note="Gene Symbol: BRINP2; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt/retinoic acid inducible
neural-specific 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9C0B6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354481"

<400> 9344
Met Arg Trp Gln Cys Gly Thr Arg Phe Arg Gly Leu Arg Pro Ala Val
1 5 10 15

Ala Pro Trp Thr Ala Leu Leu Ala Leu Gly Leu Pro Gly Trp Val Leu
20 25 30

Ala Val Ser Ala Thr Ala Ala Ala Val Val Pro Glu Gln His Ala Ser
35 40 45

Val Ala Gly Gln His Pro Leu Asp Trp Leu Leu Thr Asp Arg Gly Pro
50 55 60

Phe His Arg Ala Gln Glu Tyr Ala Asp Phe Met Glu Arg Tyr Arg Gln
65 70 75 80

Gly Phe Thr Thr Arg Tyr Arg Ile Tyr Arg Glu Phe Ala Arg Trp Lys
85 90 95

Val Asn Asn Leu Ala Leu Glu Arg Lys Asp Phe Phe Ser Leu Pro Leu
100 105 110

Pro Leu Ala Pro Glu Phe Ile Arg Asn Ile Arg Leu Leu Gly Arg Arg
115 120 125

Pro Asn Leu Gln Gln Val Thr Glu Asn Leu Ile Lys Lys Tyr Gly Thr
130 135 140

His Phe Leu Leu Ser Ala Thr Leu Gly Gly Glu Glu Ser Leu Thr Ile
145 150 155 160

Phe Val Asp Lys Gln Lys Leu Gly Arg Lys Thr Glu Thr Thr Gly Gly
165 170 175

Ala Ser Ile Ile Gly Gly Ser Gly Asn Ser Thr Ala Val Ser Leu Glu
180 185 190

Thr Leu His Gln Leu Ala Ala Ser Tyr Phe Ile Asp Arg Glu Ser Thr
195 200 205

Leu Arg Arg Leu His His Ile Gln Ile Ala Thr Gly Ala Ile Lys Val
210 215 220

```
Thr Glu Thr Arg Thr Gly Pro Leu Gly Cys Ser Asn Tyr Asp Asn Leu
225                 230                 235                 240

Asp Ser Val Ser Ser Val Leu Val Gln Ser Pro Glu Asn Lys Val Gln
                245                 250                 255

Leu Leu Gly Leu Gln Val Leu Leu Pro Glu Tyr Leu Arg Glu Arg Phe
            260                 265                 270

Val Ala Ala Ala Leu Ser Tyr Ile Thr Cys Ser Ser Glu Gly Glu Leu
        275                 280                 285

Val Cys Lys Glu Asn Asp Cys Trp Cys Lys Cys Ser Pro Thr Phe Pro
    290                 295                 300

Glu Cys Asn Cys Pro Asp Ala Asp Ile Gln Ala Met Glu Asp Ser Leu
305                 310                 315                 320

Leu Gln Ile Gln Asp Ser Trp Ala Thr His Asn Arg Gln Phe Glu Glu
                325                 330                 335

Ser Glu Glu Phe Gln Ala Leu Leu Lys Arg Leu Pro Asp Asp Arg Phe
            340                 345                 350

Leu Asn Ser Thr Ala Ile Ser Gln Phe Trp Ala Met Asp Thr Ser Leu
        355                 360                 365

Gln His Arg Tyr Gln Gln Leu Gly Ala Gly Leu Lys Val Leu Phe Lys
    370                 375                 380

Lys Thr His Arg Ile Leu Arg Arg Leu Phe Asn Leu Cys Lys Arg Cys
385                 390                 395                 400

His Arg Gln Pro Arg Phe Arg Leu Pro Lys Glu Arg Ser Leu Ser Tyr
                405                 410                 415

Trp Trp Asn Arg Ile Gln Ser Leu Leu Tyr Cys Gly Glu Ser Thr Phe
            420                 425                 430

Pro Gly Thr Phe Leu Glu Gln Ser His Ser Cys Thr Cys Pro Tyr Asp
        435                 440                 445
```

```
Gln Ser Ser Cys Gln Gly Pro Ile Pro Cys Ala Leu Gly Glu Gly Pro
    450                 455                 460

Ala Cys Ala His Cys Ala Pro Asp Asn Ser Thr Arg Cys Gly Ser Cys
465                 470                 475                 480

Asn Pro Gly Tyr Val Leu Ala Gln Gly Leu Cys Arg Pro Glu Val Ala
                485                 490                 495

Glu Ser Leu Glu Asn Phe Leu Gly Leu Glu Thr Asp Leu Gln Asp Leu
            500                 505                 510

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

Ser Ile Phe Ile Ser Asn Asp Met Arg Leu Gly Ser Trp Phe Asp Pro
    530                 535                 540

Ser Trp Arg Lys Arg Met Leu Leu Thr Leu Lys Ser Asn Lys Tyr Lys
545                 550                 555                 560

Pro Gly Leu Val His Val Met Leu Ala Leu Ser Leu Gln Ile Cys Leu
                565                 570                 575

Thr Lys Asn Ser Thr Leu Glu Pro Val Met Ala Ile Tyr Val Asn Pro
            580                 585                 590

Phe Gly Gly Ser His Ser Glu Ser Trp Phe Met Pro Val Asn Glu Gly
        595                 600                 605

Ser Phe Pro Asp Trp Glu Arg Thr Asn Val Asp Ala Ala Ala Gln Cys
    610                 615                 620

Gln Asn Trp Thr Ile Thr Leu Gly Asn Arg Trp Lys Thr Phe Phe Glu
625                 630                 635                 640

Thr Val His Val Tyr Leu Arg Ser Arg Ile Lys Ser Leu Asp Asp Ser
                645                 650                 655

Ser Asn Glu Thr Ile Tyr Tyr Glu Pro Leu Glu Met Thr Asp Pro Ser
            660                 665                 670

Lys Asn Leu Gly Tyr Met Lys Ile Asn Thr Leu Gln Val Phe Gly Tyr
```

675 680 685

Ser Leu Pro Phe Asp Pro Asp Ala Ile Arg Asp Leu Ile Leu Gln Leu
690 695 700

Asp Tyr Pro Tyr Thr Gln Gly Ser Gln Asp Ser Ala Leu Leu Gln Leu
705 710 715 720

Ile Glu Leu Arg Asp Arg Val Asn Gln Leu Ser Pro Pro Gly Lys Val
725 730 735

Arg Leu Asp Leu Phe Ser Cys Leu Leu Arg His Arg Leu Lys Leu Ala
740 745 750

Asn Asn Glu Val Gly Arg Ile Gln Ser Ser Leu Arg Ala Phe Asn Ser
755 760 765

Lys Leu Pro Asn Pro Val Glu Tyr Glu Thr Gly Lys Leu Cys Ser
770 775 780

<210> 9345
<211> 766
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1906; "

<220>
<221> source
<223> /note="Gene Symbol: BRINP3; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt/retinoic acid inducible
neural-specific 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q76B58; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356432"

<400> 9345
Met Ile Trp Arg Ser Arg Ala Gly Ala Glu Leu Phe Ser Leu Met Ala
1 5 10 15

```
Leu Trp Glu Trp Ile Ala Leu Ser Leu His Cys Trp Val Leu Ala Val
            20                  25                  30

Ala Ala Val Ser Asp Gln His Ala Thr Ser Pro Phe Asp Trp Leu Leu
        35                  40                  45

Ser Asp Lys Gly Pro Phe His Arg Ser Gln Glu Tyr Thr Asp Phe Val
    50                  55                  60

Asp Arg Ser Arg Gln Gly Phe Ser Thr Arg Tyr Lys Ile Tyr Arg Glu
65                  70                  75                  80

Phe Gly Arg Trp Lys Val Asn Asn Leu Ala Val Glu Arg Arg Asn Phe
                85                  90                  95

Leu Gly Ser Pro Leu Pro Leu Ala Pro Glu Phe Phe Arg Asn Ile Arg
            100                 105                 110

Leu Leu Gly Arg Arg Pro Thr Leu Gln Gln Ile Thr Glu Asn Leu Ile
        115                 120                 125

Lys Lys Tyr Gly Thr His Phe Leu Leu Ser Ala Thr Leu Gly Gly Glu
    130                 135                 140

Glu Ser Leu Thr Ile Phe Val Asp Lys Arg Lys Leu Ser Lys Arg Ala
145                 150                 155                 160

Glu Gly Ser Asp Ser Thr Thr Asn Ser Ser Ser Val Thr Leu Glu Thr
                165                 170                 175

Leu His Gln Leu Ala Ala Ser Tyr Phe Ile Asp Arg Asp Ser Thr Leu
            180                 185                 190

Arg Arg Leu His His Ile Gln Ile Ala Ser Thr Ala Ile Lys Val Thr
        195                 200                 205

Glu Thr Arg Thr Gly Pro Leu Gly Cys Ser Asn Tyr Asp Asn Leu Asp
    210                 215                 220

Ser Val Ser Ser Val Leu Val Gln Ser Pro Glu Asn Lys Ile Gln Leu
225                 230                 235                 240
```

```
Gln Gly Leu Gln Val Leu Leu Pro Asp Tyr Leu Gln Glu Arg Phe Val
                245                 250                 255

Gln Ala Ala Leu Ser Tyr Ile Ala Cys Asn Ser Glu Gly Glu Phe Ile
            260                 265                 270

Cys Lys Glu Asn Asp Cys Trp Cys His Cys Gly Pro Lys Phe Pro Glu
        275                 280                 285

Cys Asn Cys Pro Ser Met Asp Ile Gln Ala Met Glu Glu Asn Leu Leu
    290                 295                 300

Arg Ile Thr Glu Thr Trp Lys Ala Tyr Asn Ser Asp Phe Glu Glu Ser
305                 310                 315                 320

Asp Glu Phe Lys Leu Phe Met Lys Arg Leu Pro Met Asn Tyr Phe Leu
                325                 330                 335

Asn Thr Ser Thr Ile Met His Leu Trp Thr Met Asp Ser Asn Phe Gln
            340                 345                 350

Arg Arg Tyr Glu Gln Leu Glu Asn Ser Met Lys Gln Leu Phe Leu Lys
        355                 360                 365

Ala Gln Lys Ile Val His Lys Leu Phe Ser Leu Ser Lys Arg Cys His
    370                 375                 380

Lys Gln Pro Leu Ile Ser Leu Pro Arg Gln Arg Thr Ser Thr Tyr Trp
385                 390                 395                 400

Leu Thr Arg Ile Gln Ser Phe Leu Tyr Cys Asn Glu Asn Gly Leu Leu
                405                 410                 415

Gly Ser Phe Ser Glu Glu Thr His Ser Cys Thr Cys Pro Asn Asp Gln
            420                 425                 430

Val Val Cys Thr Ala Phe Leu Pro Cys Thr Val Gly Asp Ala Ser Ala
        435                 440                 445

Cys Leu Thr Cys Ala Pro Asp Asn Arg Thr Arg Cys Gly Thr Cys Asn
    450                 455                 460
```

```
Thr Gly Tyr Met Leu Ser Gln Gly Leu Cys Lys Pro Glu Val Ala Glu
465                 470                 475                 480

Ser Thr Asp His Tyr Ile Gly Phe Glu Thr Asp Leu Gln Asp Leu Glu
                485                 490                 495

Met Lys Tyr Leu Leu Gln Lys Thr Asp Arg Arg Ile Glu Val His Ala
            500                 505                 510

Ile Phe Ile Ser Asn Asp Met Arg Leu Asn Ser Trp Phe Asp Pro Ser
        515                 520                 525

Trp Arg Lys Arg Met Leu Leu Thr Leu Lys Ser Asn Lys Tyr Lys Ser
    530                 535                 540

Ser Leu Val His Met Ile Leu Gly Leu Ser Leu Gln Ile Cys Leu Thr
545                 550                 555                 560

Lys Asn Ser Thr Leu Glu Pro Val Leu Ala Val Tyr Val Asn Pro Phe
                565                 570                 575

Gly Gly Ser His Ser Glu Ser Trp Phe Met Pro Val Asn Glu Asn Ser
            580                 585                 590

Phe Pro Asp Trp Glu Arg Thr Lys Leu Asp Leu Pro Leu Gln Cys Tyr
        595                 600                 605

Asn Trp Thr Leu Thr Leu Gly Asn Lys Trp Lys Thr Phe Phe Glu Thr
    610                 615                 620

Val His Ile Tyr Leu Arg Ser Arg Ile Lys Ser Asn Gly Pro Asn Gly
625                 630                 635                 640

Asn Glu Ser Ile Tyr Tyr Glu Pro Leu Glu Phe Ile Asp Pro Ser Arg
                645                 650                 655

Asn Leu Gly Tyr Met Lys Ile Asn Asn Ile Gln Val Phe Gly Tyr Ser
            660                 665                 670

Met His Phe Asp Pro Glu Ala Ile Arg Asp Leu Ile Leu Gln Leu Asp
        675                 680                 685

Tyr Pro Tyr Thr Gln Gly Ser Gln Asp Ser Ala Leu Leu Gln Leu Leu
```

```
    690                 695                 700

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

Leu Asp Leu Phe Ser Cys Leu Leu Arg His Arg Leu Lys Leu Ser Thr
                725                 730                 735

Ser Glu Val Val Arg Ile Gln Ser Ala Leu Gln Ala Phe Asn Ala Lys
            740                 745                 750

Leu Pro Asn Thr Met Asp Tyr Asp Thr Thr Lys Leu Cys Ser
        755                 760                 765


<210> 9346
<211> 28
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1906; "

<220>
<221> source
<223> /note="Gene Symbol: BRINP3; "

<220>
<221> source
<223> /note="Gene Name:
      bone morphogenetic prt/retinoic acid inducible
      neural-specific 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393441"

<400> 9346
Met Ile Trp Arg Ser Arg Ala Gly Ala Glu Leu Phe Ser Leu Met Ala
1               5                   10                  15

Leu Trp Glu Trp Ile Ala Leu Ser Leu His Cys Trp
            20                  25


<210> 9347
<211> 158
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Payload ID: 1906; "

<220>
<221> source
<223> /note="Gene Symbol: BRINP3; "

<220>
<221> source
<223> /note="Gene Name:
bone morphogenetic prt/retinoic acid inducible
neural-specific 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487601"

<400> 9347

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

<210> 9348
<211> 214
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1907; "

<220>
<221> source
<223> /note="Gene Symbol: BORA; "

<220>
<221> source
<223> /note="Gene Name:
bora, aurora kinase A activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367045"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9348
Xaa Lys Ser Leu Cys Leu Ser Trp Lys Leu Ala Trp Pro Pro Glu Leu
1 5 10 15

Pro Gly Val Gly Thr Gly Gly Phe Val Leu Tyr Ala Pro Thr Pro Gly
20 25 30

Lys Phe Arg Trp Ser Ile Asp Gln Leu Ala Val Ile Asn Pro Val Glu
35 40 45

Ile Asp Pro Glu Asp Ile His Arg Gln Ala Leu Tyr Leu Ser His Ser
50 55 60

Arg Ile Asp Lys Asp Val Glu Asp Lys Arg Gln Lys Ala Ile Glu Glu
65 70 75 80

Phe Phe Thr Lys Asp Val Ile Val Pro Ser Pro Trp Thr Asp His Glu
85 90 95

Gly Lys Gln Leu Ser Gln Cys His Ser Ser Lys Cys Thr Asn Ile Asn
100 105 110

```
Ser Asp Ser Pro Val Gly Lys Lys Leu Thr Ile His Ser Glu Lys Ser
        115                 120                 125

Asp Ala Ala Cys Gln Thr Leu Leu Ser Leu Pro Val Asp Phe Asn Leu
    130                 135                 140

Glu Asn Ile Leu Gly Asp Tyr Phe Arg Ala Asp Glu Phe Ala Asp Gln
145                 150                 155                 160

Ser Pro Gly Asn Leu Ser Ser Ser Ser Leu Arg Arg Lys Leu Phe Leu
                165                 170                 175

Asp Gly Asn Gly Ser Ile Ser Asp Ser Leu Pro Ser Ala Ser Pro Gly
            180                 185                 190

Ser Pro His Ser Gly Val Gln Thr Ser Leu Glu Met Phe Tyr Ser Ile
        195                 200                 205

Asp Leu Ser Pro Val Lys
    210


<210> 9349
<211> 489
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1907; "

<220>
<221> source
<223> /note="Gene Symbol: BORA; "

<220>
<221> source
<223> /note="Gene Name:
      bora, aurora kinase A activator; "

<220>
<221> source
<223> /note="Uniprot ID:  Q6PGQ7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367046"

<400> 9349
Met Asn Lys Leu Ser Pro Val Leu Leu Phe Leu Asn Gln Gln Asn Tyr
```

```
1               5                   10                  15

Gln Ile Asp Lys Asp Val Glu Asp Lys Arg Gln Lys Ala Ile Glu Glu
            20                  25                  30

Phe Phe Thr Lys Asp Val Ile Val Pro Ser Pro Trp Thr Asp His Glu
        35                  40                  45

Gly Lys Gln Leu Ser Gln Cys His Ser Ser Lys Cys Thr Asn Ile Asn
    50                  55                  60

Ser Asp Ser Pro Val Gly Lys Lys Leu Thr Ile His Ser Glu Lys Ser
65                  70                  75                  80

Asp Ala Ala Cys Gln Thr Leu Leu Ser Leu Pro Val Asp Phe Asn Leu
                85                  90                  95

Glu Asn Ile Leu Gly Asp Tyr Phe Arg Ala Asp Glu Phe Ala Asp Gln
            100                 105                 110

Ser Pro Gly Asn Leu Ser Ser Ser Ser Leu Arg Arg Lys Leu Phe Leu
        115                 120                 125

Asp Gly Asn Gly Ser Ile Ser Asp Ser Leu Pro Ser Ala Ser Pro Gly
    130                 135                 140

Ser Pro His Ser Gly Val Gln Thr Ser Leu Glu Met Phe Tyr Ser Ile
145                 150                 155                 160

Asp Leu Ser Pro Val Lys Cys Arg Ser Pro Leu Gln Thr Pro Ser Ser
                165                 170                 175

Gly Gln Phe Ser Ser Ser Pro Ile Gln Ala Ser Ala Lys Lys Tyr Ser
            180                 185                 190

Leu Gly Ser Ile Thr Ser Pro Ser Pro Ile Ser Ser Pro Thr Phe Ser
        195                 200                 205

Pro Ile Glu Phe Gln Ile Gly Glu Thr Pro Leu Ser Glu Gln Arg Lys
    210                 215                 220

Phe Thr Val His Ser Pro Asp Ala Ser Ser Gly Thr Asn Ser Asn Gly
225                 230                 235                 240
```

```
Ile Thr Asn Pro Cys Ile Arg Ser Pro Tyr Ile Asp Gly Cys Ser Pro
                245                 250                 255

Ile Lys Asn Trp Ser Pro Met Arg Leu Gln Met Tyr Ser Gly Gly Thr
            260                 265                 270

Gln Tyr Arg Thr Ser Val Ile Gln Ile Pro Phe Thr Leu Glu Thr Gln
        275                 280                 285

Gly Glu Asp Glu Glu Asp Lys Glu Asn Ile Pro Ser Thr Asp Val Ser
    290                 295                 300

Ser Pro Ala Met Asp Ala Ala Gly Ile His Leu Arg Gln Phe Ser Asn
305                 310                 315                 320

Glu Ala Ser Thr His Gly Thr His Leu Val Val Thr Ala Met Ser Val
                325                 330                 335

Thr Gln Asn Gln Ser Ser Ala Ser Glu Lys Glu Leu Ala Leu Leu Gln
            340                 345                 350

Asp Val Glu Arg Glu Lys Asp Asn Asn Thr Val Asp Met Val Asp Pro
        355                 360                 365

Ile Glu Ile Ala Asp Glu Thr Thr Trp Ile Lys Glu Pro Val Asp Asn
    370                 375                 380

Gly Ser Leu Pro Met Thr Asp Phe Val Ser Gly Ile Ala Phe Ser Ile
385                 390                 395                 400

Glu Asn Ser His Met Cys Met Ser Pro Leu Ala Glu Ser Ser Val Ile
                405                 410                 415

Pro Cys Glu Ser Ser Asn Ile Gln Met Asp Ser Gly Tyr Asn Thr Gln
            420                 425                 430

Asn Cys Gly Ser Asn Ile Met Asp Thr Val Gly Ala Glu Ser Tyr Cys
        435                 440                 445

Lys Glu Ser Asp Ala Gln Thr Cys Glu Val Glu Ser Lys Ser Gln Ala
    450                 455                 460
```

Phe Asn Met Lys Gln Asp His Thr Thr Gln Arg Cys Trp Met Lys Thr
465 470 475 480

Ala Ser Pro Phe Gln Cys Ser Ser Pro
485

<210> 9350
<211> 619
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1907; "

<220>
<221> source
<223> /note="Gene Symbol: BORA; "

<220>
<221> source
<223> /note="Gene Name:
bora, aurora kinase A activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375082"

<400> 9350
Met Ala Gly Arg His Asp Trp Leu Val Ala His Lys Pro Arg Ala Leu
1 5 10 15

Val Gly Pro Arg Gln Arg Gly Ser Gly Glu Leu Lys Ser Leu Cys Leu
20 25 30

Ser Trp Lys Leu Ala Trp Pro Pro Glu Leu Pro Gly Val Gly Thr Gly
35 40 45

Gly Phe Val Leu Tyr Ala Pro Phe Ser Leu Cys Ala Met Gly Asp Val
50 55 60

Lys Glu Ser Lys Met Gln Ile Thr Pro Glu Thr Pro Gly Arg Ile Pro
65 70 75 80

Val Leu Asn Pro Phe Glu Ser Pro Ser Asp Tyr Ser Asn Leu His Glu
85 90 95

Gln Thr Leu Ala Ser Pro Ser Val Phe Lys Ser Thr Lys Leu Pro Thr

```
            100                 105                 110

Pro Gly Lys Phe Arg Trp Ser Ile Asp Gln Leu Ala Val Ile Asn Pro
        115                 120                 125

Val Glu Ile Asp Pro Glu Asp Ile His Arg Gln Ala Leu Tyr Leu Ser
    130                 135                 140

His Ser Arg Ile Asp Lys Asp Val Glu Asp Lys Arg Gln Lys Ala Ile
145                 150                 155                 160

Glu Glu Phe Phe Thr Lys Asp Val Ile Val Pro Ser Pro Trp Thr Asp
                165                 170                 175

His Glu Gly Lys Gln Leu Ser Gln Cys His Ser Ser Lys Cys Thr Asn
            180                 185                 190

Ile Asn Ser Asp Ser Pro Val Gly Lys Lys Leu Thr Ile His Ser Glu
        195                 200                 205

Lys Ser Asp Ala Ala Cys Gln Thr Leu Leu Ser Leu Pro Val Asp Phe
    210                 215                 220

Asn Leu Glu Asn Ile Leu Gly Asp Tyr Phe Arg Ala Asp Glu Phe Ala
225                 230                 235                 240

Asp Gln Ser Pro Gly Asn Leu Ser Ser Ser Ser Leu Arg Arg Lys Leu
                245                 250                 255

Phe Leu Asp Gly Asn Gly Ser Ile Ser Asp Ser Leu Pro Ser Ala Ser
            260                 265                 270

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

Ser Ile Asp Leu Ser Pro Val Lys Cys Arg Ser Pro Leu Gln Thr Pro
    290                 295                 300

Ser Ser Gly Gln Phe Ser Ser Ser Pro Ile Gln Ala Ser Ala Lys Lys
305                 310                 315                 320

Tyr Ser Leu Gly Ser Ile Thr Ser Pro Ser Pro Ile Ser Ser Pro Thr
                325                 330                 335
```

```
Phe Ser Pro Ile Glu Phe Gln Ile Gly Glu Thr Pro Leu Ser Glu Gln
            340                 345                 350

Arg Lys Phe Thr Val His Ser Pro Asp Ala Ser Ser Gly Thr Asn Ser
        355                 360                 365

Asn Gly Ile Thr Asn Pro Cys Ile Arg Ser Pro Tyr Ile Asp Gly Cys
    370                 375                 380

Ser Pro Ile Lys Asn Trp Ser Pro Met Arg Leu Gln Met Tyr Ser Gly
385                 390                 395                 400

Gly Thr Gln Tyr Arg Thr Ser Val Ile Gln Ile Pro Phe Thr Leu Glu
                405                 410                 415

Thr Gln Gly Glu Asp Glu Glu Asp Lys Glu Asn Ile Pro Ser Thr Asp
            420                 425                 430

Val Ser Ser Pro Ala Met Asp Ala Ala Gly Ile His Leu Arg Gln Phe
        435                 440                 445

Ser Asn Glu Ala Ser Thr His Gly Thr His Leu Val Val Thr Ala Met
    450                 455                 460

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

Leu Gln Asp Val Glu Arg Glu Lys Asp Asn Asn Thr Val Asp Met Val
                485                 490                 495

Asp Pro Ile Glu Ile Ala Asp Glu Thr Thr Trp Ile Lys Glu Pro Val
            500                 505                 510

Asp Asn Gly Ser Leu Pro Met Thr Asp Phe Val Ser Gly Ile Ala Phe
        515                 520                 525

Ser Ile Glu Asn Ser His Met Cys Met Ser Pro Leu Ala Glu Ser Ser
    530                 535                 540

Val Ile Pro Cys Glu Ser Ser Asn Ile Gln Met Asp Ser Gly Tyr Asn
545                 550                 555                 560
```

```
Thr Gln Asn Cys Gly Ser Asn Ile Met Asp Thr Val Gly Ala Glu Ser
                565                 570                 575

Tyr Cys Lys Glu Ser Asp Ala Gln Thr Cys Glu Val Glu Ser Lys Ser
            580                 585                 590

Gln Ala Phe Asn Met Lys Gln Asp His Thr Thr Gln Arg Cys Trp Met
        595                 600                 605

Lys Thr Ala Ser Pro Phe Gln Cys Ser Ser Pro
    610                 615


<210> 9351
<211> 634
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1907; "

<220>
<221> source
<223> /note="Gene Symbol: BORA; "

<220>
<221> source
<223> /note="Gene Name:
      bora, aurora kinase A activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479266"

<400> 9351
Met Glu Arg Phe Leu Phe Pro Ala Pro Asp Leu Pro Ala Arg Ser Pro
1               5                   10                  15

Leu Val Asn Gly Ser Ser Gln Gly Val Gly Val Glu Glu Arg Gly Thr
            20                  25                  30

Arg Lys Ser Gly His Val Gly Leu Gly Ala Thr Pro Pro Ser His Ser
        35                  40                  45

Ile Gln Gly Ser Arg Leu His Leu Asn Leu Pro Glu Val Asp Ser Phe
    50                  55                  60

Pro Pro His Pro Ala Lys Phe Ser Leu Cys Ala Met Gly Asp Val Lys
```

65 70 75 80

Glu Ser Lys Met Gln Ile Thr Pro Glu Thr Pro Gly Arg Ile Pro Val
85 90 95

Leu Asn Pro Phe Glu Ser Pro Ser Asp Tyr Ser Asn Leu His Glu Gln
100 105 110

Thr Leu Ala Ser Pro Ser Val Phe Lys Ser Thr Lys Leu Pro Thr Pro
115 120 125

Gly Lys Phe Arg Trp Ser Ile Asp Gln Leu Ala Val Ile Asn Pro Val
130 135 140

Glu Ile Asp Pro Glu Asp Ile His Arg Gln Ala Leu Tyr Leu Ser His
145 150 155 160

Ser Arg Ile Asp Lys Asp Val Glu Asp Lys Arg Gln Lys Ala Ile Glu
165 170 175

Glu Phe Phe Thr Lys Asp Val Ile Val Pro Ser Pro Trp Thr Asp His
180 185 190

Glu Gly Lys Gln Leu Ser Gln Cys His Ser Ser Lys Cys Thr Asn Ile
195 200 205

Asn Ser Asp Ser Pro Val Gly Lys Lys Leu Thr Ile His Ser Glu Lys
210 215 220

Ser Asp Ala Ala Cys Gln Thr Leu Leu Ser Leu Pro Val Asp Phe Asn
225 230 235 240

Leu Glu Asn Ile Leu Gly Asp Tyr Phe Arg Ala Asp Glu Phe Ala Asp
245 250 255

Gln Ser Pro Gly Asn Leu Ser Ser Ser Ser Leu Arg Arg Lys Leu Phe
260 265 270

Leu Asp Gly Asn Gly Ser Ile Ser Asp Ser Leu Pro Ser Ala Ser Pro
275 280 285

Gly Ser Pro His Ser Gly Val Gln Thr Ser Leu Glu Met Phe Tyr Ser
290 295 300

```
Ile Asp Leu Ser Pro Val Lys Cys Arg Ser Pro Leu Gln Thr Pro Ser
305                 310                 315                 320

Ser Gly Gln Phe Ser Ser Ser Pro Ile Gln Ala Ser Ala Lys Lys Tyr
                325                 330                 335

Ser Leu Gly Ser Ile Thr Ser Pro Ser Pro Ile Ser Ser Pro Thr Phe
            340                 345                 350

Ser Pro Ile Glu Phe Gln Ile Gly Glu Thr Pro Leu Ser Glu Gln Arg
        355                 360                 365

Lys Phe Thr Val His Ser Pro Asp Ala Ser Ser Gly Thr Asn Ser Asn
    370                 375                 380

Gly Ile Thr Asn Pro Cys Ile Arg Ser Pro Tyr Ile Asp Gly Cys Ser
385                 390                 395                 400

Pro Ile Lys Asn Trp Ser Pro Met Arg Leu Gln Met Tyr Ser Gly Gly
                405                 410                 415

Thr Gln Tyr Arg Thr Ser Val Ile Gln Ile Pro Phe Thr Leu Glu Thr
            420                 425                 430

Gln Gly Glu Asp Glu Glu Asp Lys Glu Asn Ile Pro Ser Thr Asp Val
        435                 440                 445

Ser Ser Pro Ala Met Asp Ala Ala Gly Ile His Leu Arg Gln Phe Ser
    450                 455                 460

Asn Glu Ala Ser Thr His Gly Thr His Leu Val Val Thr Ala Met Ser
465                 470                 475                 480

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

Gln Asp Val Glu Arg Glu Lys Asp Asn Asn Thr Val Asp Met Val Asp
            500                 505                 510

Pro Ile Glu Ile Ala Asp Glu Thr Thr Trp Ile Lys Glu Pro Val Asp
        515                 520                 525
```

```
Asn Gly Ser Leu Pro Met Thr Asp Phe Val Ser Gly Ile Ala Phe Ser
    530                 535                 540

Ile Glu Asn Ser His Met Cys Met Ser Pro Leu Ala Glu Ser Ser Val
545                 550                 555                 560

Ile Pro Cys Glu Ser Ser Asn Ile Gln Met Asp Ser Gly Tyr Asn Thr
                565                 570                 575

Gln Asn Cys Gly Ser Asn Ile Met Asp Thr Val Gly Ala Glu Ser Tyr
            580                 585                 590

Cys Lys Glu Ser Asp Ala Gln Thr Cys Glu Val Glu Ser Lys Ser Gln
        595                 600                 605

Ala Phe Asn Met Lys Gln Asp His Thr Thr Gln Arg Cys Trp Met Lys
    610                 615                 620

Thr Ala Ser Pro Phe Gln Cys Ser Ser Pro
625                 630
```

<210> 9352
<211> 114
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1907; "

<220>
<221> source
<223> /note="Gene Symbol: BORA; "

<220>
<221> source
<223> /note="Gene Name:
bora, aurora kinase A activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479349"

<400> 9352

```
Met Ala Gly Arg His Asp Trp Leu Val Ala His Lys Pro Arg Ala Leu
1               5                   10                  15

Val Gly Pro Arg Gln Arg Gly Ser Gly Glu Leu Lys Ser Leu Cys Leu
```

```
            20                  25                  30

Ser Trp Lys Leu Ala Trp Pro Pro Glu Leu Pro Gly Val Gly Thr Gly
        35                  40                  45

Gly Phe Val Leu Tyr Ala Pro Phe Ser Leu Cys Ala Met Gly Asp Val
    50                  55                  60

Lys Glu Ser Lys Met Gln Ile Thr Pro Glu Thr Pro Gly Arg Ile Pro
65                  70                  75                  80

Val Leu Asn Pro Phe Glu Ser Pro Ser Asp Tyr Ser Asn Leu His Glu
                85                  90                  95

Gln Thr Leu Ala Ser Pro Ser Val Phe Lys Ser Thr Lys Leu Pro Ala
            100                 105                 110

Leu Thr



<210> 9353
<211> 106
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1908; "

<220>
<221> source
<223> /note="Gene Symbol: BORCS7-ASMT; "

<220>
<221> source
<223> /note="Gene Name:
      BORCS7-ASMT readthrough (NMD candidate); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299353"

<400> 9353
Met Met Ala Thr Gly Thr Pro Glu Ser Gln Ala Arg Phe Gly Gln Ser
1               5                   10                  15

Val Lys Gly Leu Leu Thr Glu Lys Val Thr Thr Cys Gly Thr Asp Val
            20                  25                  30
```

```
Ile Ala Leu Thr Lys Gln Val Leu Lys Gly Ser Arg Ser Ser Glu Leu
        35                  40                  45

Leu Gly Gln Ala Ala Arg Asn Met Val Leu Gln Glu Asp Ala Ile Leu
    50                  55                  60

His Ser Glu Asp Ser Leu Arg Lys Met Ala Ile Ile Thr Thr His Leu
65                  70                  75                  80

Gln Tyr Gln Gln Glu Ala Ile Gln Lys Asn Val Glu Gln Ser Ser Asp
                85                  90                  95

Leu Gln Asp Gln Leu Asn His Leu Leu Lys
            100                 105


<210> 9354
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1909; "

<220>
<221> source
<223> /note="Gene Symbol: BORCS8-MEF2B; "

<220>
<221> source
<223> /note="Gene Name:
      BORCS8-MEF2B readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390762"

<400> 9354
Met Gly Arg Lys Lys Ile Gln Ile Ser Arg Ile Leu Asp Gln Arg Asn
1               5                   10                  15

Arg Gln Val Thr Phe Thr Lys Arg Lys Phe Gly Leu Met Lys Lys Ala
            20                  25                  30

Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Ile Phe
        35                  40                  45

Asn Ser Ala Asn Arg Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp Arg
```

```
    50                  55                  60

Val Leu Leu Lys Tyr Thr Glu Tyr Ser Glu Pro His Glu Ser Arg Thr
65                  70                  75                  80

Asn Thr Asp Ile Leu Glu Thr Leu Lys Arg Arg Gly Ile Gly Leu Asp
                85                  90                  95

Gly Pro Glu Leu Glu Pro Asp Glu Gly Pro Glu Glu Pro Gly Glu Lys
            100                 105                 110

Phe Arg Arg Leu Ala Gly Glu Gly Gly Asp Pro Ala Leu Pro Arg Pro
        115                 120                 125

Arg Leu Tyr Pro Ala Ala Pro Ala Met Pro Ser Pro Asp Val Val Tyr
    130                 135                 140

Gly Ala Leu Pro Pro Pro Gly Cys Asp Pro Ser Gly Leu Gly Glu Ala
145                 150                 155                 160

Leu Pro Ala Gln Ser Arg Pro Ser Pro Phe Arg Pro Ala Ala Pro Lys
                165                 170                 175

Ala Gly Pro Pro Gly Leu Val His Pro Leu Phe Ser Pro Ser His Leu
            180                 185                 190

Thr Ser Lys Thr Pro Pro Pro Leu Tyr Leu Pro Thr Glu Gly Arg Arg
        195                 200                 205

Ser Asp Leu Pro Gly Gly Leu Ala Gly Pro Arg Gly Gly Leu Asn Thr
    210                 215                 220

Ser Arg Ser Leu Tyr Ser Gly Leu Gln Asn Pro Cys Ser Thr Ala Thr
225                 230                 235                 240

Pro Gly Pro Pro Leu Gly Ser Phe Pro Phe Leu Pro Gly Gly Pro Pro
                245                 250                 255

Val Gly Ala Glu Ala Trp Ala Arg Arg Val Pro Gln Pro Ala Ala Pro
            260                 265                 270

Pro Arg Arg Pro Pro Gln Ser Ala Ser Ser Leu Ser Ala Ser Leu Arg
        275                 280                 285
```

```
Pro Pro Gly Ala Pro Ala Thr Phe Leu Arg Pro Ser Pro Ile Pro Cys
    290                 295                 300

Ser Ser Pro Gly Pro Trp Gln Ser Leu Cys Gly Leu Gly Pro Pro Cys
305                 310                 315                 320

Ala Gly Cys Pro Trp Pro Thr Ala Gly Pro Gly Arg Arg Ser Pro Gly
                325                 330                 335

Gly Thr Ser Pro Glu Arg Ser Pro Gly Thr Ala Arg Ala Arg Gly Asp
            340                 345                 350

Pro Thr Ser Leu Gln Ala Ser Ser Glu Lys Thr Gln Gln
        355                 360                 365


<210> 9355
<211> 382
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1909; "

<220>
<221> source
<223> /note="Gene Symbol: BORCS8-MEF2B; "

<220>
<221> source
<223> /note="Gene Name:
      BORCS8-MEF2B readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454967"

<400> 9355
Met Pro Val Pro Arg Ala Thr Asp Lys Asp His Ser Thr Gln Pro Gly
1               5                   10                  15

Thr Met Gly Arg Lys Lys Ile Gln Ile Ser Arg Ile Leu Asp Gln Arg
            20                  25                  30

Asn Arg Gln Val Thr Phe Thr Lys Arg Lys Phe Gly Leu Met Lys Lys
        35                  40                  45
```

```
Ala Tyr Glu Leu Ser Val Leu Cys Asp Cys Glu Ile Ala Leu Ile Ile
    50                  55                  60

Phe Asn Ser Ala Asn Arg Leu Phe Gln Tyr Ala Ser Thr Asp Met Asp
65                  70                  75                  80

Arg Val Leu Leu Lys Tyr Thr Glu Tyr Ser Glu Pro His Glu Ser Arg
                85                  90                  95

Thr Asn Thr Asp Ile Leu Glu Thr Leu Lys Arg Arg Gly Ile Gly Leu
            100                 105                 110

Asp Gly Pro Glu Leu Glu Pro Asp Glu Gly Pro Glu Glu Pro Gly Glu
        115                 120                 125

Lys Phe Arg Arg Leu Ala Gly Glu Gly Gly Asp Pro Ala Leu Pro Arg
    130                 135                 140

Pro Arg Leu Tyr Pro Ala Ala Pro Ala Met Pro Ser Pro Asp Val Val
145                 150                 155                 160

Tyr Gly Ala Leu Pro Pro Pro Gly Cys Asp Pro Ser Gly Leu Gly Glu
                165                 170                 175

Ala Leu Pro Ala Gln Ser Arg Pro Ser Pro Phe Arg Pro Ala Ala Pro
            180                 185                 190

Lys Ala Gly Pro Pro Gly Leu Val His Pro Leu Phe Ser Pro Ser His
        195                 200                 205

Leu Thr Ser Lys Thr Pro Pro Pro Leu Tyr Leu Pro Thr Glu Gly Arg
    210                 215                 220

Arg Ser Asp Leu Pro Gly Gly Leu Ala Gly Pro Arg Gly Gly Leu Asn
225                 230                 235                 240

Thr Ser Arg Ser Leu Tyr Ser Gly Leu Gln Asn Pro Cys Ser Thr Ala
                245                 250                 255

Thr Pro Gly Pro Pro Leu Gly Ser Phe Pro Phe Leu Pro Gly Gly Pro
            260                 265                 270

Pro Val Gly Ala Glu Ala Trp Ala Arg Arg Val Pro Gln Pro Ala Ala
```

```
        275                 280                 285

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

Arg Pro Pro Gly Ala Pro Ala Thr Phe Leu Arg Pro Ser Pro Ile Pro
305                 310                 315                 320

Cys Ser Ser Pro Gly Pro Trp Gln Ser Leu Cys Gly Leu Gly Pro Pro
                325                 330                 335

Cys Ala Gly Cys Pro Trp Pro Thr Ala Gly Pro Gly Arg Arg Ser Pro
            340                 345                 350

Gly Gly Thr Ser Pro Glu Arg Ser Pro Gly Thr Ala Arg Ala Arg Gly
        355                 360                 365

Asp Pro Thr Ser Leu Gln Ala Ser Ser Glu Lys Thr Gln Gln
    370                 375                 380


<210> 9356
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1909; "

<220>
<221> source
<223> /note="Gene Symbol: BORCS8-MEF2B; "

<220>
<221> source
<223> /note="Gene Name:
      BORCS8-MEF2B readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457957"

<400> 9356
Met Glu Glu Pro Glu Met Gln Leu Lys Gly Lys Lys Val Thr Asp Lys
1               5                   10                  15

Phe Thr Glu Ser Val Tyr Val Leu Ala Asn Glu Pro Ser Val Ala Leu
            20                  25                  30
```

```
Tyr Arg Leu Gln Glu His Val Arg Arg Ser Leu Pro Glu Leu Ala Gln
        35                  40                  45

His Lys Ala Asp Met Gln Arg Trp Glu Glu Gln Ser Gln Gly Ala Ile
    50                  55                  60

Tyr Thr Val Glu Tyr Ala Cys Ser Ala Val Lys Asn Leu Val Asp Ser
65                  70                  75                  80

Ser Val Tyr Phe Arg Ser Val Glu Gly Leu Leu Lys Gln Ala Ile Ser
                85                  90                  95

Ile Arg Asp His Met Asn Ala Ser Ala Gln Gly His Ser Pro Glu Glu
            100                 105                 110

Pro Pro Pro Pro Ser Ser Ala
        115


<210> 9357
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1909; "

<220>
<221> source
<223> /note="Gene Symbol: BORCS8-MEF2B; "

<220>
<221> source
<223> /note="Gene Name:
      BORCS8-MEF2B readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473369"

<400> 9357
Met Glu Glu Pro Glu Met Gln Leu Lys Gly Lys Lys Val Thr Asp Lys
1               5                   10                  15

Phe Thr Glu Ser Val Tyr Val Leu Ala Asn Glu Pro Ser Val Ala Leu
            20                  25                  30

Tyr Arg Leu Gln Glu His Val Arg Arg Ser Leu Pro Glu Leu Ala Gln
```

```
        35                  40                  45

His Lys Ala Asp Met Gln Arg Trp Glu Glu Gln Ser Gln Gly Ala Ile
    50                  55                  60

Tyr Thr Val Glu Tyr Ala Cys Ser Ala Val Lys Asn Leu Val Asp Ser
65                  70                  75                  80

Ser Val Tyr Phe Arg Ser Val Glu Gly Leu Leu Lys Gln Ala Ile Ser
                85                  90                  95

Ile Arg Asp His Met Asn Ala Ser Ala Gln Gly His Ser Pro Glu Glu
            100                 105                 110

Pro Pro Pro Pro Ser Ser Ala
        115


<210> 9358
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1909; "

<220>
<221> source
<223> /note="Gene Symbol: BORCS8-MEF2B; "

<220>
<221> source
<223> /note="Gene Name:
      BORCS8-MEF2B readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473577"

<400> 9358
Met Glu Glu Pro Glu Met Gln Leu Lys Gly Lys Lys Val Thr Asp Lys
1               5                   10                  15

Phe Thr Glu Ser Val Tyr Val Leu Ala Asn Glu Pro Ser Val Ala Leu
            20                  25                  30

Tyr Arg Leu Gln Glu His Val Arg Arg Ser Leu Pro Glu Leu Ala Gln
        35                  40                  45
```

```
His Lys Ala Asp Met Gln Arg Trp Glu Glu Gln Ser Gln Gly Ala Ile
    50                  55                  60

Tyr Thr Val Glu Tyr Ala Cys Ser Ala Val Lys Asn Leu Val Asp Ser
65                  70                  75                  80

Ser Val Tyr Phe Arg Ser Val Glu Gly Leu Leu Lys Gln Ala Ile Ser
                85                  90                  95

Ile Arg Asp His Met Asn Ala Ser Ala Gln Gly His Ser Pro Glu Glu
            100                 105                 110

Pro Pro Pro Pro Ser Ser Ala
        115


<210> 9359
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1909; "

<220>
<221> source
<223> /note="Gene Symbol: BORCS8-MEF2B; "

<220>
<221> source
<223> /note="Gene Name:
      BORCS8-MEF2B readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486975"

<400> 9359
Met Glu Glu Pro Glu Met Gln Leu Lys Gly Lys Lys Val Thr Asp Lys
1               5                   10                  15

Phe Thr Glu Ser Val Tyr Val Leu Ala Asn Glu Pro Ser Val Ala Leu
            20                  25                  30

Tyr Arg Leu Gln Glu His Val Arg Arg Ser Leu Pro Glu Leu Ala Gln
        35                  40                  45

His Lys Ala Asp Met Gln Arg Trp Glu Glu Gln Ser Gln Gly Ala Ile
```

```
    50                  55                  60

Tyr Thr Val Glu Tyr Ala Cys Ser Ala Val Lys Asn Leu Val Asp Ser
65                  70                  75                  80

Ser Val Tyr Phe Arg Ser Val Glu Gly Leu Leu Lys Gln Ala Ile Ser
                85                  90                  95

Ile Arg Asp His Met Asn Ala Ser Ala Gln Gly His Ser Pro Glu Glu
            100                 105                 110

Pro Pro Pro Pro Ser Ser Ala
        115


<210> 9360
<211> 174
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1910; "

<220>
<221> source
<223> /note="Gene Symbol: BOLL; "

<220>
<221> source
<223> /note="Gene Name:
      boule-like RNA-binding prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N9W6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000282278"

<400> 9360
Met Thr Glu Leu Glu Tyr Pro Lys Gly Ser Ser Ile Met Pro Ala Ala
1               5                   10                  15

Gly Thr Met Tyr Leu Thr Thr Ser Thr Gly Tyr Pro Tyr Thr Tyr His
            20                  25                  30

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

```
Pro Trp Pro Ser Arg Ser Val Cys Ser Ser Pro Val Met Val Ala Gln
    50                  55                  60

Pro Ile Tyr Gln Gln Pro Ala Tyr His Tyr Gln Ala Thr Thr Gln Tyr
65                  70                  75                  80

Leu Pro Gly Gln Trp Gln Trp Ser Val Pro Gln Pro Ser Ala Ser Ser
                85                  90                  95

Ala Pro Phe Leu Tyr Leu Gln Pro Ser Glu Val Ile Tyr Gln Pro Val
            100                 105                 110

Glu Ile Ala Gln Asp Gly Gly Cys Val Pro Pro Pro Leu Ser Leu Met
        115                 120                 125

Glu Thr Ser Val Pro Glu Pro Tyr Ser Asp His Gly Val Gln Ala Thr
    130                 135                 140

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

Met Gln Pro Glu Pro Ile Lys Thr Val Trp Ser Ile His Tyr
                165                 170


<210> 9361
<211> 295
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1910; "

<220>
<221> source
<223> /note="Gene Symbol: BOLL; "

<220>
<221> source
<223> /note="Gene Name:
      boule-like RNA-binding prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N9W6; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000314792"

<400> 9361

```
Met Glu Thr Glu Ser Gly Pro Gln Thr Ser Asn Gln Met Gln Thr Asp
1               5                  10                  15

Ser Leu Ser Pro Ser Pro Asn Pro Val Ser Pro Val Pro Leu Asn Asn
            20                  25                  30

Pro Thr Ser Ala Pro Arg Tyr Gly Thr Val Ile Pro Asn Arg Ile Phe
        35                  40                  45

Val Gly Gly Ile Asp Phe Lys Thr Asn Glu Ser Asp Leu Arg Lys Phe
    50                  55                  60

Phe Ser Gln Tyr Gly Ser Val Lys Glu Val Lys Ile Val Asn Asp Arg
65                  70                  75                  80

Ala Gly Val Ser Lys Gly Tyr Gly Phe Val Thr Phe Glu Thr Gln Glu
                85                  90                  95

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

Lys Lys Leu Asn Ile Gly Pro Ala Ile Arg Lys Gln Gln Val Gly Ile
        115                 120                 125

Pro Arg Ser Ser Ile Met Pro Ala Ala Gly Thr Met Tyr Leu Thr Thr
    130                 135                 140

Ser Thr Gly Tyr Pro Tyr Thr Tyr His Asn Gly Val Ala Tyr Phe His
145                 150                 155                 160

Thr Pro Glu Val Thr Ser Val Pro Pro Pro Trp Pro Ser Arg Ser Val
                165                 170                 175

Cys Ser Ser Pro Val Met Val Ala Gln Pro Ile Tyr Gln Gln Pro Ala
            180                 185                 190

Tyr His Tyr Gln Ala Thr Thr Gln Tyr Leu Pro Gly Gln Trp Gln Trp
        195                 200                 205

Ser Val Pro Gln Pro Ser Ala Ser Ser Ala Pro Phe Leu Tyr Leu Gln
    210                 215                 220
```

```
Pro Ser Glu Val Ile Tyr Gln Pro Val Glu Ile Ala Gln Asp Gly Gly
225                 230                 235                 240


Cys Val Pro Pro Pro Leu Ser Leu Met Glu Thr Ser Val Pro Glu Pro
                245                 250                 255


Tyr Ser Asp His Gly Val Gln Ala Thr Tyr His Gln Val Tyr Ala Pro
            260                 265                 270


Ser Ala Ile Thr Met Pro Ala Pro Val Met Gln Pro Glu Pro Ile Lys
        275                 280                 285


Thr Val Trp Ser Ile His Tyr
    290                 295


<210> 9362
<211> 283
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1910; "

<220>
<221> source
<223> /note="Gene Symbol: BOLL; "

<220>
<221> source
<223> /note="Gene Name:
      boule-like RNA-binding prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N9W6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376116"

<400> 9362
Met Gln Thr Asp Ser Leu Ser Pro Ser Pro Asn Pro Val Ser Pro Val
1               5                   10                  15


Pro Leu Asn Asn Pro Thr Ser Ala Pro Arg Tyr Gly Thr Val Ile Pro
            20                  25                  30
```

```
Asn Arg Ile Phe Val Gly Gly Ile Asp Phe Lys Thr Asn Glu Ser Asp
        35                  40                  45

Leu Arg Lys Phe Phe Ser Gln Tyr Gly Ser Val Lys Glu Val Lys Ile
    50                  55                  60

Val Asn Asp Arg Ala Gly Val Ser Lys Gly Tyr Gly Phe Val Thr Phe
65                  70                  75                  80

Glu Thr Gln Glu Asp Ala Gln Lys Ile Leu Gln Glu Ala Glu Lys Leu
                85                  90                  95

Asn Tyr Lys Asp Lys Lys Leu Asn Ile Gly Pro Ala Ile Arg Lys Gln
            100                 105                 110

Gln Val Gly Ile Pro Arg Ser Ser Ile Met Pro Ala Ala Gly Thr Met
        115                 120                 125

Tyr Leu Thr Thr Ser Thr Gly Tyr Pro Tyr Thr Tyr His Asn Gly Val
    130                 135                 140

Ala Tyr Phe His Thr Pro Glu Val Thr Ser Val Pro Pro Pro Trp Pro
145                 150                 155                 160

Ser Arg Ser Val Cys Ser Ser Pro Val Met Val Ala Gln Pro Ile Tyr
                165                 170                 175

Gln Gln Pro Ala Tyr His Tyr Gln Ala Thr Thr Gln Tyr Leu Pro Gly
            180                 185                 190

Gln Trp Gln Trp Ser Val Pro Gln Pro Ser Ala Ser Ser Ala Pro Phe
        195                 200                 205

Leu Tyr Leu Gln Pro Ser Glu Val Ile Tyr Gln Pro Val Glu Ile Ala
    210                 215                 220

Gln Asp Gly Gly Cys Val Pro Pro Pro Leu Ser Leu Met Glu Thr Ser
225                 230                 235                 240

Val Pro Glu Pro Tyr Ser Asp His Gly Val Gln Ala Thr Tyr His Gln
                245                 250                 255

Val Tyr Ala Pro Ser Ala Ile Thr Met Pro Ala Pro Val Met Gln Pro
```

260 265 270

Glu Pro Ile Lys Thr Val Trp Ser Ile His Tyr
275 280

<210> 9363
<211> 283
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1910; "

<220>
<221> source
<223> /note="Gene Symbol: BOLL; "

<220>
<221> source
<223> /note="Gene Name:
boule-like RNA-binding prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N9W6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396099"

<400> 9363
Met Gln Thr Asp Ser Leu Ser Pro Ser Pro Asn Pro Val Ser Pro Val
1 5 10 15

Pro Leu Asn Asn Pro Thr Ser Ala Pro Arg Tyr Gly Thr Val Ile Pro
20 25 30

Asn Arg Ile Phe Val Gly Gly Ile Asp Phe Lys Thr Asn Glu Ser Asp
35 40 45

Leu Arg Lys Phe Phe Ser Gln Tyr Gly Ser Val Lys Glu Val Lys Ile
50 55 60

Val Asn Asp Arg Ala Gly Val Ser Lys Gly Tyr Gly Phe Val Thr Phe
65 70 75 80

Glu Thr Gln Glu Asp Ala Gln Lys Ile Leu Gln Glu Ala Glu Lys Leu
85 90 95

```
Asn Tyr Lys Asp Lys Lys Leu Asn Ile Gly Pro Ala Ile Arg Lys Gln
            100                 105                 110

Gln Val Gly Ile Pro Arg Ser Ser Ile Met Pro Ala Ala Gly Thr Met
        115                 120                 125

Tyr Leu Thr Thr Ser Thr Gly Tyr Pro Tyr Thr Tyr His Asn Gly Val
    130                 135                 140

Ala Tyr Phe His Thr Pro Glu Val Thr Ser Val Pro Pro Pro Trp Pro
145                 150                 155                 160

Ser Arg Ser Val Cys Ser Ser Pro Val Met Val Ala Gln Pro Ile Tyr
                165                 170                 175

Gln Gln Pro Ala Tyr His Tyr Gln Ala Thr Thr Gln Tyr Leu Pro Gly
            180                 185                 190

Gln Trp Gln Trp Ser Val Pro Gln Pro Ser Ala Ser Ser Ala Pro Phe
        195                 200                 205

Leu Tyr Leu Gln Pro Ser Glu Val Ile Tyr Gln Pro Val Glu Ile Ala
    210                 215                 220

Gln Asp Gly Gly Cys Val Pro Pro Pro Leu Ser Leu Met Glu Thr Ser
225                 230                 235                 240

Val Pro Glu Pro Tyr Ser Asp His Gly Val Gln Ala Thr Tyr His Gln
                245                 250                 255

Val Tyr Ala Pro Ser Ala Ile Thr Met Pro Ala Pro Val Met Gln Pro
            260                 265                 270

Glu Pro Ile Lys Thr Val Trp Ser Ile His Tyr
        275                 280


<210> 9364
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1910; "
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<220>
<221> source
<223> /note="Gene Symbol: BOLL; "

<220>
<221> source
<223> /note="Gene Name:
boule-like RNA-binding prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397711"

<400> 9364

```
Met Gln Thr Asp Ser Leu Ser Pro Ser Pro Asn Pro Val Ser Pro Val
1               5                  10                  15

Pro Leu Asn Asn Pro Thr Ser Ala Pro Arg Tyr Gly Thr Val Ile Pro
            20                  25                  30

Asn Arg Ile Phe Val Gly Gly Ile Asp Phe Lys Thr Asn Glu Ser Asp
        35                  40                  45

Leu Arg Lys Phe Phe Ser Gln Tyr Gly Ser Val Lys Glu Val Lys Ile
    50                  55                  60

Val Asn Asp Arg Ala Gly Val Ser Lys Gly Tyr Gly Phe Val Thr Phe
65                  70                  75                  80

Glu Thr Gln Glu Asp Ala Gln Lys Ile Leu Gln Glu Ala Glu Lys Leu
                85                  90                  95

Asn Tyr Lys Asp Lys Lys Leu Asn Ile Gly Pro Ala Ile Arg Lys Gln
            100                 105                 110

Gln Val Gly Ile Pro Arg Ser Ser Ile Met Pro Ala Ala Gly Thr Met
        115                 120                 125

Tyr Leu Thr Thr Ser Thr Gly Tyr Pro Tyr Thr Tyr His Asn Gly Val
    130                 135                 140

Ala Tyr Phe His Thr Pro Glu Val Thr Ser Val Pro Pro Pro Trp Pro
145                 150                 155                 160

Ser Arg Ser Val Cys Ser Ser Pro Val Met Val Ala Gln Pro Ile Tyr
                165                 170                 175
```

```
Gln Gln Pro Ala Tyr His Tyr Gln Gly Ile Lys Gln Cys His Thr Arg
            180                 185                 190

Arg Trp Met Asp Ser Leu Leu Pro Phe Thr Lys Cys Asp Glu Ala Thr
        195                 200                 205

Thr Gln Tyr Leu Pro Gly Gln Trp Gln Trp Ser Val Pro Gln Pro Ser
    210                 215                 220

Ala Ser Ser Ala Pro Phe Leu Tyr Leu Gln Pro Ser Glu Val Ile Tyr
225                 230                 235                 240

Gln Pro Val Glu Ile Ala Gln Asp Gly Gly Cys Val Pro Pro Pro Leu
                245                 250                 255

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

Gln Ala Thr Tyr His Gln Val Tyr Ala Pro Ser Ala Ile Thr Met Pro
        275                 280                 285

Ala Pro Val Met Gln Pro Glu Pro Ile Lys Cys Gly Ala Phe Ile Ile
    290                 295                 300

Lys Thr Ile Gly Gln Leu Tyr Ser Ser Ser Thr Asp Phe Leu Ser Asn
305                 310                 315                 320

Asp Pro Cys Val Ala Glu Ile Gln Leu Gln Arg Thr Ser
                325                 330


<210> 9365
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1910; "

<220>
<221> source
<223> /note="Gene Symbol: BOLL; "

<220>
<221> source
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<223> /note="Gene Name:
boule-like RNA-binding prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416911"

<400> 9365
Met Glu Thr Glu Ser Gly Pro Gln Thr Ser Asn Gln Met Gln Thr Asp
1 5 10 15

Ser Leu Ser Pro Ser Pro Asn Pro Val Ser Pro Val Pro Leu Asn Asn
20 25 30

Pro Thr Ser Ala Pro Arg Tyr Gly Thr Val Ile Pro Asn Arg Ile Phe
35 40 45

Val Gly Gly Ile Asp Phe Lys Thr Asn Glu Ser Asp Leu Arg Lys Phe
50 55 60

Phe Ser Gln Tyr Gly Ser Val Lys Glu Val Lys Ile Val Asn Asp Arg
65 70 75 80

Ala Gly Val Ser Lys Gly Phe
85

<210> 9366
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1911; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA1; "

<220>
<221> source
<223> /note="Gene Name:
BPI fold containing family A,
member 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP55; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000346251"

<400> 9366

```
Met Phe Gln Thr Gly Gly Leu Ile Val Phe Tyr Gly Leu Leu Ala Gln
1               5                  10                  15

Thr Met Ala Gln Phe Gly Gly Leu Pro Val Pro Leu Asp Gln Thr Leu
            20                  25                  30

Pro Leu Asn Val Asn Pro Ala Leu Pro Leu Ser Pro Thr Gly Leu Ala
        35                  40                  45

Gly Ser Leu Thr Asn Ala Leu Ser Asn Gly Leu Leu Ser Gly Gly Leu
    50                  55                  60

Leu Gly Ile Leu Glu Asn Leu Pro Leu Leu Asp Ile Leu Lys Pro Gly
65                  70                  75                  80

Gly Gly Thr Ser Gly Gly Leu Leu Gly Gly Leu Leu Gly Lys Val Thr
                85                  90                  95

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

Pro Gln Leu Leu Glu Leu Gly Leu Val Gln Ser Pro Asp Gly His Arg
        115                 120                 125

Leu Tyr Val Thr Ile Pro Leu Gly Ile Lys Leu Gln Val Asn Thr Pro
    130                 135                 140

Leu Val Gly Ala Ser Leu Leu Arg Leu Ala Val Lys Leu Asp Ile Thr
145                 150                 155                 160

Ala Glu Ile Leu Ala Val Arg Asp Lys Gln Glu Arg Ile His Leu Val
                165                 170                 175

Leu Gly Asp Cys Thr His Ser Pro Gly Ser Leu Gln Ile Ser Leu Leu
            180                 185                 190

Asp Gly Leu Gly Pro Leu Pro Ile Gln Gly Leu Leu Asp Ser Leu Thr
        195                 200                 205

Gly Ile Leu Asn Lys Val Leu Pro Glu Leu Val Gln Gly Asn Val Cys
    210                 215                 220
```

```
Pro Leu Val Asn Glu Val Leu Arg Gly Leu Asp Ile Thr Leu Val His
225                 230                 235                 240


Asp Ile Val Asn Met Leu Ile His Gly Leu Gln Phe Val Ile Lys Val
                245                 250                 255


<210> 9367
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1911; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA1; "

<220>
<221> source
<223> /note="Gene Name:
      BPI fold containing family A,
      member 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NP55; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364562"

<400> 9367
Met Phe Gln Thr Gly Gly Leu Ile Val Phe Tyr Gly Leu Leu Ala Gln
1               5                   10                  15


Thr Met Ala Gln Phe Gly Gly Leu Pro Val Pro Leu Asp Gln Thr Leu
            20                  25                  30


Pro Leu Asn Val Asn Pro Ala Leu Pro Leu Ser Pro Thr Gly Leu Ala
        35                  40                  45


Gly Ser Leu Thr Asn Ala Leu Ser Asn Gly Leu Leu Ser Gly Gly Leu
    50                  55                  60


Leu Gly Ile Leu Glu Asn Leu Pro Leu Leu Asp Ile Leu Lys Pro Gly
65                  70                  75                  80
```

```
Gly Gly Thr Ser Gly Gly Leu Leu Gly Gly Leu Leu Gly Lys Val Thr
                85                  90                  95

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

Pro Gln Leu Leu Glu Leu Gly Leu Val Gln Ser Pro Asp Gly His Arg
        115                 120                 125

Leu Tyr Val Thr Ile Pro Leu Gly Ile Lys Leu Gln Val Asn Thr Pro
    130                 135                 140

Leu Val Gly Ala Ser Leu Leu Arg Leu Ala Val Lys Leu Asp Ile Thr
145                 150                 155                 160

Ala Glu Ile Leu Ala Val Arg Asp Lys Gln Glu Arg Ile His Leu Val
                165                 170                 175

Leu Gly Asp Cys Thr His Ser Pro Gly Ser Leu Gln Ile Ser Leu Leu
            180                 185                 190

Asp Gly Leu Gly Pro Leu Pro Ile Gln Gly Leu Leu Asp Ser Leu Thr
        195                 200                 205

Gly Ile Leu Asn Lys Val Leu Pro Glu Leu Val Gln Gly Asn Val Cys
    210                 215                 220

Pro Leu Val Asn Glu Val Leu Arg Gly Leu Asp Ile Thr Leu Val His
225                 230                 235                 240

Asp Ile Val Asn Met Leu Ile His Gly Leu Gln Phe Val Ile Lys Val
                245                 250                 255
```

<210> 9368
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1911; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA1; "

<220>
<221> source
<223> /note="Gene Name:
BPI fold containing family A,
member 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP55; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364571"

<400> 9368

```
Met Phe Gln Thr Gly Gly Leu Ile Val Phe Tyr Gly Leu Leu Ala Gln
1               5                  10                  15

Thr Met Ala Gln Phe Gly Gly Leu Pro Val Pro Leu Asp Gln Thr Leu
            20                  25                  30

Pro Leu Asn Val Asn Pro Ala Leu Pro Leu Ser Pro Thr Gly Leu Ala
        35                  40                  45

Gly Ser Leu Thr Asn Ala Leu Ser Asn Gly Leu Leu Ser Gly Gly Leu
    50                  55                  60

Leu Gly Ile Leu Glu Asn Leu Pro Leu Leu Asp Ile Leu Lys Pro Gly
65                  70                  75                  80

Gly Gly Thr Ser Gly Gly Leu Leu Gly Gly Leu Leu Gly Lys Val Thr
                85                  90                  95

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

Pro Gln Leu Leu Glu Leu Gly Leu Val Gln Ser Pro Asp Gly His Arg
        115                 120                 125

Leu Tyr Val Thr Ile Pro Leu Gly Ile Lys Leu Gln Val Asn Thr Pro
    130                 135                 140

Leu Val Gly Ala Ser Leu Leu Arg Leu Ala Val Lys Leu Asp Ile Thr
145                 150                 155                 160

Ala Glu Ile Leu Ala Val Arg Asp Lys Gln Glu Arg Ile His Leu Val
```

```
                165                 170                 175

Leu Gly Asp Cys Thr His Ser Pro Gly Ser Leu Gln Ile Ser Leu Leu
            180                 185                 190

Asp Gly Leu Gly Pro Leu Pro Ile Gln Gly Leu Leu Asp Ser Leu Thr
        195                 200                 205

Gly Ile Leu Asn Lys Val Leu Pro Glu Leu Val Gln Gly Asn Val Cys
    210                 215                 220

Pro Leu Val Asn Glu Val Leu Arg Gly Leu Asp Ile Thr Leu Val His
225                 230                 235                 240

Asp Ile Val Asn Met Leu Ile His Gly Leu Gln Phe Val Ile Lys Val
                245                 250                 255


<210> 9369
<211> 242
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1911; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA1; "

<220>
<221> source
<223> /note="Gene Name:
      BPI fold containing family A,
      member 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NP55; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482297"

<400> 9369
Met Phe Gln Thr Gly Gly Leu Ile Val Phe Tyr Gly Leu Leu Ala Gln
1               5                   10                  15

Thr Leu Pro Leu Asn Val Asn Pro Ala Leu Pro Leu Ser Pro Thr Gly
            20                  25                  30
```

```
Leu Ala Gly Ser Leu Thr Asn Ala Leu Ser Asn Gly Leu Leu Ser Gly
        35                  40                  45

Gly Leu Leu Gly Ile Leu Glu Asn Leu Pro Leu Leu Asp Ile Leu Lys
    50                  55                  60

Pro Gly Gly Gly Thr Ser Gly Gly Leu Leu Gly Gly Leu Leu Gly Lys
65                  70                  75                  80

Val Thr Ser Val Ile Pro Gly Leu Asn Asn Ile Ile Asp Ile Lys Val
                85                  90                  95

Thr Asp Pro Gln Leu Leu Glu Leu Gly Leu Val Gln Ser Pro Asp Gly
            100                 105                 110

His Arg Leu Tyr Val Thr Ile Pro Leu Gly Ile Lys Leu Gln Val Asn
        115                 120                 125

Thr Pro Leu Val Gly Ala Ser Leu Leu Arg Leu Ala Val Lys Leu Asp
    130                 135                 140

Ile Thr Ala Glu Ile Leu Ala Val Arg Asp Lys Gln Glu Arg Ile His
145                 150                 155                 160

Leu Val Leu Gly Asp Cys Thr His Ser Pro Gly Ser Leu Gln Ile Ser
                165                 170                 175

Leu Leu Asp Gly Leu Gly Pro Leu Pro Ile Gln Gly Leu Leu Asp Ser
            180                 185                 190

Leu Thr Gly Ile Leu Asn Lys Val Leu Pro Glu Leu Val Gln Gly Asn
        195                 200                 205

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

Val His Asp Ile Val Asn Met Leu Ile His Gly Leu Gln Phe Val Ile
225                 230                 235                 240

Lys Val
```

<210> 9370
<211> 249
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1912; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA2; "

<220>
<221> source
<223> /note="Gene Name:
BPI fold containing family A,
member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q96DR5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000253362"

<400> 9370

```
Met Leu Gln Leu Trp Lys Leu Val Leu Leu Cys Gly Val Leu Thr Gly
1               5                  10                  15


Thr Ser Glu Ser Leu Leu Asp Asn Leu Gly Asn Asp Leu Ser Asn Val
            20                  25                  30


Val Asp Lys Leu Glu Pro Val Leu His Glu Gly Leu Glu Thr Val Asp
        35                  40                  45


Asn Thr Leu Lys Gly Ile Leu Glu Lys Leu Lys Val Asp Leu Gly Val
    50                  55                  60


Leu Gln Lys Ser Ser Ala Trp Gln Leu Ala Lys Gln Lys Ala Gln Glu
65                  70                  75                  80


Ala Glu Lys Leu Leu Asn Asn Val Ile Ser Lys Leu Leu Pro Thr Asn
                85                  90                  95


Thr Asp Ile Phe Gly Leu Lys Ile Ser Asn Ser Leu Ile Leu Asp Val
            100                 105                 110
```

```
Lys Ala Glu Pro Ile Asp Asp Gly Lys Gly Leu Asn Leu Ser Phe Pro
        115                 120                 125

Val Thr Ala Asn Val Thr Val Ala Gly Pro Ile Ile Gly Gln Ile Ile
    130                 135                 140

Asn Leu Lys Ala Ser Leu Asp Leu Leu Thr Ala Val Thr Ile Glu Thr
145                 150                 155                 160

Asp Pro Gln Thr His Gln Pro Val Ala Val Leu Gly Glu Cys Ala Ser
                165                 170                 175

Asp Pro Thr Ser Ile Ser Leu Ser Leu Leu Asp Lys His Ser Gln Ile
            180                 185                 190

Ile Asn Lys Phe Val Asn Ser Val Ile Asn Thr Leu Lys Ser Thr Val
        195                 200                 205

Ser Ser Leu Leu Gln Lys Glu Ile Cys Pro Leu Ile Arg Ile Phe Ile
    210                 215                 220

His Ser Leu Asp Val Asn Val Ile Gln Gln Val Val Asp Asn Pro Gln
225                 230                 235                 240

His Lys Thr Gln Leu Gln Thr Leu Ile
                245
```

<210> 9371
<211> 249
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1912; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA2; "

<220>
<221> source
<223> /note="Gene Name:
BPI fold containing family A,
member 2; "

<220>
<221> source

<223> /note="Uniprot ID: Q96DR5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000347012"

<400> 9371

```
Met Leu Gln Leu Trp Lys Leu Val Leu Leu Cys Gly Val Leu Thr Gly
1               5                  10                  15

Thr Ser Glu Ser Leu Leu Asp Asn Leu Gly Asn Asp Leu Ser Asn Val
            20                  25                  30

Val Asp Lys Leu Glu Pro Val Leu His Glu Gly Leu Glu Thr Val Asp
        35                  40                  45

Asn Thr Leu Lys Gly Ile Leu Glu Lys Leu Lys Val Asp Leu Gly Val
    50                  55                  60

Leu Gln Lys Ser Ser Ala Trp Gln Leu Ala Lys Gln Lys Ala Gln Glu
65                  70                  75                  80

Ala Glu Lys Leu Leu Asn Asn Val Ile Ser Lys Leu Leu Pro Thr Asn
                85                  90                  95

Thr Asp Ile Phe Gly Leu Lys Ile Ser Asn Ser Leu Ile Leu Asp Val
            100                 105                 110

Lys Ala Glu Pro Ile Asp Asp Gly Lys Gly Leu Asn Leu Ser Phe Pro
        115                 120                 125

Val Thr Ala Asn Val Thr Val Ala Gly Pro Ile Ile Gly Gln Ile Ile
    130                 135                 140

Asn Leu Lys Ala Ser Leu Asp Leu Leu Thr Ala Val Thr Ile Glu Thr
145                 150                 155                 160

Asp Pro Gln Thr His Gln Pro Val Ala Val Leu Gly Glu Cys Ala Ser
                165                 170                 175

Asp Pro Thr Ser Ile Ser Leu Ser Leu Leu Asp Lys His Ser Gln Ile
            180                 185                 190

Ile Asn Lys Phe Val Asn Ser Val Ile Asn Thr Leu Lys Ser Thr Val
        195                 200                 205
```

```
Ser Ser Leu Leu Gln Lys Glu Ile Cys Pro Leu Ile Arg Ile Phe Ile
    210                 215                 220

His Ser Leu Asp Val Asn Val Ile Gln Gln Val Val Asp Asn Pro Gln
225                 230                 235                 240

His Lys Thr Gln Leu Gln Thr Leu Ile
                245
```

<210> 9372
<211> 218
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1913; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA3; "

<220>
<221> source
<223> /note="Gene Name:
BPI fold containing family A,
member 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BQP9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364601"

<400> 9372

```
Met Met Cys Pro Leu Trp Arg Leu Leu Ile Phe Leu Gly Leu Leu Ala
1               5                   10                  15

Leu Pro Leu Ala Pro His Lys Gln Pro Trp Pro Gly Leu Ala Gln Ala
            20                  25                  30

His Arg Asp Asn Lys Ser Thr Leu Ala Arg Ile Ile Ala Gln Gly Leu
        35                  40                  45

Ile Lys His Asn Ala Glu Ser Arg Ile Gln Asn Ile His Phe Gly Asp
    50                  55                  60
```

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

Ile Ser Gly Arg Lys His Gln Gln Gln Gln Glu Ser Arg Ser Phe Asp
                85                  90                  95

Asn Asn Ile Val Lys Met Cys Ala His Met Ser Ile Val Val Glu Phe
            100                 105                 110

Trp Leu Glu Lys Asp Glu Phe Gly Arg Arg Asp Leu Val Ile Gly Lys
        115                 120                 125

Cys Asp Ala Glu Pro Ser Ser Val His Val Ala Ile Leu Thr Glu Ala
    130                 135                 140

Ile Pro Pro Lys Met Asn Gln Phe Leu Tyr Asn Leu Lys Glu Asn Leu
145                 150                 155                 160

Gln Lys Val Leu Pro His Met Val Glu Ser Gln Val Cys Pro Leu Ile
                165                 170                 175

Gly Glu Ile Leu Gly Gln Leu Asp Val Lys Leu Leu Lys Ser Leu Ile
            180                 185                 190

Glu Gln Glu Ala Ala His Glu Pro Thr His His Glu Thr Ser Gln Pro
        195                 200                 205

Ser Ala Cys Gln Ala Gly Glu Ser Pro Ser
    210                 215


<210> 9373
<211> 254
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1913; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFA3; "

<220>
<221> source
<223> /note="Gene Name:
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BPI fold containing family A,
member 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BQP9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364603"

<400> 9373

```
Met Met Cys Pro Leu Trp Arg Leu Leu Ile Phe Leu Gly Leu Leu Ala
1               5                  10                  15

Leu Pro Leu Ala Pro His Lys Gln Pro Trp Pro Gly Leu Ala Gln Ala
            20                  25                  30

His Arg Asp Asn Lys Ser Thr Leu Ala Arg Ile Ile Ala Gln Gly Leu
        35                  40                  45

Ile Lys His Asn Ala Glu Ser Arg Ile Gln Asn Ile His Phe Gly Asp
    50                  55                  60

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

Ile Ser Gly Arg Lys His Gln Gln Gln Gln Glu Ser Ser Ile Asn Ile
                85                  90                  95

Thr Asn Ile Gln Leu Asp Cys Gly Gly Ile Gln Ile Ser Phe His Lys
            100                 105                 110

Glu Trp Phe Ser Ala Asn Ile Ser Leu Glu Phe Asp Leu Glu Leu Arg
        115                 120                 125

Pro Ser Phe Asp Asn Asn Ile Val Lys Met Cys Ala His Met Ser Ile
    130                 135                 140

Val Val Glu Phe Trp Leu Glu Lys Asp Glu Phe Gly Arg Arg Asp Leu
145                 150                 155                 160

Val Ile Gly Lys Cys Asp Ala Glu Pro Ser Ser Val His Val Ala Ile
                165                 170                 175

Leu Thr Glu Ala Ile Pro Pro Lys Met Asn Gln Phe Leu Tyr Asn Leu
```

```
            180                 185                 190

Lys Glu Asn Leu Gln Lys Val Leu Pro His Met Val Glu Ser Gln Val
        195                 200                 205

Cys Pro Leu Ile Gly Glu Ile Leu Gly Gln Leu Asp Val Lys Leu Leu
    210                 215                 220

Lys Ser Leu Ile Glu Gln Glu Ala Ala His Glu Pro Thr His His Glu
225                 230                 235                 240

Thr Ser Gln Pro Ser Ala Cys Gln Ala Gly Glu Ser Pro Ser
                245                 250


<210> 9374
<211> 484
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1914; "

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      member 1; "

<220>
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<220>
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<400> 9374
Met Ala Gly Pro Trp Thr Phe Thr Leu Leu Cys Gly Leu Leu Ala Ala
1               5                   10                  15

Thr Leu Ile Gln Ala Thr Leu Ser Pro Thr Ala Val Leu Ile Leu Gly
            20                  25                  30

Pro Lys Val Ile Lys Glu Lys Leu Thr Gln Glu Leu Lys Asp His Asn
        35                  40                  45
```

```
Ala Thr Ser Ile Leu Gln Gln Leu Pro Leu Leu Ser Ala Met Arg Glu
    50                  55                  60

Lys Pro Ala Gly Gly Ile Pro Val Leu Gly Ser Leu Val Asn Thr Val
65                  70                  75                  80

Leu Lys His Ile Ile Trp Leu Lys Val Ile Thr Ala Asn Ile Leu Gln
                85                  90                  95

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

Pro Leu Asp Met Val Ala Gly Phe Asn Thr Pro Leu Val Lys Thr Ile
        115                 120                 125

Val Glu Phe His Met Thr Thr Glu Ala Gln Ala Thr Ile Arg Met Asp
    130                 135                 140

Thr Ser Ala Ser Gly Pro Thr Arg Leu Val Leu Ser Asp Cys Ala Thr
145                 150                 155                 160

Ser His Gly Ser Leu Arg Ile Gln Leu Leu His Lys Leu Ser Phe Leu
                165                 170                 175

Val Asn Ala Leu Ala Lys Gln Val Met Asn Leu Leu Val Pro Ser Leu
            180                 185                 190

Pro Asn Leu Val Lys Asn Gln Leu Cys Pro Val Ile Glu Ala Ser Phe
        195                 200                 205

Asn Gly Met Tyr Ala Asp Leu Leu Gln Leu Val Lys Val Pro Ile Ser
    210                 215                 220

Leu Ser Ile Asp Arg Leu Glu Phe Asp Leu Leu Tyr Pro Ala Ile Lys
225                 230                 235                 240

Gly Asp Thr Ile Gln Leu Tyr Leu Gly Ala Lys Leu Leu Asp Ser Gln
                245                 250                 255

Gly Lys Val Thr Lys Trp Phe Asn Asn Ser Ala Ala Ser Leu Thr Met
            260                 265                 270
```

```
Pro Thr Leu Asp Asn Ile Pro Phe Ser Leu Ile Val Ser Gln Asp Val
        275                 280                 285

Val Lys Ala Ala Val Ala Ala Val Leu Ser Pro Glu Glu Phe Met Val
    290                 295                 300

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

Ile Gly Leu Ile Asn Glu Lys Ala Ala Asp Lys Leu Gly Ser Thr Gln
                325                 330                 335

Ile Val Lys Ile Leu Thr Gln Asp Thr Pro Glu Phe Phe Ile Asp Gln
            340                 345                 350

Gly His Ala Lys Val Ala Gln Leu Ile Val Leu Glu Val Phe Pro Ser
        355                 360                 365

Ser Glu Ala Leu Arg Pro Leu Phe Thr Leu Gly Ile Glu Ala Ser Ser
    370                 375                 380

Glu Ala Gln Phe Tyr Thr Lys Gly Asp Gln Leu Ile Leu Asn Leu Asn
385                 390                 395                 400

Asn Ile Ser Ser Asp Arg Ile Gln Leu Met Asn Ser Gly Ile Gly Trp
                405                 410                 415

Phe Gln Pro Asp Val Leu Lys Asn Ile Ile Thr Glu Ile Ile His Ser
            420                 425                 430

Ile Leu Leu Pro Asn Gln Asn Gly Lys Leu Arg Ser Gly Val Pro Val
        435                 440                 445

Ser Leu Val Lys Ala Leu Gly Phe Glu Ala Ala Glu Ser Ser Leu Thr
    450                 455                 460

Lys Asp Ala Leu Val Leu Thr Pro Ala Ser Leu Trp Lys Pro Ser Ser
465                 470                 475                 480

Pro Val Ser Gln
```

<210> 9375
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390471"

<400> 9375

```
Met Ala Gly Pro Trp Thr Phe Thr Leu Leu Cys Gly Leu Leu Ala Ala
1               5                  10                  15

Thr Leu Ile Gln Ala Thr Leu Ser Pro Thr Ala Val Leu Ile Leu Gly
            20                  25                  30

Pro Lys Val Ile Lys Glu Lys Leu Thr Gln Glu Leu Lys Asp His Asn
        35                  40                  45

Ala Thr Ser Ile Leu Gln Gln Leu Pro Leu Leu Ser Ala Met Arg Glu
    50                  55                  60

Lys Pro Ala Gly Gly Ile Pro Val Leu Gly Ser Leu Val Asn Thr Val
65                  70                  75                  80

Leu Lys His Ile Ile Trp Leu Lys Val Ile Thr Ala Asn Ile Leu Gln
                85                  90                  95

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

Pro Leu Asp Met Val Ala Gly Phe Asn Thr Pro Leu Val Lys Thr Ile
        115                 120                 125

Val Glu Phe His Met Thr Thr Glu Ala Gln Ala Thr Ile Arg Met Asp
```

130 135 140

Thr Ser Ala
145

<210> 9376
<211> 458
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1915; "

<220>
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<223> /note="Gene Symbol: BPIFB2; "

<220>
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<223> /note="Gene Name:
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member 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N4F0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000170150"

<400> 9376
Met Ala Trp Ala Ser Arg Leu Gly Leu Leu Leu Ala Leu Leu Leu Pro
1 5 10 15

Val Val Gly Ala Ser Thr Pro Gly Thr Val Val Arg Leu Asn Lys Ala
20 25 30

Ala Leu Ser Tyr Val Ser Glu Ile Gly Lys Ala Pro Leu Gln Arg Ala
35 40 45

Leu Gln Val Thr Val Pro His Phe Leu Asp Trp Ser Gly Glu Ala Leu
50 55 60

Gln Pro Thr Arg Ile Arg Ile Leu Asn Val His Val Pro Arg Leu His
65 70 75 80

Leu Lys Phe Ile Ala Gly Phe Gly Val Arg Leu Leu Ala Ala Ala Asn
85 90 95

```
Phe Thr Phe Lys Val Phe Arg Ala Pro Glu Pro Leu Glu Leu Thr Leu
            100                 105                 110

Pro Val Glu Leu Leu Ala Asp Thr Arg Val Thr Gln Ser Ser Ile Arg
        115                 120                 125

Thr Pro Val Val Ser Ile Ser Ala Cys Ser Leu Phe Ser Gly His Ala
    130                 135                 140

Asn Glu Phe Asp Gly Ser Asn Ser Thr Ser His Ala Leu Leu Val Leu
145                 150                 155                 160

Val Gln Lys His Ile Lys Ala Val Leu Ser Asn Lys Leu Cys Leu Ser
                165                 170                 175

Ile Ser Asn Leu Val Gln Gly Val Asn Val His Leu Gly Thr Leu Ile
            180                 185                 190

Gly Leu Asn Pro Val Gly Pro Glu Ser Gln Ile Arg Tyr Ser Met Val
        195                 200                 205

Ser Val Pro Thr Val Thr Ser Asp Tyr Ile Ser Leu Glu Val Asn Ala
    210                 215                 220

Val Leu Phe Leu Leu Gly Lys Pro Ile Ile Leu Pro Thr Asp Ala Thr
225                 230                 235                 240

Pro Phe Val Leu Pro Arg His Val Gly Thr Glu Gly Ser Met Ala Thr
                245                 250                 255

Val Gly Leu Ser Gln Gln Leu Phe Asp Ser Ala Leu Leu Leu Leu Gln
            260                 265                 270

Lys Ala Gly Ala Leu Asn Leu Asp Ile Thr Gly Gln Leu Arg Ser Asp
        275                 280                 285

Asp Asn Leu Leu Asn Thr Ser Ala Leu Gly Arg Leu Ile Pro Glu Val
    290                 295                 300

Ala Arg Gln Phe Pro Glu Pro Met Pro Val Val Leu Lys Val Arg Leu
305                 310                 315                 320
```

```
Gly Ala Thr Pro Val Ala Met Leu His Thr Asn Asn Ala Thr Leu Arg
                325                 330                 335

Leu Gln Pro Phe Val Glu Val Leu Ala Thr Ala Ser Asn Ser Ala Phe
            340                 345                 350

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

Ser Val Ser Lys Val Lys Leu Gln Gly Thr Thr Ser Val Leu Gly Asp
    370                 375                 380

Val Gln Leu Thr Val Ala Ser Ser Asn Val Gly Phe Ile Asp Thr Asp
385                 390                 395                 400

Gln Val Arg Thr Leu Met Gly Thr Val Phe Glu Lys Pro Leu Leu Asp
                405                 410                 415

His Leu Asn Ala Leu Leu Ala Met Gly Ile Ala Leu Pro Gly Val Val
            420                 425                 430

Asn Leu His Tyr Val Ala Pro Glu Ile Phe Val Tyr Glu Gly Tyr Val
        435                 440                 445

Val Ile Ser Ser Gly Leu Phe Tyr Gln Ser
    450                 455
```

<210> 9377
<211> 476
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1916; "

<220>
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<220>
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<223> /note="Gene Name:
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member 3; "

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<221> source
<223> /note="Uniprot ID: P59826; "

<220>
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<223> /note="ENSP ID: ENSP00000364643"

<400> 9377

```
Met Gln Pro Val Met Leu Ala Leu Trp Ser Leu Leu Leu Leu Trp Gly
1               5                  10                  15

Leu Ala Thr Pro Cys Gln Glu Leu Leu Glu Thr Val Gly Thr Leu Ala
            20                  25                  30

Arg Ile Asp Lys Asp Glu Leu Gly Lys Ala Ile Gln Asn Ser Leu Val
        35                  40                  45

Gly Glu Pro Ile Leu Gln Asn Val Leu Gly Ser Val Thr Ala Val Asn
    50                  55                  60

Arg Gly Leu Leu Gly Ser Gly Gly Leu Leu Gly Gly Gly Gly Leu Leu
65                  70                  75                  80

Gly His Gly Gly Val Phe Gly Val Val Glu Glu Leu Ser Gly Leu Lys
                85                  90                  95

Ile Glu Glu Leu Thr Leu Pro Lys Val Leu Leu Lys Leu Leu Pro Gly
            100                 105                 110

Phe Gly Val Gln Leu Ser Leu His Thr Lys Val Gly Met His Cys Ser
        115                 120                 125

Gly Pro Leu Gly Gly Leu Leu Gln Leu Ala Ala Glu Val Asn Val Thr
    130                 135                 140

Ser Arg Val Ala Leu Ala Val Ser Ser Arg Gly Thr Pro Ile Leu Ile
145                 150                 155                 160

Leu Lys Arg Cys Ser Thr Leu Leu Gly His Ile Ser Leu Phe Ser Gly
                165                 170                 175

Leu Leu Pro Thr Pro Leu Phe Gly Val Val Glu Gln Met Leu Phe Lys
            180                 185                 190

Val Leu Pro Gly Leu Leu Cys Pro Val Val Asp Ser Val Leu Gly Val
```

```
        195                 200                 205

Val Asn Glu Leu Leu Gly Ala Val Leu Gly Leu Val Ser Leu Gly Ala
    210                 215                 220

Leu Gly Ser Val Glu Phe Ser Leu Ala Thr Leu Pro Leu Ile Ser Asn
225                 230                 235                 240

Gln Tyr Ile Glu Leu Asp Ile Asn Pro Ile Val Lys Ser Val Ala Gly
                245                 250                 255

Asp Ile Ile Asp Phe Pro Lys Ser Arg Ala Pro Ala Lys Val Pro Pro
            260                 265                 270

Lys Lys Asp His Thr Ser Gln Val Met Val Pro Leu Tyr Leu Phe Asn
        275                 280                 285

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

Thr Pro Glu Leu Val Pro Ser Asp Val Pro Leu Thr Thr Thr Asp Leu
305                 310                 315                 320

Ala Ala Leu Leu Pro Glu Ala Leu Gly Lys Leu Pro Leu His Gln Gln
                325                 330                 335

Leu Leu Leu Phe Leu Arg Val Arg Glu Ala Pro Thr Val Thr Leu His
            340                 345                 350

Asn Lys Lys Ala Leu Val Ser Leu Pro Ala Asn Ile His Val Leu Phe
        355                 360                 365

Tyr Val Pro Lys Gly Thr Pro Glu Ser Leu Phe Glu Leu Asn Ser Val
    370                 375                 380

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

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

His Ala Phe Asp Gly Ser Arg Leu Glu Glu Trp Leu Ser His Val Val
            420                 425                 430
```

```
Gly Ala Val Tyr Ala Pro Lys Leu Asn Val Ala Leu Asp Val Gly Ile
        435                 440                 445


Pro Leu Pro Lys Val Leu Asn Ile Asn Phe Ser Asn Ser Val Leu Glu
    450                 455                 460


Ile Val Glu Asn Ala Val Val Leu Thr Val Ala Ser
465                 470                 475


<210> 9378
<211> 614
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1917; "

<220>
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<223> /note="Gene Symbol: BPIFB4; "

<220>
<221> source
<223> /note="Gene Name:
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      member 4; "

<220>
<221> source
<223> /note="Uniprot ID:  P59827; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364632"

<400> 9378
Met Trp Met Ala Trp Cys Val Ala Ala Leu Ser Val Val Ala Val Cys
1               5                   10                  15


Gly Thr Ser His Glu Thr Asn Thr Val Leu Arg Val Thr Lys Asp Val
            20                  25                  30


Leu Ser Asn Ala Ile Ser Gly Met Leu Gln Gln Ser Asp Ala Leu His
        35                  40                  45


Ser Ala Leu Arg Glu Val Pro Leu Gly Val Gly Asp Ile Pro Tyr Asn
    50                  55                  60
```

```
Asp Phe His Val Arg Gly Pro Pro Pro Val Tyr Thr Asn Gly Lys Lys
65                  70                  75                  80

Leu Asp Gly Ile Tyr Gln Tyr Gly His Ile Glu Thr Asn Asp Asn Thr
                85                  90                  95

Ala Gln Leu Gly Gly Lys Tyr Arg Tyr Gly Glu Ile Leu Glu Ser Glu
            100                 105                 110

Gly Ser Ile Arg Asp Leu Arg Asn Ser Gly Tyr Arg Ser Ala Glu Asn
        115                 120                 125

Ala Tyr Gly Gly His Arg Gly Leu Gly Arg Tyr Arg Ala Ala Pro Val
    130                 135                 140

Gly Arg Leu His Arg Arg Glu Leu Gln Pro Gly Glu Ile Pro Pro Gly
145                 150                 155                 160

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

Met Leu Ala Ala Asp Gly Ile Leu Ala Gly Gln Gly Gly Leu Leu Gly
            180                 185                 190

Gly Gly Gly Leu Leu Gly Asp Gly Gly Leu Leu Gly Gly Gly Gly Val
        195                 200                 205

Leu Gly Val Leu Gly Glu Gly Gly Ile Leu Ser Thr Val Gln Gly Ile
    210                 215                 220

Thr Gly Leu Arg Ile Val Glu Leu Thr Leu Pro Arg Val Ser Val Arg
225                 230                 235                 240

Leu Leu Pro Gly Val Gly Val Tyr Leu Ser Leu Tyr Thr Arg Val Ala
                245                 250                 255

Ile Asn Gly Lys Ser Leu Ile Gly Phe Leu Asp Ile Ala Val Glu Val
            260                 265                 270

Asn Ile Thr Ala Lys Val Arg Leu Thr Met Asp Arg Thr Gly Tyr Pro
        275                 280                 285
```

```
Arg Leu Val Ile Glu Arg Cys Asp Thr Leu Leu Gly Gly Ile Lys Val
    290                 295                 300

Lys Leu Leu Arg Gly Leu Leu Pro Asn Leu Val Asp Asn Leu Val Asn
305                 310                 315                 320

Arg Val Leu Ala Asp Val Leu Pro Asp Leu Leu Cys Pro Ile Val Asp
                325                 330                 335

Val Val Leu Gly Leu Val Asn Asp Gln Leu Gly Leu Val Asp Ser Leu
            340                 345                 350

Ile Pro Leu Gly Ile Leu Gly Ser Val Gln Tyr Thr Phe Ser Ser Leu
        355                 360                 365

Pro Leu Val Thr Gly Glu Phe Leu Glu Leu Asp Leu Asn Thr Leu Val
    370                 375                 380

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

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

Lys Ser Gln Leu Ala Met Ser Ala Asn Phe Leu Gly Ser Val Leu Thr
            420                 425                 430

Leu Leu Gln Lys Gln His Ala Leu Asp Leu Asp Ile Thr Asn Gly Met
        435                 440                 445

Phe Glu Glu Leu Pro Pro Leu Thr Thr Ala Thr Leu Gly Ala Leu Ile
    450                 455                 460

Pro Lys Val Phe Gln Gln Tyr Pro Glu Ser Cys Pro Leu Ile Ile Arg
465                 470                 475                 480

Ile Gln Val Leu Asn Pro Pro Ser Val Met Leu Gln Lys Asp Lys Ala
                485                 490                 495

Leu Val Lys Val Leu Ala Thr Ala Glu Val Met Val Ser Gln Pro Lys
            500                 505                 510

Asp Leu Glu Thr Thr Ile Cys Leu Ile Asp Val Asp Thr Glu Phe Leu
```

```
        515                 520                 525

Ala Ser Phe Ser Thr Glu Gly Asp Lys Leu Met Ile Asp Ala Lys Leu
    530                 535                 540

Glu Lys Thr Ser Leu Asn Leu Arg Thr Ser Asn Val Gly Asn Phe Asp
545                 550                 555                 560

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

Met Pro Ala Met Asn Ala Val Leu Gly Ser Gly Val Pro Leu Pro Lys
            580                 585                 590

Ile Leu Asn Ile Asp Phe Ser Asn Ala Asp Ile Asp Val Leu Glu Asp
        595                 600                 605

Leu Leu Val Leu Ser Ala
    610


<210> 9379
<211> 44
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1917; "

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<223> /note="Gene Symbol: BPIFB4; "

<220>
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<223> /note="Gene Name:
      BPI fold containing family B,
      member 4; "

<220>
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<223> /note="ENSP ID: ENSP00000388423"

<400> 9379
Met Trp Met Ala Trp Cys Val Ala Ala Leu Ser Val Val Ala Val Cys
1               5                   10                  15

Gly Thr Ser His Glu Thr Asn Thr Val Leu Arg Val Thr Lys Asp Val
            20                  25                  30
```

```
Leu Ser Asn Gly Phe Ser Pro Ile Ser Trp Thr Ile
        35                  40


<210> 9380
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1918; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFB6; "

<220>
<221> source
<223> /note="Gene Name:
      BPI fold containing family B,
      member 6; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8NFQ5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000344929"

<400> 9380
Met Leu Arg Ile Leu Cys Leu Ala Leu Cys Ser Leu Leu Thr Gly Thr
1               5                  10                  15


Arg Ala Asp Pro Gly Ala Leu Leu Arg Leu Gly Met Asp Ile Met Asn
            20                  25                  30


Gln Val Gln Ser Ala Met Asp Glu Ser His Ile Leu Glu Lys Met Ala
        35                  40                  45


Ala Glu Ala Gly Lys Lys Gln Pro Gly Met Lys Pro Ile Lys Gly Ile
    50                  55                  60


Thr Asn Leu Lys Val Lys Asp Val Gln Leu Pro Val Ile Thr Leu Asn
65                  70                  75                  80


Phe Val Pro Gly Val Gly Ile Phe Gln Cys Val Ser Thr Gly Met Thr
                85                  90                  95
```

```
Val Thr Gly Lys Ser Phe Met Gly Gly Asn Met Glu Ile Ile Val Ala
            100                 105                 110

Leu Asn Ile Thr Ala Thr Asn Arg Leu Leu Arg Asp Glu Glu Thr Gly
        115                 120                 125

Leu Pro Val Phe Lys Ser Glu Gly Cys Glu Val Ile Leu Val Asn Val
    130                 135                 140

Lys Thr Asn Leu Pro Ser Asn Met Leu Pro Lys Met Val Asn Lys Phe
145                 150                 155                 160

Leu Asp Ser Thr Leu His Lys Val Leu Pro Gly Leu Met Cys Pro Ala
                165                 170                 175

Ile Asp Ala Val Leu Val Tyr Val Asn Arg Lys Trp Thr Asn Leu Ser
            180                 185                 190

Asp Pro Met Pro Val Gly Gln Met Gly Thr Val Lys Tyr Val Leu Met
        195                 200                 205

Ser Ala Pro Ala Thr Thr Ala Ser Tyr Ile Gln Leu Asp Phe Ser Pro
    210                 215                 220

Val Val Gln Gln Gln Lys Gly Lys Thr Ile Lys Leu Ala Asp Ala Gly
225                 230                 235                 240

Glu Ala Leu Thr Phe Pro Glu Gly Tyr Ala Lys Gly Ser Ser Gln Leu
                245                 250                 255

Leu Leu Pro Ala Thr Phe Leu Ser Ala Glu Leu Ala Leu Leu Gln Lys
            260                 265                 270

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

Gln Thr Thr Lys Thr Leu Ala Arg Phe Ile Pro Glu Val Ala Val Ala
    290                 295                 300

Tyr Pro Lys Ser Lys Pro Leu Thr Thr Gln Ile Lys Ile Lys Lys Pro
305                 310                 315                 320
```

```
Pro Lys Val Thr Met Lys Thr Gly Lys Ser Leu Leu His Leu His Ser
                325                 330                 335

Thr Leu Glu Met Phe Ala Ala Arg Trp Arg Ser Lys Ala Pro Met Ser
            340                 345                 350

Leu Phe Leu Leu Glu Val His Phe Asn Leu Lys Val Gln Tyr Ser Val
        355                 360                 365

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

Leu Ser Arg Lys Ser Ser Ser Ile Gly Asn Phe Asn Glu Arg Glu Leu
385                 390                 395                 400

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

Asn Asp Val Leu Gln Val Gly Leu Pro Leu Pro Asp Phe Leu Ala Met
            420                 425                 430

Asn Tyr Asn Leu Ala Glu Leu Asp Ile Val Glu Asn Ala Leu Met Leu
        435                 440                 445

Asp Leu Lys Leu Gly
    450


<210> 9381
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1918; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFB6; "

<220>
<221> source
<223> /note="Gene Name:
      BPI fold containing family B,
      member 6; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000443533"

<400> 9381
Met Leu Arg Ile Leu Cys Leu Ala Leu Cys Ser Leu Leu Thr Gly Thr
1   5   10   15

Arg Ala Asp Pro Gly Ala Leu Leu Arg Leu Gly Met Asp Ile Met Asn
            20   25   30

Arg Glu Val Gln Ser Ala Met Asp Glu Ser His Ile Leu Glu Lys Met
        35   40   45

Ala Ala Glu Ala Gly Lys Lys Gln Pro Gly Met Lys Pro Ile Lys Gly
    50   55   60

Ile Thr Asn Glu Gln Gly His Phe Glu Glu Glu Met Arg Leu Glu Ser
65   70   75   80

Gln Ile Ser Thr Leu His Ala Thr
                85

<210> 9382
<211> 507
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1919; "

<220>
<221> source
<223> /note="Gene Symbol: BPIFC; "

<220>
<221> source
<223> /note="Gene Name:
      BPI fold containing family C; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NFQ6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000300399"

<400> 9382
Met Cys Thr Lys Thr Ile Pro Val Leu Trp Gly Cys Phe Leu Leu Trp
1   5   10   15

```
Asn Leu Tyr Val Ser Ser Ser Gln Thr Ile Tyr Pro Gly Ile Lys Ala
            20                  25                  30

Arg Ile Thr Gln Arg Ala Leu Asp Tyr Gly Val Gln Ala Gly Met Lys
        35                  40                  45

Met Ile Glu Gln Met Leu Lys Glu Lys Lys Leu Pro Asp Leu Ser Gly
    50                  55                  60

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

Ser Asn Ile Lys Ile Ser Ala Phe Ser Phe Pro Asn Thr Ser Leu Ala
                85                  90                  95

Phe Val Pro Gly Val Gly Ile Lys Ala Leu Thr Asn His Gly Thr Ala
            100                 105                 110

Asn Ile Ser Thr Asp Trp Gly Phe Glu Ser Pro Leu Phe Gln Asp Thr
        115                 120                 125

Gly Gly Ala Asp Leu Phe Leu Ser Gly Val Tyr Phe Thr Gly Ile Ile
    130                 135                 140

Ile Leu Thr Arg Asn Asp Phe Gly His Pro Thr Leu Lys Leu Gln Asp
145                 150                 155                 160

Cys Tyr Ala Gln Leu Ser His Ala His Val Ser Phe Ser Gly Glu Leu
                165                 170                 175

Ser Val Leu Tyr Asn Ser Phe Ala Glu Pro Met Glu Lys Pro Ile Leu
            180                 185                 190

Lys Asn Leu Asn Glu Met Leu Cys Pro Ile Ile Ala Ser Glu Val Lys
        195                 200                 205

Ala Leu Asn Ala Asn Leu Ser Thr Leu Glu Val Leu Thr Lys Ile Asp
    210                 215                 220

Asn Tyr Thr Leu Leu Asp Tyr Ser Leu Ile Ser Ser Pro Glu Ile Thr
225                 230                 235                 240
```

```
Glu Asn Tyr Leu Asp Leu Asn Leu Lys Gly Val Phe Tyr Pro Leu Glu
                245                 250                 255

Asn Leu Thr Asp Pro Pro Phe Ser Pro Val Pro Phe Val Leu Pro Glu
            260                 265                 270

Arg Ser Asn Ser Met Leu Tyr Ile Gly Ile Ala Glu Tyr Phe Phe Lys
        275                 280                 285

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

Ser Thr Glu Glu Ile Ser Asn His Phe Val Gln Asn Ser Gln Gly Leu
305                 310                 315                 320

Gly Asn Val Leu Ser Arg Ile Ala Glu Ile Tyr Ile Leu Ser Gln Pro
                325                 330                 335

Phe Met Val Arg Ile Met Ala Thr Glu Pro Pro Ile Ile Asn Leu Gln
            340                 345                 350

Pro Gly Asn Phe Thr Leu Asp Ile Pro Ala Ser Ile Met Met Leu Thr
        355                 360                 365

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

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

Ser Leu Ser Leu Asn Arg Phe Arg Leu Ala Leu Pro Glu Ser Asn Arg
                405                 410                 415

Ser Asn Ile Glu Val Leu Arg Phe Glu Asn Ile Leu Ser Ser Ile Leu
            420                 425                 430

His Phe Gly Val Leu Pro Leu Ala Asn Ala Lys Leu Gln Gln Gly Phe
        435                 440                 445

Pro Leu Ser Asn Pro His Lys Phe Leu Phe Val Asn Ser Asp Ile Glu
    450                 455                 460

Val Leu Glu Gly Phe Leu Leu Ile Ser Thr Asp Leu Lys Tyr Glu Thr
```

```
465                 470                 475                 480

Ser Ser Lys Gln Gln Pro Ser Phe His Val Trp Glu Gly Leu Asn Leu
                485                 490                 495

Ile Ser Arg Gln Trp Arg Gly Lys Ser Ala Pro
            500                 505


<210> 9383
<211> 82
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1919; "

<220>
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<220>
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<223> /note="Gene Name:
      BPI fold containing family C; "

<220>
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<223> /note="ENSP ID: ENSP00000380592"

<400> 9383
Met Cys Thr Lys Thr Ile Pro Val Leu Trp Gly Cys Phe Leu Leu Trp
1               5                   10                  15

Asn Leu Tyr Val Ser Ser Ser Gln Thr Ile Tyr Pro Gly Ile Lys Ala
            20                  25                  30

Arg Ile Thr Gln Arg Ala Leu Asp Tyr Gly Val Gln Ala Gly Met Lys
        35                  40                  45

Met Ile Glu Gln Met Leu Lys Glu Lys Lys Leu Pro Asp Leu Ser Gly
    50                  55                  60

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

Ser Lys
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<210> 9384
<211> 507
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BPIFC; "

<220>
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<223> /note="Gene Name:
BPI fold containing family C; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NFQ6; "

<220>
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<223> /note="ENSP ID: ENSP00000380594"

<400> 9384
Met Cys Thr Lys Thr Ile Pro Val Leu Trp Gly Cys Phe Leu Leu Trp
1   5   10   15

Asn Leu Tyr Val Ser Ser Ser Gln Thr Ile Tyr Pro Gly Ile Lys Ala
            20   25   30

Arg Ile Thr Gln Arg Ala Leu Asp Tyr Gly Val Gln Ala Gly Met Lys
        35   40   45

Met Ile Glu Gln Met Leu Lys Glu Lys Lys Leu Pro Asp Leu Ser Gly
    50   55   60

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

Ser Asn Ile Lys Ile Ser Ala Phe Ser Phe Pro Asn Thr Ser Leu Ala
                85   90   95

Phe Val Pro Gly Val Gly Ile Lys Ala Leu Thr Asn His Gly Thr Ala
            100   105   110

Asn Ile Ser Thr Asp Trp Gly Phe Glu Ser Pro Leu Phe Gln Asp Thr

```
        115                 120                 125

Gly Gly Ala Asp Leu Phe Leu Ser Gly Val Tyr Phe Thr Gly Ile Ile
    130                 135                 140

Ile Leu Thr Arg Asn Asp Phe Gly His Pro Thr Leu Lys Leu Gln Asp
145                 150                 155                 160

Cys Tyr Ala Gln Leu Ser His Ala His Val Ser Phe Ser Gly Glu Leu
                165                 170                 175

Ser Val Leu Tyr Asn Ser Phe Ala Glu Pro Met Glu Lys Pro Ile Leu
            180                 185                 190

Lys Asn Leu Asn Glu Met Leu Cys Pro Ile Ile Ala Ser Glu Val Lys
        195                 200                 205

Ala Leu Asn Ala Asn Leu Ser Thr Leu Glu Val Leu Thr Lys Ile Asp
    210                 215                 220

Asn Tyr Thr Leu Leu Asp Tyr Ser Leu Ile Ser Ser Pro Glu Ile Thr
225                 230                 235                 240

Glu Asn Tyr Leu Asp Leu Asn Leu Lys Gly Val Phe Tyr Pro Leu Glu
                245                 250                 255

Asn Leu Thr Asp Pro Pro Phe Ser Pro Val Pro Phe Val Leu Pro Glu
            260                 265                 270

Arg Ser Asn Ser Met Leu Tyr Ile Gly Ile Ala Glu Tyr Phe Phe Lys
        275                 280                 285

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

Ser Thr Glu Glu Ile Ser Asn His Phe Val Gln Asn Ser Gln Gly Leu
305                 310                 315                 320

Gly Asn Val Leu Ser Arg Ile Ala Glu Ile Tyr Ile Leu Ser Gln Pro
                325                 330                 335

Phe Met Val Arg Ile Met Ala Thr Glu Pro Pro Ile Ile Asn Leu Gln
            340                 345                 350
```

```
Pro Gly Asn Phe Thr Leu Asp Ile Pro Ala Ser Ile Met Met Leu Thr
        355                 360                 365

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

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

Ser Leu Ser Leu Asn Arg Phe Arg Leu Ala Leu Pro Glu Ser Asn Arg
                405                 410                 415

Ser Asn Ile Glu Val Leu Arg Phe Glu Asn Ile Leu Ser Ser Ile Leu
            420                 425                 430

His Phe Gly Val Leu Pro Leu Ala Asn Ala Lys Leu Gln Gln Gly Phe
        435                 440                 445

Pro Leu Ser Asn Pro His Lys Phe Leu Phe Val Asn Ser Asp Ile Glu
    450                 455                 460

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

Ser Ser Lys Gln Gln Pro Ser Phe His Val Trp Glu Gly Leu Asn Leu
                485                 490                 495

Ile Ser Arg Gln Trp Arg Gly Lys Ser Ala Pro
            500                 505


<210> 9385
<211> 264
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
BPI fold containing family C; "

<220>
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<220>
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<400> 9385

```
Met Glu Lys Pro Ile Leu Lys Asn Leu Asn Glu Met Leu Cys Pro Ile
1               5                  10                  15

Ile Ala Ser Glu Val Lys Ala Leu Asn Ala Asn Leu Ser Thr Leu Glu
            20                  25                  30

Val Leu Thr Lys Ile Asp Asn Tyr Thr Leu Leu Asp Tyr Ser Leu Ile
        35                  40                  45

Ser Ser Pro Glu Ile Thr Glu Asn Tyr Leu Asp Leu Asn Leu Lys Gly
    50                  55                  60

Val Phe Tyr Pro Leu Glu Asn Leu Thr Asp Pro Pro Phe Ser Pro Val
65                  70                  75                  80

Pro Phe Val Leu Pro Glu Arg Ser Asn Ser Met Leu Tyr Ile Gly Ile
                85                  90                  95

Ala Glu Tyr Phe Phe Lys Ser Ala Ser Phe Ala His Phe Thr Ala Gly
            100                 105                 110

Val Phe Asn Val Thr Leu Ser Thr Glu Glu Ile Ser Asn His Phe Val
        115                 120                 125

Gln Asn Ser Gln Gly Leu Gly Asn Val Leu Ser Arg Val Ala Ser Thr
    130                 135                 140

Ser Val Gly Leu Val Ile Leu Gly Gln Arg Leu Val Cys Ser Leu Ser
145                 150                 155                 160

Leu Asn Arg Phe Arg Leu Ala Leu Pro Glu Ser Asn Arg Ser Asn Ile
                165                 170                 175

Glu Val Leu Arg Phe Glu Asn Ile Leu Ser Ser Ile Leu His Phe Gly
```

```
            180                 185                 190

Val Leu Pro Leu Ala Asn Ala Lys Leu Gln Gln Gly Phe Pro Leu Ser
        195                 200                 205

Asn Pro His Lys Phe Leu Phe Val Asn Ser Asp Ile Glu Val Leu Glu
    210                 215                 220

Gly Phe Leu Leu Ile Ser Thr Asp Leu Lys Tyr Glu Thr Ser Ser Lys
225                 230                 235                 240

Gln Gln Pro Ser Phe His Val Trp Glu Gly Leu Asn Leu Ile Ser Arg
                245                 250                 255

Gln Trp Arg Gly Lys Ser Ala Pro
            260


<210> 9386
<211> 778
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1920; "

<220>
<221> source
<223> /note="Gene Symbol: BRSK1; "

<220>
<221> source
<223> /note="Gene Name:
      BR serine/threonine kinase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8TDC3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000310649"

<400> 9386
Met Ser Ser Gly Ala Lys Glu Gly Gly Gly Gly Ser Pro Ala Tyr His
1               5                   10                  15

Leu Pro His Pro His Pro His Pro Pro Gln His Ala Gln Tyr Val Gly
            20                  25                  30
```

```
Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu Val
        35                  40                  45

Lys Leu Gly Val His Cys Ile Thr Gly Gln Lys Val Ala Ile Lys Ile
    50                  55                  60

Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu Arg
65                  70                  75                  80

Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys Leu
                85                  90                  95

His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu His
            100                 105                 110

Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg Leu
        115                 120                 125

Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Val Ser Ala Leu
    130                 135                 140

Asp Phe Cys His Ser Tyr Ser Ile Cys His Arg Asp Leu Lys Pro Glu
145                 150                 155                 160

Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe Gly
                165                 170                 175

Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys Gly
            180                 185                 190

Ser Pro His Tyr Ala Cys Pro Glu Val Ile Lys Gly Glu Lys Tyr Asp
        195                 200                 205

Gly Arg Arg Ala Asp Met Trp Ser Cys Gly Val Ile Leu Phe Ala Leu
    210                 215                 220

Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu Leu
225                 230                 235                 240

Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro Pro
                245                 250                 255
```

```
Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Glu Pro Glu Lys
            260                 265                 270

Arg Leu Ser Leu Glu Gln Ile Gln Lys His Pro Trp Tyr Leu Gly Gly
        275                 280                 285

Lys His Glu Pro Asp Pro Cys Leu Glu Pro Ala Pro Gly Arg Arg Val
    290                 295                 300

Ala Met Arg Ser Leu Pro Ser Asn Gly Glu Leu Asp Pro Asp Val Leu
305                 310                 315                 320

Glu Ser Met Ala Ser Leu Gly Cys Phe Arg Asp Arg Glu Arg Leu His
                325                 330                 335

Arg Glu Leu Arg Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Tyr
            340                 345                 350

Leu Leu Leu Asp Arg Lys Glu Arg Tyr Pro Ser Cys Glu Asp Gln Asp
        355                 360                 365

Leu Pro Pro Arg Asn Asp Val Asp Pro Pro Arg Lys Arg Val Asp Ser
    370                 375                 380

Pro Met Leu Ser Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met
385                 390                 395                 400

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

Thr Arg Arg Ala Leu Glu Met Ala Gln His Ser Gln Arg Ser Arg Ser
            420                 425                 430

Val Ser Gly Ala Ser Thr Gly Leu Ser Ser Ser Pro Leu Ser Ser Pro
        435                 440                 445

Arg Ser Pro Val Phe Ser Phe Ser Pro Glu Pro Gly Ala Gly Asp Glu
    450                 455                 460

Ala Arg Gly Gly Gly Ser Pro Thr Ser Lys Thr Gln Thr Leu Pro Ser
465                 470                 475                 480

Arg Gly Pro Arg Gly Gly Gly Ala Gly Glu Gln Pro Pro Pro Pro Ser
```

485 490 495

Ala Arg Ser Thr Pro Leu Pro Gly Pro Pro Gly Ser Pro Arg Ser Ser
500 505 510

Gly Gly Thr Pro Leu His Ser Pro Leu His Thr Pro Arg Ala Ser Pro
515 520 525

Thr Gly Thr Pro Gly Thr Thr Pro Pro Pro Ser Pro Gly Gly Gly Val
530 535 540

Gly Gly Ala Ala Trp Arg Ser Arg Leu Asn Ser Ile Arg Asn Ser Phe
545 550 555 560

Leu Gly Ser Pro Arg Phe His Arg Arg Lys Met Gln Val Pro Thr Ala
565 570 575

Glu Glu Met Ser Ser Leu Thr Pro Glu Ser Ser Pro Glu Leu Ala Lys
580 585 590

Arg Ser Trp Phe Gly Asn Phe Ile Ser Leu Asp Lys Glu Glu Gln Ile
595 600 605

Phe Leu Val Leu Lys Asp Lys Pro Leu Ser Ser Ile Lys Ala Asp Ile
610 615 620

Val His Ala Phe Leu Ser Ile Pro Ser Leu Ser His Ser Val Leu Ser
625 630 635 640

Gln Thr Ser Phe Arg Ala Glu Tyr Lys Ala Ser Gly Gly Pro Ser Val
645 650 655

Phe Gln Lys Pro Val Arg Phe Gln Val Asp Ile Ser Ser Ser Glu Gly
660 665 670

Pro Glu Pro Ser Pro Arg Arg Asp Gly Ser Gly Gly Gly Gly Ile Tyr
675 680 685

Ser Val Thr Phe Thr Leu Ile Ser Gly Pro Ser Arg Arg Phe Lys Arg
690 695 700

Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Gln Pro
705 710 715 720

```
Ser Val Gln Ala Leu Ala Asp Glu Lys Asn Gly Ala Gln Thr Arg Pro
                725                 730                 735

Ala Gly Ala Pro Pro Arg Ser Leu Gln Pro Pro Pro Gly Arg Pro Asp
            740                 745                 750

Pro Glu Leu Ser Ser Ser Pro Arg Arg Gly Pro Pro Lys Asp Lys Lys
        755                 760                 765

Leu Leu Ala Thr Asn Gly Thr Pro Leu Pro
    770                 775


<210> 9387
<211> 473
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1920; "

<220>
<221> source
<223> /note="Gene Symbol: BRSK1; "

<220>
<221> source
<223> /note="Gene Name:
      BR serine/threonine kinase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000320853"

<400> 9387
Met Arg Ser Leu Pro Ser Asn Gly Glu Leu Asp Pro Asp Val Leu Glu
1               5                   10                  15

Ser Met Ala Ser Leu Gly Cys Phe Arg Asp Arg Glu Arg Leu His Arg
            20                  25                  30

Glu Leu Arg Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Tyr Leu
        35                  40                  45

Leu Leu Asp Arg Lys Glu Arg Tyr Pro Ser Cys Glu Asp Gln Asp Leu
    50                  55                  60
```

```
Pro Pro Arg Asn Asp Val Asp Pro Pro Arg Lys Arg Val Asp Ser Pro
65                  70                  75                  80

Met Leu Ser Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu
                85                  90                  95

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

Arg Arg Ala Leu Glu Met Ala Gln His Ser Gln Arg Ser Arg Ser Val
        115                 120                 125

Ser Gly Ala Ser Thr Gly Leu Ser Ser Ser Pro Leu Ser Ser Pro Arg
    130                 135                 140

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

Arg Gly Gly Gly Ser Pro Thr Ser Lys Thr Gln Thr Leu Pro Ser Arg
                165                 170                 175

Gly Pro Arg Gly Gly Gly Ala Gly Glu Gln Pro Pro Pro Pro Ser Ala
            180                 185                 190

Arg Ser Thr Pro Leu Pro Gly Pro Pro Gly Ser Pro Arg Ser Ser Gly
        195                 200                 205

Gly Thr Pro Leu His Ser Pro Leu His Thr Pro Arg Ala Ser Pro Thr
    210                 215                 220

Gly Thr Pro Gly Thr Thr Pro Pro Pro Ser Pro Gly Gly Gly Val Gly
225                 230                 235                 240

Gly Ala Ala Trp Arg Ser Arg Leu Asn Ser Ile Arg Asn Ser Phe Leu
                245                 250                 255

Gly Ser Pro Arg Phe His Arg Arg Lys Met Gln Val Pro Thr Ala Glu
            260                 265                 270

Glu Met Ser Ser Leu Thr Pro Glu Ser Ser Pro Glu Leu Ala Lys Arg
        275                 280                 285

Ser Trp Phe Gly Asn Phe Ile Ser Leu Asp Lys Glu Glu Gln Ile Phe
```

```
    290                 295                 300

Leu Val Leu Lys Asp Lys Pro Leu Ser Ser Ile Lys Ala Asp Ile Val
305                 310                 315                 320

His Ala Phe Leu Ser Ile Pro Ser Leu Ser His Ser Val Leu Ser Gln
                325                 330                 335

Thr Ser Phe Arg Ala Glu Tyr Lys Ala Ser Gly Gly Pro Ser Val Phe
            340                 345                 350

Gln Lys Pro Val Arg Phe Gln Val Asp Ile Ser Ser Ser Glu Gly Pro
        355                 360                 365

Glu Pro Ser Pro Arg Arg Asp Gly Ser Gly Gly Gly Gly Ile Tyr Ser
    370                 375                 380

Val Thr Phe Thr Leu Ile Ser Gly Pro Ser Arg Arg Phe Lys Arg Val
385                 390                 395                 400

Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Gln Pro Ser
                405                 410                 415

Val Gln Ala Leu Ala Asp Glu Lys Asn Gly Ala Gln Thr Arg Pro Ala
            420                 425                 430

Gly Ala Pro Pro Arg Ser Leu Gln Pro Pro Pro Gly Arg Pro Asp Pro
        435                 440                 445

Glu Leu Ser Ser Ser Pro Arg Arg Gly Pro Pro Lys Asp Lys Lys Leu
    450                 455                 460

Leu Ala Thr Asn Gly Thr Pro Leu Pro
465                 470


<210> 9388
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1920; "

<220>
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<221> source
<223> /note="Gene Symbol: BRSK1; "

<220>
<221> source
<223> /note="Gene Name:
BR serine/threonine kinase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466380"

<400> 9388
Met Arg Ser Leu Pro Ser Asn Gly Glu Leu Asp Pro Asp Val Leu Glu
1 5 10 15

Ser Met Ala Ser Leu Gly Cys Phe Arg Asp Arg Glu Arg Leu His Arg
20 25 30

Glu Leu Arg Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Tyr Leu
35 40 45

Leu Leu Asp Arg Lys Glu Arg Tyr Pro Ser Cys Glu Asp Gln Asp Leu
50 55 60

Pro Pro Arg Asn Asp Val Asp Pro Pro Arg Lys Arg Val Asp Ser Pro
65 70 75 80

Met Leu Ser Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu
85 90 95

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

Arg Arg Ala Leu Glu Met Ala Gln His Ser Gln Arg Ser Arg Ser Val
115 120 125

Ser Gly Ala
130

<210> 9389
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1920; "

<220>
<221> source
<223> /note="Gene Symbol: BRSK1; "

<220>
<221> source
<223> /note="Gene Name:
BR serine/threonine kinase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466755"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9389
Xaa Ala Gly Leu Val Lys Leu Gly Val His Cys Ile Thr Gly Gln Lys
1 5 10 15

Val Ala Ile Lys Ile Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu
20 25 30

Met Lys Val Glu Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro
35 40 45

His Val Leu Lys Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu
50 55 60

<210> 9390
<211> 343
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1920; "

<220>
<221> source
<223> /note="Gene Symbol: BRSK1; "

<220>
<221> source
<223> /note="Gene Name:
BR serine/threonine kinase 1; "

<220>
<221> source

<223> /note="Uniprot ID: Q8TDC3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467357"

<400> 9390

```
Met Ser Ser Gly Ala Lys Glu Gly Gly Gly Gly Ser Pro Ala Tyr His
1               5                  10                  15

Leu Pro His Pro His Pro His Pro Pro Gln His Ala Gln Tyr Val Gly
            20                  25                  30

Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu Val
        35                  40                  45

Lys Leu Gly Val His Cys Ile Thr Gly Gln Lys Val Ala Ile Lys Ile
    50                  55                  60

Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu Arg
65                  70                  75                  80

Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys Leu
                85                  90                  95

His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu His
            100                 105                 110

Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg Leu
        115                 120                 125

Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Val Ser Ala Leu
    130                 135                 140

Asp Phe Cys His Ser Tyr Ser Ile Cys His Arg Asp Leu Lys Pro Glu
145                 150                 155                 160

Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe Gly
                165                 170                 175

Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys Gly
            180                 185                 190

Ser Pro His Tyr Ala Cys Pro Glu Val Ile Lys Gly Glu Lys Tyr Asp
        195                 200                 205
```

```
Gly Arg Arg Ala Asp Met Trp Ser Cys Gly Val Ile Leu Phe Ala Leu
    210                 215                 220

Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu Leu
225                 230                 235                 240

Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro Pro
                245                 250                 255

Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Glu Pro Glu Lys
            260                 265                 270

Arg Leu Ser Leu Glu Gln Ile Gln Lys His Pro Trp Tyr Leu Gly Gly
        275                 280                 285

Lys His Glu Pro Asp Pro Cys Leu Glu Pro Ala Pro Gly Arg Arg Val
    290                 295                 300

Ala Met Arg Ser Leu Pro Ser Asn Gly Glu Leu Asp Pro Asp Val Leu
305                 310                 315                 320

Glu Ser Met Ala Ser Leu Gly Cys Phe Arg Asp Arg Glu Arg Leu His
                325                 330                 335

Arg Glu Leu Arg Ser Glu Glu
            340
```

<210> 9391
<211> 794
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1920; "

<220>
<221> source
<223> /note="Gene Symbol: BRSK1; "

<220>
<221> source
<223> /note="Gene Name:
BR serine/threonine kinase 1; "

<220>

<221> source
<223> /note="Uniprot ID: Q8TDC3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468190"

<400> 9391
Met Val Ala Gly Leu Thr Leu Gly Lys Gly Pro Glu Ser Pro Asp Gly
1   5   10   15

Asp Val Ser Val Pro Glu Arg Lys Asp Glu Val Ala Gly Gly Gly Gly
            20   25   30

Glu Glu Glu Glu Ala Glu Glu Arg Gly Arg His Ala Gln Tyr Val Gly
        35   40   45

Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu Val
    50   55   60

Lys Leu Gly Val His Cys Ile Thr Gly Gln Lys Val Ala Ile Lys Ile
65   70   75   80

Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu Arg
                85   90   95

Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys Leu
            100   105   110

His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu His
        115   120   125

Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg Leu
    130   135   140

Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Val Ser Ala Leu
145   150   155   160

Asp Phe Cys His Ser Tyr Ser Ile Cys His Arg Asp Leu Lys Pro Glu
                165   170   175

Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe Gly
            180   185   190

Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys Gly

195 200 205

Ser Pro His Tyr Ala Cys Pro Glu Val Ile Lys Gly Glu Lys Tyr Asp
210 215 220

Gly Arg Arg Ala Asp Met Trp Ser Cys Gly Val Ile Leu Phe Ala Leu
225 230 235 240

Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu Leu
245 250 255

Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro Pro
260 265 270

Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Glu Pro Glu Lys
275 280 285

Arg Leu Ser Leu Glu Gln Ile Gln Lys His Pro Trp Tyr Leu Gly Gly
290 295 300

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

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

Glu Ser Met Ala Ser Leu Gly Cys Phe Arg Asp Arg Glu Arg Leu His
340 345 350

Arg Glu Leu Arg Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Tyr
355 360 365

Leu Leu Leu Asp Arg Lys Glu Arg Tyr Pro Ser Cys Glu Asp Gln Asp
370 375 380

Leu Pro Pro Arg Asn Asp Val Asp Pro Pro Arg Lys Arg Val Asp Ser
385 390 395 400

Pro Met Leu Ser Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met
405 410 415

Glu Val Leu Ser Ile Thr Asp Ala Gly Gly Gly Gly Ser Pro Val Pro
420 425 430

```
Thr Arg Arg Ala Leu Glu Met Ala Gln His Ser Gln Arg Ser Arg Ser
        435                 440                 445

Val Ser Gly Ala Ser Thr Gly Leu Ser Ser Ser Pro Leu Ser Ser Pro
    450                 455                 460

Arg Ser Pro Val Phe Ser Phe Ser Pro Glu Pro Gly Ala Gly Asp Glu
465                 470                 475                 480

Ala Arg Gly Gly Gly Ser Pro Thr Ser Lys Thr Gln Thr Leu Pro Ser
                485                 490                 495

Arg Gly Pro Arg Gly Gly Gly Ala Gly Glu Gln Pro Pro Pro Pro Ser
            500                 505                 510

Ala Arg Ser Thr Pro Leu Pro Gly Pro Pro Gly Ser Pro Arg Ser Ser
        515                 520                 525

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

Thr Gly Thr Pro Gly Thr Thr Pro Pro Pro Ser Pro Gly Gly Gly Val
545                 550                 555                 560

Gly Gly Ala Ala Trp Arg Ser Arg Leu Asn Ser Ile Arg Asn Ser Phe
                565                 570                 575

Leu Gly Ser Pro Arg Phe His Arg Arg Lys Met Gln Val Pro Thr Ala
            580                 585                 590

Glu Glu Met Ser Ser Leu Thr Pro Glu Ser Ser Pro Glu Leu Ala Lys
        595                 600                 605

Arg Ser Trp Phe Gly Asn Phe Ile Ser Leu Asp Lys Glu Glu Gln Ile
    610                 615                 620

Phe Leu Val Leu Lys Asp Lys Pro Leu Ser Ser Ile Lys Ala Asp Ile
625                 630                 635                 640

Val His Ala Phe Leu Ser Ile Pro Ser Leu Ser His Ser Val Leu Ser
                645                 650                 655
```

```
Gln Thr Ser Phe Arg Ala Glu Tyr Lys Ala Ser Gly Gly Pro Ser Val
            660                 665                 670

Phe Gln Lys Pro Val Arg Phe Gln Val Asp Ile Ser Ser Ser Glu Gly
        675                 680                 685

Pro Glu Pro Ser Pro Arg Arg Asp Gly Ser Gly Gly Gly Gly Ile Tyr
    690                 695                 700

Ser Val Thr Phe Thr Leu Ile Ser Gly Pro Ser Arg Arg Phe Lys Arg
705                 710                 715                 720

Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Gln Pro
                725                 730                 735

Ser Val Gln Ala Leu Ala Asp Glu Lys Asn Gly Ala Gln Thr Arg Pro
            740                 745                 750

Ala Gly Ala Pro Pro Arg Ser Leu Gln Pro Pro Pro Gly Arg Pro Asp
        755                 760                 765

Pro Glu Leu Ser Ser Ser Pro Arg Arg Gly Pro Pro Lys Asp Lys Lys
    770                 775                 780

Leu Leu Ala Thr Asn Gly Thr Pro Leu Pro
785                 790
```

<210> 9392
<211> 668
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<400> 9392

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Met Thr Ser Thr Gly Lys Asp Gly Gly Ala Gln His Ala Gln Tyr Val
1               5                  10                  15

Gly Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu
            20                  25                  30

Val Lys Leu Gly Val His Cys Val Thr Cys Gln Lys Val Ala Ile Lys
        35                  40                  45

Ile Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu
    50                  55                  60

Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys
65                  70                  75                  80

Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu
                85                  90                  95

His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg
            100                 105                 110

Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Ile Ser Ala
        115                 120                 125

Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg Asp Leu Lys Pro
    130                 135                 140

Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe
145                 150                 155                 160

Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys
                165                 170                 175

Gly Ser Pro His Tyr Ala Cys Pro Glu Val Ile Arg Gly Glu Lys Tyr
            180                 185                 190

Asp Gly Arg Lys Ala Asp Val Trp Ser Cys Gly Val Ile Leu Phe Ala
        195                 200                 205
```

```
Leu Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu
    210                 215                 220

Leu Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro
225                 230                 235                 240

Pro Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Asp Ala Ala
                245                 250                 255

Arg Arg Leu Thr Leu Glu His Ile Gln Lys His Ile Trp Tyr Ile Gly
            260                 265                 270

Gly Lys Asn Glu Pro Glu Pro Glu Gln Pro Ile Pro Arg Lys Val Gln
        275                 280                 285

Ile Arg Ser Leu Pro Ser Leu Glu Asp Ile Asp Pro Asp Val Leu Asp
    290                 295                 300

Ser Met His Ser Leu Gly Cys Phe Arg Asp Arg Asn Lys Leu Leu Gln
305                 310                 315                 320

Asp Leu Leu Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Phe Leu
                325                 330                 335

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

Pro Pro Arg Asn Glu Ile Asp Pro Pro Arg Lys Arg Val Asp Ser Pro
        355                 360                 365

Met Leu Asn Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu
    370                 375                 380

Val Leu Ser Val Thr Asp Gly Gly Ser Pro Val Pro Ala Arg Arg Ala
385                 390                 395                 400

Ile Glu Met Ala Gln His Gly Gln Arg Ser Arg Ser Ile Ser Gly Ala
                405                 410                 415

Ser Ser Gly Leu Ser Thr Ser Pro Leu Ser Ser Pro Arg Val Thr Pro
            420                 425                 430
```

His Pro Ser Pro Arg Gly Ser Pro Leu Pro Thr Pro Lys Gly Thr Pro
435 440 445

Val His Thr Pro Lys Glu Ser Pro Ala Gly Thr Pro Asn Pro Thr Pro
450 455 460

Pro Ser Ser Pro Ser Val Gly Gly Val Pro Trp Arg Ala Arg Leu Asn
465 470 475 480

Ser Ile Lys Asn Ser Phe Leu Gly Ser Pro Arg Phe His Arg Arg Lys
485 490 495

Leu Gln Val Pro Thr Pro Glu Glu Met Ser Asn Leu Thr Pro Glu Ser
500 505 510

Ser Pro Glu Leu Ala Lys Lys Ser Trp Phe Gly Asn Phe Ile Ser Leu
515 520 525

Glu Lys Glu Glu Gln Ile Phe Val Val Ile Lys Asp Lys Pro Leu Ser
530 535 540

Ser Ile Lys Ala Asp Ile Val His Ala Phe Leu Ser Ile Pro Ser Leu
545 550 555 560

Ser His Ser Val Ile Ser Gln Thr Ser Phe Arg Ala Glu Tyr Lys Ala
565 570 575

Thr Gly Gly Pro Ala Val Phe Gln Lys Pro Val Lys Phe Gln Val Asp
580 585 590

Ile Thr Tyr Thr Glu Gly Gly Glu Ala Gln Lys Glu Asn Gly Ile Tyr
595 600 605

Ser Val Thr Phe Thr Leu Leu Ser Gly Pro Ser Arg Arg Phe Lys Arg
610 615 620

Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Pro Pro
625 630 635 640

Ala Ala Gln His Leu Ser Asp Thr Thr Asn Cys Met Glu Met Met Thr
645 650 655

Gly Arg Leu Ser Lys Cys Gly Ile Ile Pro Lys Ser
660 665

<210> 9393
<211> 766
<212> PRT
<213> Homo sapiens

<220>
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BR serine/threonine kinase 2; "

<220>
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<220>
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<400> 9393
Met Ser Pro Glu Gly His Pro Ser Arg Trp Ala Arg Pro Arg Arg Pro
1 5 10 15

Cys Ile Cys Pro Ser Ser Leu Cys Ser Pro Arg Glu Pro Arg Ser Gly
20 25 30

Pro Ala Val Gly Arg Gly Gly Ala Ala His His Arg Val Pro Ala Gly
35 40 45

His Thr Pro Gly Pro Gln Leu Leu Gln Pro His Leu His Leu Pro Gln
50 55 60

Gly Gln Thr Trp Leu Cys Leu Gln Pro Ser Pro Ala Gly Leu Val Lys
65 70 75 80

Leu Gly Val His Cys Val Thr Cys Gln Lys Val Ala Ile Lys Ile Val
85 90 95

Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu Arg Glu
100 105 110

```
Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys Leu His
        115                 120                 125

Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu His Val
    130                 135                 140

Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg Leu Thr
145                 150                 155                 160

Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Ile Ser Ala Leu Asp
                165                 170                 175

Phe Cys His Ser His Ser Ile Cys His Arg Asp Leu Lys Pro Glu Asn
            180                 185                 190

Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe Gly Met
        195                 200                 205

Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys Gly Ser
    210                 215                 220

Pro His Tyr Ala Cys Pro Glu Val Ile Arg Gly Glu Lys Tyr Asp Gly
225                 230                 235                 240

Arg Lys Ala Asp Val Trp Ser Cys Gly Val Ile Leu Phe Ala Leu Leu
                245                 250                 255

Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu Leu Glu
            260                 265                 270

Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro Pro Asp
        275                 280                 285

Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Asp Ala Ala Arg Arg
    290                 295                 300

Leu Thr Leu Glu His Ile Gln Lys His Ile Trp Tyr Ile Gly Gly Lys
305                 310                 315                 320

Asn Glu Pro Glu Pro Glu Gln Pro Ile Pro Arg Lys Val Gln Ile Arg
                325                 330                 335
```

```
Ser Leu Pro Ser Leu Glu Asp Ile Asp Pro Asp Val Leu Asp Ser Met
            340                 345                 350

His Ser Leu Gly Cys Phe Arg Asp Arg Asn Lys Leu Leu Gln Asp Leu
        355                 360                 365

Leu Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Phe Leu Leu Leu
    370                 375                 380

Asp Arg Lys Glu Arg Tyr Pro Ser Gln Glu Asp Glu Asp Leu Pro Pro
385                 390                 395                 400

Arg Asn Glu Ile Asp Pro Pro Arg Lys Arg Val Asp Ser Pro Met Leu
                405                 410                 415

Asn Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu Val Leu
            420                 425                 430

Ser Val Thr Asp Gly Gly Ser Pro Val Pro Ala Arg Arg Ala Ile Glu
        435                 440                 445

Met Ala Gln His Gly Gln Arg Ser Arg Ser Ile Ser Gly Ala Ser Ser
    450                 455                 460

Gly Leu Ser Thr Ser Pro Leu Ser Ser Pro Arg Val Thr Pro His Pro
465                 470                 475                 480

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

Thr Pro Lys Glu Ser Pro Ala Gly Thr Pro Asn Pro Thr Pro Pro Ser
            500                 505                 510

Ser Pro Ser Val Gly Gly Val Pro Trp Arg Ala Arg Leu Asn Ser Ile
        515                 520                 525

Lys Asn Ser Phe Leu Gly Ser Pro Arg Phe His Arg Arg Lys Leu Gln
    530                 535                 540

Val Pro Thr Pro Glu Glu Met Ser Asn Leu Thr Pro Glu Ser Ser Pro
545                 550                 555                 560
```

```
Glu Leu Ala Lys Lys Ser Trp Phe Gly Asn Phe Ile Ser Leu Glu Lys
                565                 570                 575

Glu Glu Gln Ile Phe Val Val Ile Lys Asp Lys Pro Leu Ser Ser Ile
            580                 585                 590

Lys Ala Asp Ile Val His Ala Phe Leu Ser Ile Pro Ser Leu Ser His
        595                 600                 605

Ser Val Ile Ser Gln Thr Ser Phe Arg Ala Glu Tyr Lys Ala Thr Gly
    610                 615                 620

Gly Pro Ala Val Phe Gln Lys Pro Val Lys Phe Gln Val Asp Ile Thr
625                 630                 635                 640

Tyr Thr Glu Gly Gly Glu Ala Gln Lys Glu Asn Gly Ile Tyr Ser Val
                645                 650                 655

Thr Phe Thr Leu Leu Ser Gly Pro Ser Arg Arg Phe Lys Arg Val Val
            660                 665                 670

Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Pro Pro Ala Ala
        675                 680                 685

Gln His Leu Ser Asp Thr Thr Asn Cys Met Glu Met Met Thr Gly Arg
    690                 695                 700

Leu Ser Lys Cys Asp Glu Lys Asn Gly Gln Ala Ala Gln Ala Pro Ser
705                 710                 715                 720

Thr Pro Ala Lys Arg Ser Ala His Gly Pro Leu Gly Asp Ser Ala Ala
                725                 730                 735

Ala Gly Pro Gly Pro Gly Gly Asp Ala Glu Tyr Pro Thr Gly Lys Asp
            740                 745                 750

Thr Ala Lys Met Gly Pro Pro Thr Ala Arg Arg Glu Gln Pro
        755                 760                 765
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<210> 9394
<211> 674
<212> PRT
<213> Homo sapiens

<220>
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<220>
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BR serine/threonine kinase 2; "

<220>
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<223> /note="Uniprot ID: Q8IWQ3; "

<220>
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<223> /note="ENSP ID: ENSP00000431152"

<400> 9394
Met Thr Ser Thr Gly Lys Asp Gly Gly Ala Gln His Ala Gln Tyr Val
1   5   10   15

Gly Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu
            20   25   30

Val Lys Leu Gly Val His Cys Val Thr Cys Gln Lys Val Ala Ile Lys
        35   40   45

Ile Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu
    50   55   60

Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys
65   70   75   80

Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu
                85   90   95

His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg
            100   105   110

Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Ile Ser Ala
        115   120   125

Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg Asp Leu Lys Pro
    130   135   140

```
Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe
145                 150                 155                 160

Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys
                165                 170                 175

Gly Ser Pro His Tyr Ala Cys Pro Glu Val Ile Arg Gly Glu Lys Tyr
            180                 185                 190

Asp Gly Arg Lys Ala Asp Val Trp Ser Cys Gly Val Ile Leu Phe Ala
        195                 200                 205

Leu Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu
    210                 215                 220

Leu Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro
225                 230                 235                 240

Pro Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Asp Ala Ala
                245                 250                 255

Arg Arg Leu Thr Leu Glu His Ile Gln Lys His Ile Trp Tyr Ile Gly
            260                 265                 270

Gly Lys Asn Glu Pro Glu Pro Glu Gln Pro Ile Pro Arg Lys Val Gln
        275                 280                 285

Ile Arg Ser Leu Pro Ser Leu Glu Asp Ile Asp Pro Asp Val Leu Asp
    290                 295                 300

Ser Met His Ser Leu Gly Cys Phe Arg Asp Arg Asn Lys Leu Leu Gln
305                 310                 315                 320

Asp Leu Leu Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Phe Leu
                325                 330                 335

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

Pro Pro Arg Asn Glu Ile Asp Pro Pro Arg Lys Arg Val Asp Ser Pro
        355                 360                 365
```

```
Met Leu Asn Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu
    370                 375                 380

Val Leu Ser Val Thr Asp Gly Gly Ser Pro Val Pro Ala Arg Arg Ala
385                 390                 395                 400

Ile Glu Met Ala Gln His Gly Gln Arg Ser Arg Ser Ile Ser Gly Ala
                405                 410                 415

Ser Ser Gly Leu Ser Thr Ser Pro Leu Ser Ser Pro Arg Val Thr Pro
            420                 425                 430

His Pro Ser Pro Arg Gly Ser Pro Leu Pro Thr Pro Lys Gly Thr Pro
        435                 440                 445

Val His Thr Pro Lys Glu Ser Pro Ala Gly Thr Pro Asn Pro Thr Pro
    450                 455                 460

Pro Ser Ser Pro Ser Val Gly Gly Val Pro Trp Arg Ala Arg Leu Asn
465                 470                 475                 480

Ser Ile Lys Asn Ser Phe Leu Gly Ser Pro Arg Phe His Arg Arg Lys
                485                 490                 495

Leu Gln Val Pro Thr Pro Glu Glu Met Ser Asn Leu Thr Pro Glu Ser
            500                 505                 510

Ser Pro Glu Leu Ala Lys Lys Ser Trp Phe Gly Asn Phe Ile Ser Leu
        515                 520                 525

Glu Lys Glu Glu Gln Ile Phe Val Val Ile Lys Asp Lys Pro Leu Ser
    530                 535                 540

Ser Ile Lys Ala Asp Ile Val His Ala Phe Leu Ser Ile Pro Ser Leu
545                 550                 555                 560

Ser His Ser Val Ile Ser Gln Thr Ser Phe Arg Ala Glu Tyr Lys Ala
                565                 570                 575

Thr Gly Gly Pro Ala Val Phe Gln Lys Pro Val Lys Phe Gln Val Asp
            580                 585                 590

Ile Thr Tyr Thr Glu Gly Gly Glu Ala Gln Lys Glu Asn Gly Ile Tyr
```

595 600 605

Ser Val Thr Phe Thr Leu Leu Ser Gly Pro Ser Arg Arg Phe Lys Arg
610 615 620

Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Pro Pro
625 630 635 640

Ala Ala Gln His Leu Ser Glu Pro Pro Pro Pro Ala Pro Gly Leu Ser
645 650 655

Trp Gly Ala Gly Leu Lys Gly Gln Lys Val Ala Thr Ser Tyr Glu Ser
660 665 670

Ser Leu

<210> 9395
<211> 736
<212> PRT
<213> Homo sapiens

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BR serine/threonine kinase 2; "

<220>
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<223> /note="Uniprot ID: Q8IWQ3; "

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<400> 9395
Met Thr Ser Thr Gly Lys Asp Gly Gly Ala Gln His Ala Gln Tyr Val
1 5 10 15

Gly Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu
20 25 30

```
Val Lys Leu Gly Val His Cys Val Thr Cys Gln Lys Val Ala Ile Lys
        35                  40                  45

Ile Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu
    50                  55                  60

Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys
65                  70                  75                  80

Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu
                85                  90                  95

His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg
            100                 105                 110

Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Ile Ser Ala
        115                 120                 125

Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg Asp Leu Lys Pro
    130                 135                 140

Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe
145                 150                 155                 160

Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys
                165                 170                 175

Gly Ser Pro His Tyr Ala Cys Pro Glu Val Ile Arg Gly Glu Lys Tyr
            180                 185                 190

Asp Gly Arg Lys Ala Asp Val Trp Ser Cys Gly Val Ile Leu Phe Ala
        195                 200                 205

Leu Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu
    210                 215                 220

Leu Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro
225                 230                 235                 240

Pro Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Asp Ala Ala
                245                 250                 255
```

```
Arg Arg Leu Thr Leu Glu His Ile Gln Lys His Ile Trp Tyr Ile Gly
            260                 265                 270

Gly Lys Asn Glu Pro Glu Pro Glu Gln Pro Ile Pro Arg Lys Val Gln
        275                 280                 285

Ile Arg Ser Leu Pro Ser Leu Glu Asp Ile Asp Pro Asp Val Leu Asp
    290                 295                 300

Ser Met His Ser Leu Gly Cys Phe Arg Asp Arg Asn Lys Leu Leu Gln
305                 310                 315                 320

Asp Leu Leu Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Phe Leu
                325                 330                 335

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

Pro Pro Arg Asn Glu Ile Asp Pro Pro Arg Lys Arg Val Asp Ser Pro
        355                 360                 365

Met Leu Asn Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu
    370                 375                 380

Val Leu Ser Val Thr Asp Gly Gly Ser Pro Val Pro Ala Arg Arg Ala
385                 390                 395                 400

Ile Glu Met Ala Gln His Gly Gln Arg Ser Arg Ser Ile Ser Gly Ala
                405                 410                 415

Ser Ser Gly Leu Ser Thr Ser Pro Leu Ser Ser Pro Arg Val Thr Pro
            420                 425                 430

His Pro Ser Pro Arg Gly Ser Pro Leu Pro Thr Pro Lys Gly Thr Pro
        435                 440                 445

Val His Thr Pro Lys Glu Ser Pro Ala Gly Thr Pro Asn Pro Thr Pro
    450                 455                 460

Pro Ser Ser Pro Ser Val Gly Gly Val Pro Trp Arg Ala Arg Leu Asn
465                 470                 475                 480

Ser Ile Lys Asn Ser Phe Leu Gly Ser Pro Arg Phe His Arg Arg Lys
```

485 490 495

Leu Gln Val Pro Thr Pro Glu Glu Met Ser Asn Leu Thr Pro Glu Ser
500 505 510

Ser Pro Glu Leu Ala Lys Lys Ser Trp Phe Gly Asn Phe Ile Ser Leu
515 520 525

Glu Lys Glu Glu Gln Ile Phe Val Val Ile Lys Asp Lys Pro Leu Ser
530 535 540

Ser Ile Lys Ala Asp Ile Val His Ala Phe Leu Ser Ile Pro Ser Leu
545 550 555 560

Ser His Ser Val Ile Ser Gln Thr Ser Phe Arg Ala Glu Tyr Lys Ala
565 570 575

Thr Gly Gly Pro Ala Val Phe Gln Lys Pro Val Lys Phe Gln Val Asp
580 585 590

Ile Thr Tyr Thr Glu Gly Gly Glu Ala Gln Lys Glu Asn Gly Ile Tyr
595 600 605

Ser Val Thr Phe Thr Leu Leu Ser Gly Pro Ser Arg Arg Phe Lys Arg
610 615 620

Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Pro Pro
625 630 635 640

Ala Ala Gln His Leu Ser Asp Thr Thr Asn Cys Met Glu Met Met Thr
645 650 655

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

Ile Lys Gln Leu Phe Ser Asp Glu Lys Asn Gly Gln Ala Ala Gln Ala
675 680 685

Pro Ser Thr Pro Ala Lys Arg Ser Ala His Gly Pro Leu Gly Asp Ser
690 695 700

Ala Ala Ala Gly Pro Gly Pro Gly Gly Asp Ala Glu Tyr Pro Thr Gly
705 710 715 720

Lys Asp Thr Ala Lys Met Gly Pro Pro Thr Ala Arg Arg Glu Gln Pro
725 730 735

<210> 9396
<211> 170
<212> PRT
<213> Homo sapiens

<220>
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<220>
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BR serine/threonine kinase 2; "

<220>
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<223> /note="ENSP ID: ENSP00000432252"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9396
Xaa Glu His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys
1 5 10 15

Gly Arg Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Ile
20 25 30

Ser Ala Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg Asp Leu
35 40 45

Lys Pro Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala
50 55 60

Asp Phe Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr
65 70 75 80

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

```
Lys Tyr Asp Gly Arg Lys Ala Asp Val Trp Ser Cys Gly Val Ile Leu
            100                 105                 110

Phe Ala Leu Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg
        115                 120                 125

Gln Leu Leu Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe
    130                 135                 140

Ile Pro Pro Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Asp
145                 150                 155                 160

Ala Ala Arg Arg Leu Thr Arg Gly Gln Glu
                165                 170
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<210> 9397
<211> 130
<212> PRT
<213> Homo sapiens

<220>
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<220>
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BR serine/threonine kinase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432672"

<400> 9397

```
Met Lys Val Glu Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro
1               5                   10                  15

His Val Leu Lys Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr
            20                  25                  30

Leu Val Leu Glu His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val
        35                  40                  45
```

```
Lys Lys Gly Arg Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln
    50                  55                  60

Ile Ile Ser Ala Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg
65                  70                  75                  80

Asp Leu Lys Pro Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg
                85                  90                  95

Ile Ala Asp Phe Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu
            100                 105                 110

Glu Thr Ser Cys Gly Ser Pro His Tyr Ala Cys Pro Glu Val Ile Arg
        115                 120                 125

Gly Glu
    130
```

<210> 9398
<211> 614
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q8IWQ3; "

<220>
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<223> /note="ENSP ID: ENSP00000433235"

<400> 9398

```
Met Lys Val Glu Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro
1               5                   10                  15

His Val Leu Lys Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr
            20                  25                  30
```

```
Leu Val Leu Glu His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val
        35                  40                  45

Lys Lys Gly Arg Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln
    50                  55                  60

Ile Ile Ser Ala Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg
65                  70                  75                  80

Asp Leu Lys Pro Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg
                85                  90                  95

Ile Ala Asp Phe Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu
            100                 105                 110

Glu Thr Ser Cys Gly Ser Pro His Tyr Ala Cys Pro Glu Val Ile Arg
        115                 120                 125

Gly Glu Lys Tyr Asp Gly Arg Lys Ala Asp Val Trp Ser Cys Gly Val
    130                 135                 140

Ile Leu Phe Ala Leu Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn
145                 150                 155                 160

Leu Arg Gln Leu Leu Glu Lys Val Lys Arg Gly Val Phe His Met Pro
                165                 170                 175

His Phe Ile Pro Pro Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu
            180                 185                 190

Val Asp Ala Ala Arg Arg Leu Thr Leu Glu His Ile Gln Lys His Ile
        195                 200                 205

Trp Tyr Ile Gly Gly Lys Asn Glu Pro Glu Pro Glu Gln Pro Ile Pro
    210                 215                 220

Arg Lys Val Gln Ile Arg Ser Leu Pro Ser Leu Glu Asp Ile Asp Pro
225                 230                 235                 240

Asp Val Leu Asp Ser Met His Ser Leu Gly Cys Phe Arg Asp Arg Asn
                245                 250                 255
```

```
Lys Leu Leu Gln Asp Leu Leu Ser Glu Glu Glu Asn Gln Glu Lys Met
            260                 265                 270

Ile Tyr Phe Leu Leu Leu Asp Arg Lys Glu Arg Tyr Pro Ser Gln Glu
        275                 280                 285

Asp Glu Asp Leu Pro Pro Arg Asn Glu Ile Asp Pro Pro Arg Lys Arg
    290                 295                 300

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

Lys Ser Met Glu Val Leu Ser Val Thr Asp Gly Gly Ser Pro Val Pro
                325                 330                 335

Ala Arg Arg Ala Ile Glu Met Ala Gln His Gly Gln Arg Ser Arg Ser
            340                 345                 350

Ile Ser Gly Ala Ser Ser Gly Leu Ser Thr Ser Pro Leu Ser Ser Pro
        355                 360                 365

Arg Val Thr Pro His Pro Ser Pro Arg Gly Ser Pro Leu Pro Thr Pro
    370                 375                 380

Lys Gly Thr Pro Val His Thr Pro Lys Glu Ser Pro Ala Gly Thr Pro
385                 390                 395                 400

Asn Pro Thr Pro Pro Ser Ser Pro Ser Val Gly Gly Val Pro Trp Arg
                405                 410                 415

Ala Arg Leu Asn Ser Ile Lys Asn Ser Phe Leu Gly Ser Pro Arg Phe
            420                 425                 430

His Arg Arg Lys Leu Gln Val Pro Thr Pro Glu Glu Met Ser Asn Leu
        435                 440                 445

Thr Pro Glu Ser Ser Pro Glu Leu Ala Lys Lys Ser Trp Phe Gly Asn
    450                 455                 460

Phe Ile Ser Leu Glu Lys Glu Glu Gln Ile Phe Val Val Ile Lys Asp
465                 470                 475                 480
```

```
Lys Pro Leu Ser Ser Ile Lys Ala Asp Ile Val His Ala Phe Leu Ser
                485                 490                 495

Ile Pro Ser Leu Ser His Ser Val Ile Ser Gln Thr Ser Phe Arg Ala
            500                 505                 510

Glu Tyr Lys Ala Thr Gly Gly Pro Ala Val Phe Gln Lys Pro Val Lys
        515                 520                 525

Phe Gln Val Asp Ile Thr Tyr Thr Glu Gly Gly Glu Ala Gln Lys Glu
    530                 535                 540

Asn Gly Ile Tyr Ser Val Thr Phe Thr Leu Leu Ser Gly Pro Ser Arg
545                 550                 555                 560

Arg Phe Lys Arg Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr
                565                 570                 575

His Asp Pro Pro Ala Ala Gln His Leu Ser Glu Pro Pro Pro Pro Ala
            580                 585                 590

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

Ser Tyr Glu Ser Ser Leu
    610


<210> 9399
<211> 696
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID:  Q8IWQ3; "
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<220>
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<400> 9399
Met Thr Ser Thr Gly Lys Asp Gly Gly Ala Gln His Ala Gln Tyr Val
1   5   10   15

Gly Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu
            20   25   30

Val Lys Leu Gly Val His Cys Val Thr Cys Gln Lys Val Ala Ile Lys
        35   40   45

Ile Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu
    50   55   60

Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys
65   70   75   80

Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu
                85   90   95

His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg
            100   105   110

Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Ile Ser Ala
        115   120   125

Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg Asp Leu Lys Pro
    130   135   140

Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe
145   150   155   160

Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys
                165   170   175

Gly Ser Pro His Tyr Ala Cys Pro Glu Val Ile Arg Gly Glu Lys Tyr
            180   185   190

Asp Gly Arg Lys Ala Asp Val Trp Ser Cys Gly Val Ile Leu Phe Ala
        195   200   205

```
Leu Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu
    210                 215                 220

Leu Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro
225                 230                 235                 240

Pro Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Asp Ala Ala
                245                 250                 255

Arg Arg Leu Thr Leu Glu His Ile Gln Lys His Ile Trp Tyr Ile Gly
            260                 265                 270

Gly Lys Asn Glu Pro Glu Pro Glu Gln Pro Ile Pro Arg Lys Val Gln
        275                 280                 285

Ile Arg Ser Leu Pro Ser Leu Glu Asp Ile Asp Pro Asp Val Leu Asp
    290                 295                 300

Ser Met His Ser Leu Gly Cys Phe Arg Asp Arg Asn Lys Leu Leu Gln
305                 310                 315                 320

Asp Leu Leu Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Phe Leu
                325                 330                 335

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

Pro Pro Arg Asn Glu Ile Asp Pro Pro Arg Lys Arg Val Asp Ser Pro
        355                 360                 365

Met Leu Asn Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu
    370                 375                 380

Val Leu Ser Val Thr Asp Gly Gly Ser Pro Val Pro Ala Arg Arg Ala
385                 390                 395                 400

Ile Glu Met Ala Gln His Gly Gln Ser Lys Ala Met Phe Ser Lys Ser
                405                 410                 415

Leu Asp Ile Ala Glu Ala His Pro Gln Phe Ser Lys Glu Asp Arg Ser
            420                 425                 430
```

```
Arg Ser Ile Ser Gly Ala Ser Ser Gly Leu Ser Thr Ser Pro Leu Ser
        435                 440                 445

Ser Pro Arg Val Thr Pro His Pro Ser Pro Arg Gly Ser Pro Leu Pro
    450                 455                 460

Thr Pro Lys Gly Thr Pro Val His Thr Pro Lys Glu Ser Pro Ala Gly
465                 470                 475                 480

Thr Pro Asn Pro Thr Pro Pro Ser Ser Pro Ser Val Gly Gly Val Pro
                485                 490                 495

Trp Arg Ala Arg Leu Asn Ser Ile Lys Asn Ser Phe Leu Gly Ser Pro
            500                 505                 510

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

Asn Leu Thr Pro Glu Ser Ser Pro Glu Leu Ala Lys Lys Ser Trp Phe
    530                 535                 540

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

Lys Asp Lys Pro Leu Ser Ser Ile Lys Ala Asp Ile Val His Ala Phe
                565                 570                 575

Leu Ser Ile Pro Ser Leu Ser His Ser Val Ile Ser Gln Thr Ser Phe
            580                 585                 590

Arg Ala Glu Tyr Lys Ala Thr Gly Gly Pro Ala Val Phe Gln Lys Pro
        595                 600                 605

Val Lys Phe Gln Val Asp Ile Thr Tyr Thr Glu Gly Gly Glu Ala Gln
    610                 615                 620

Lys Glu Asn Gly Ile Tyr Ser Val Thr Phe Thr Leu Leu Ser Gly Pro
625                 630                 635                 640

Ser Arg Arg Phe Lys Arg Val Val Glu Thr Ile Gln Ala Gln Leu Leu
                645                 650                 655

Ser Thr His Asp Pro Pro Ala Ala Gln His Leu Ser Glu Pro Pro Pro
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660 665 670

Pro Ala Pro Gly Leu Ser Trp Gly Ala Gly Leu Lys Gly Gln Lys Val
675 680 685

Ala Thr Ser Tyr Glu Ser Ser Leu
690 695

<210> 9400
<211> 674
<212> PRT
<213> Homo sapiens

<220>
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<220>
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BR serine/threonine kinase 2; "

<220>
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<223> /note="Uniprot ID: Q8IWQ3; "

<220>
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<223> /note="ENSP ID: ENSP00000433684"

<400> 9400
Met Thr Ser Thr Gly Lys Asp Gly Gly Ala Gln His Ala Gln Tyr Val
1 5 10 15

Gly Pro Tyr Arg Leu Glu Lys Thr Leu Gly Lys Gly Gln Thr Gly Leu
20 25 30

Val Lys Leu Gly Val His Cys Val Thr Cys Gln Lys Val Ala Ile Lys
35 40 45

Ile Val Asn Arg Glu Lys Leu Ser Glu Ser Val Leu Met Lys Val Glu
50 55 60

Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro His Val Leu Lys
65 70 75 80

```
Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr Leu Val Leu Glu
                85                  90                  95

His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val Lys Lys Gly Arg
            100                 105                 110

Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln Ile Ile Ser Ala
        115                 120                 125

Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg Asp Leu Lys Pro
    130                 135                 140

Glu Asn Leu Leu Leu Asp Glu Lys Asn Asn Ile Arg Ile Ala Asp Phe
145                 150                 155                 160

Gly Met Ala Ser Leu Gln Val Gly Asp Ser Leu Leu Glu Thr Ser Cys
                165                 170                 175

Gly Ser Pro His Tyr Ala Cys Pro Glu Val Ile Arg Gly Glu Lys Tyr
            180                 185                 190

Asp Gly Arg Lys Ala Asp Val Trp Ser Cys Gly Val Ile Leu Phe Ala
        195                 200                 205

Leu Leu Val Gly Ala Leu Pro Phe Asp Asp Asp Asn Leu Arg Gln Leu
    210                 215                 220

Leu Glu Lys Val Lys Arg Gly Val Phe His Met Pro His Phe Ile Pro
225                 230                 235                 240

Pro Asp Cys Gln Ser Leu Leu Arg Gly Met Ile Glu Val Asp Ala Ala
                245                 250                 255

Arg Arg Leu Thr Leu Glu His Ile Gln Lys His Ile Trp Tyr Ile Gly
            260                 265                 270

Gly Lys Asn Glu Pro Glu Pro Glu Gln Pro Ile Pro Arg Lys Val Gln
        275                 280                 285

Ile Arg Ser Leu Pro Ser Leu Glu Asp Ile Asp Pro Asp Val Leu Asp
    290                 295                 300
```

Ser Met His Ser Leu Gly Cys Phe Arg Asp Arg Asn Lys Leu Leu Gln
305 310 315 320

Asp Leu Leu Ser Glu Glu Glu Asn Gln Glu Lys Met Ile Tyr Phe Leu
325 330 335

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

Pro Pro Arg Asn Glu Ile Asp Pro Pro Arg Lys Arg Val Asp Ser Pro
355 360 365

Met Leu Asn Arg His Gly Lys Arg Arg Pro Glu Arg Lys Ser Met Glu
370 375 380

Val Leu Ser Val Thr Asp Gly Gly Ser Pro Val Pro Ala Arg Arg Ala
385 390 395 400

Ile Glu Met Ala Gln His Gly Gln Arg Ser Arg Ser Ile Ser Gly Ala
405 410 415

Ser Ser Gly Leu Ser Thr Ser Pro Leu Ser Ser Pro Arg Val Thr Pro
420 425 430

His Pro Ser Pro Arg Gly Ser Pro Leu Pro Thr Pro Lys Gly Thr Pro
435 440 445

Val His Thr Pro Lys Glu Ser Pro Ala Gly Thr Pro Asn Pro Thr Pro
450 455 460

Pro Ser Ser Pro Ser Val Gly Gly Val Pro Trp Arg Ala Arg Leu Asn
465 470 475 480

Ser Ile Lys Asn Ser Phe Leu Gly Ser Pro Arg Phe His Arg Arg Lys
485 490 495

Leu Gln Val Pro Thr Pro Glu Glu Met Ser Asn Leu Thr Pro Glu Ser
500 505 510

Ser Pro Glu Leu Ala Lys Lys Ser Trp Phe Gly Asn Phe Ile Ser Leu
515 520 525

Glu Lys Glu Glu Gln Ile Phe Val Val Ile Lys Asp Lys Pro Leu Ser

```
    530                 535                 540

Ser Ile Lys Ala Asp Ile Val His Ala Phe Leu Ser Ile Pro Ser Leu
545                 550                 555                 560

Ser His Ser Val Ile Ser Gln Thr Ser Phe Arg Ala Glu Tyr Lys Ala
                565                 570                 575

Thr Gly Gly Pro Ala Val Phe Gln Lys Pro Val Lys Phe Gln Val Asp
            580                 585                 590

Ile Thr Tyr Thr Glu Gly Gly Glu Ala Gln Lys Glu Asn Gly Ile Tyr
        595                 600                 605

Ser Val Thr Phe Thr Leu Leu Ser Gly Pro Ser Arg Arg Phe Lys Arg
    610                 615                 620

Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His Asp Pro Pro
625                 630                 635                 640

Ala Ala Gln His Leu Ser Glu Pro Pro Pro Pro Ala Pro Gly Leu Ser
                645                 650                 655

Trp Gly Ala Gly Leu Lys Gly Gln Lys Val Ala Thr Ser Tyr Glu Ser
            660                 665                 670

Ser Leu
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<210> 9401
<211> 86
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1921; "

<220>
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<223> /note="Gene Symbol: BRSK2; "

<220>
<221> source
<223> /note="Gene Name:
BR serine/threonine kinase 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434075"

<400> 9401
Met Lys Val Glu Arg Glu Ile Ala Ile Leu Lys Leu Ile Glu His Pro
1   5   10   15

His Val Leu Lys Leu His Asp Val Tyr Glu Asn Lys Lys Tyr Leu Tyr
            20   25   30

Leu Val Leu Glu His Val Ser Gly Gly Glu Leu Phe Asp Tyr Leu Val
        35   40   45

Lys Lys Gly Arg Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe Arg Gln
    50   55   60

Ile Ile Ser Ala Leu Asp Phe Cys His Ser His Ser Ile Cys His Arg
65   70   75   80

Asp Leu Lys Pro Glu Asn
                85

<210> 9402
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1921; "

<220>
<221> source
<223> /note="Gene Symbol: BRSK2; "

<220>
<221> source
<223> /note="Gene Name:
      BR serine/threonine kinase 2; "

<220>
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<223> /note="ENSP ID: ENSP00000436474"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9402
Xaa Thr Pro Pro Ser Ser Pro Ser Val Gly Gly Val Pro Trp Arg Ala
1 5 10 15

Arg Leu Asn Ser Ile Lys Asn Ser Phe Leu Gly Ser Pro Arg Phe His
20 25 30

Arg Arg Lys Leu Gln Val Pro Thr Pro Glu Glu Met Ser Asn Leu Thr
35 40 45

Pro Glu Ser Ser Pro Glu Leu Ala Lys Lys Ser Trp Phe Gly Asn Phe
50 55 60

Ile Ser Leu Glu Lys Glu Glu Gln Ile Phe Val Val Ile Lys Asp Lys
65 70 75 80

Pro Leu Ser Ser Ile Lys Ala Asp Ile Val His Ala Phe Leu Ser Ile
85 90 95

Pro Ser Leu Ser His Ser Val Ile Ser Gln Thr Ser Phe Arg Ala Glu
100 105 110

Tyr Lys Ala Thr Gly Gly Pro Ala Val Phe Gln Lys Pro Val Lys Phe
115 120 125

Gln Val Asp Ile Thr Tyr Thr Glu Gly Gly Glu Ala Gln Lys Glu Asn
130 135 140

Gly Ile Tyr Ser Val Thr Phe Thr Leu Leu Ser Gly Pro Ser Arg Arg
145 150 155 160

Phe Lys Arg Val Val Glu Thr Ile Gln Ala Gln Leu Leu Ser Thr His
165 170 175

Asp Pro Pro Ala Ala Gln His Leu Ser Asp Thr Thr Asn Cys Met Glu
180 185 190

Met Met Thr Gly Arg Leu Ser Lys
195 200

<210> 9403
<211> 170
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<221> source
<223> /note="Gene Name:
BR serine/threonine kinase 2; "

<220>
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<223> /note="ENSP ID: ENSP00000445168"

<400> 9403
Met Ser Asn Leu Thr Pro Glu Ser Ser Pro Glu Leu Ala Lys Lys Ser
1 5 10 15

Trp Phe Gly Asn Phe Ile Ser Leu Glu Lys Glu Glu Gln Ile Phe Val
20 25 30

Val Ile Lys Asp Lys Pro Leu Ser Ser Ile Lys Ala Asp Ile Val His
35 40 45

Ala Phe Leu Ser Ile Pro Ser Leu Ser His Ser Val Ile Ser Gln Thr
50 55 60

Ser Phe Arg Ala Glu Tyr Lys Ala Thr Gly Gly Pro Ala Val Phe Gln
65 70 75 80

Lys Pro Val Lys Phe Gln Val Asp Ile Thr Tyr Thr Glu Gly Gly Glu
85 90 95

Ala Gln Lys Glu Asn Gly Ile Tyr Ser Val Thr Phe Thr Leu Leu Ser
100 105 110

Gly Pro Ser Arg Arg Phe Lys Arg Val Val Glu Thr Ile Gln Ala Gln
115 120 125

Leu Leu Ser Thr His Asp Pro Pro Ala Ala Gln His Leu Ser Glu Pro
130 135 140

Pro Pro Pro Ala Pro Gly Leu Ser Trp Gly Ala Gly Leu Lys Gly Gln
145 150 155 160

Lys Val Ala Thr Ser Tyr Glu Ser Ser Leu
165 170

<210> 9404
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1922; "

<220>
<221> source
<223> /note="Gene Symbol: BDKRB1; "

<220>
<221> source
<223> /note="Gene Name:
bradykinin receptor B1; "

<220>
<221> source
<223> /note="Uniprot ID: P46663; "

<220>
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<223> /note="ENSP ID: ENSP00000216629"

<400> 9404
Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser
1 5 10 15

Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala
20 25 30

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys
35 40 45

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu
50 55 60

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala
65 70 75 80

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn
85 90 95

```
Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val
            100                 105                 110

Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val
        115                 120                 125

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala
    130                 135                 140

Ser Arg Arg Gln Gln Arg Arg Arg Gln Ala Arg Val Thr Cys Val Leu
145                 150                 155                 160

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg
                165                 170                 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu
            180                 185                 190

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile
        195                 200                 205

Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His
    210                 215                 220

Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Cys
225                 230                 235                 240

Gly Gly Arg Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val
                245                 250                 255

Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu
            260                 265                 270

Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp
        275                 280                 285

Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn
    290                 295                 300

Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg
305                 310                 315                 320

Thr Lys Val Trp Glu Leu Tyr Lys Gln Cys Thr Pro Lys Ser Leu Ala
```

325 330 335

Pro Ile Ser Ser Ser His Arg Lys Glu Ile Phe Gln Leu Phe Trp Arg
340 345 350

Asn

<210> 9405
<211> 284
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1922; "

<220>
<221> source
<223> /note="Gene Symbol: BDKRB1; "

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<223> /note="Gene Name:
bradykinin receptor B1; "

<220>
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<223> /note="ENSP ID: ENSP00000452064"

<400> 9405
Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser
1 5 10 15

Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala
20 25 30

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys
35 40 45

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu
50 55 60

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala
65 70 75 80

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn
85 90 95

```
Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val
            100                 105                 110

Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val
        115                 120                 125

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala
    130                 135                 140

Ser Arg Arg Gln Gln Arg Arg Arg Gln Ala Arg Val Thr Cys Val Leu
145                 150                 155                 160

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg
                165                 170                 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu
            180                 185                 190

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile
        195                 200                 205

Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His
    210                 215                 220

Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Ser Ser
225                 230                 235                 240

Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg Thr Lys
                245                 250                 255

Pro Ala Leu Ser Arg Trp Leu Ile Lys Ile Leu Ser Arg Ser Cys Lys
            260                 265                 270

Asn Gln Ser His Thr Arg Glu Glu Arg Ala Gly Arg
        275                 280
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<210> 9406
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1922; "

<220>
<221> source
<223> /note="Gene Symbol: BDKRB1; "

<220>
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<223> /note="Gene Name:
bradykinin receptor B1; "

<220>
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<223> /note="Uniprot ID: P46663; "

<220>
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<223> /note="ENSP ID: ENSP00000479276"

<400> 9406
Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser
1 5 10 15

Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala
20 25 30

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys
35 40 45

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu
50 55 60

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala
65 70 75 80

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn
85 90 95

Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val
100 105 110

Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val
115 120 125

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala
130 135 140

Ser Arg Arg Gln Gln Arg Arg Arg Gln Ala Arg Val Thr Cys Val Leu
145 150 155 160

```
Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg
                165                 170                 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu
            180                 185                 190

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile
        195                 200                 205

Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His
    210                 215                 220

Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Cys
225                 230                 235                 240

Gly Gly Arg Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val
                245                 250                 255

Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu
            260                 265                 270

Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp
        275                 280                 285

Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn
    290                 295                 300

Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg
305                 310                 315                 320

Thr Lys Val Trp Glu Leu Tyr Lys Gln Cys Thr Pro Lys Ser Leu Ala
                325                 330                 335

Pro Ile Ser Ser Ser His Arg Lys Glu Ile Phe Gln Leu Phe Trp Arg
            340                 345                 350

Asn
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<210> 9407
<211> 364
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1923; "

<220>
<221> source
<223> /note="Gene Symbol: BDKRB2; "

<220>
<221> source
<223> /note="Gene Name:
bradykinin receptor B2; "

<220>
<221> source
<223> /note="Uniprot ID: P30411; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438376"

<400> 9407

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Met Leu Asn Val Thr Leu Gln Gly Pro Thr Leu Asn Gly Thr Phe Ala
1               5                  10                  15

Gln Ser Lys Cys Pro Gln Val Glu Trp Leu Gly Trp Leu Asn Thr Ile
            20                  25                  30

Gln Pro Pro Phe Leu Trp Val Leu Phe Val Leu Ala Thr Leu Glu Asn
        35                  40                  45

Ile Phe Val Leu Ser Val Phe Cys Leu His Lys Ser Ser Cys Thr Val
    50                  55                  60

Ala Glu Ile Tyr Leu Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala
65                  70                  75                  80

Cys Gly Leu Pro Phe Trp Ala Ile Thr Ile Ser Asn Asn Phe Asp Trp
                85                  90                  95

Leu Phe Gly Glu Thr Leu Cys Arg Val Val Asn Ala Ile Ile Ser Met
            100                 105                 110

Asn Leu Tyr Ser Ser Ile Cys Phe Leu Met Leu Val Ser Ile Asp Arg
        115                 120                 125

Tyr Leu Ala Leu Val Lys Thr Met Ser Met Gly Arg Met Arg Gly Val
```

```
    130                 135                 140

Arg Trp Ala Lys Leu Tyr Ser Leu Val Ile Trp Gly Cys Thr Leu Leu
145                 150                 155                 160

Leu Ser Ser Pro Met Leu Val Phe Arg Thr Met Lys Glu Tyr Ser Asp
                165                 170                 175

Glu Gly His Asn Val Thr Ala Cys Val Ile Ser Tyr Pro Ser Leu Ile
            180                 185                 190

Trp Glu Val Phe Thr Asn Met Leu Leu Asn Val Val Gly Phe Leu Leu
        195                 200                 205

Pro Leu Ser Val Ile Thr Phe Cys Thr Met Gln Ile Met Gln Val Leu
    210                 215                 220

Arg Asn Asn Glu Met Gln Lys Phe Lys Glu Ile Gln Thr Glu Arg Arg
225                 230                 235                 240

Ala Thr Val Leu Val Leu Val Val Leu Leu Leu Phe Ile Ile Cys Trp
                245                 250                 255

Leu Pro Phe Gln Ile Ser Thr Phe Leu Asp Thr Leu His Arg Leu Gly
            260                 265                 270

Ile Leu Ser Ser Cys Gln Asp Glu Arg Ile Ile Asp Val Ile Thr Gln
        275                 280                 285

Ile Ala Ser Phe Met Ala Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val
    290                 295                 300

Tyr Val Ile Val Gly Lys Arg Phe Arg Lys Lys Ser Trp Glu Val Tyr
305                 310                 315                 320

Gln Gly Val Cys Gln Lys Gly Gly Cys Arg Ser Glu Pro Ile Gln Met
                325                 330                 335

Glu Asn Ser Met Gly Thr Leu Arg Thr Ser Ile Ser Val Glu Arg Gln
            340                 345                 350

Ile His Lys Leu Gln Asp Trp Ala Gly Ser Arg Gln
        355                 360
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<210> 9408
<211> 364
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1923; "

<220>
<221> source
<223> /note="Gene Symbol: BDKRB2; "

<220>
<221> source
<223> /note="Gene Name:
bradykinin receptor B2; "

<220>
<221> source
<223> /note="Uniprot ID: P30411; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439459"

<400> 9408
Met Leu Asn Val Thr Leu Gln Gly Pro Thr Leu Asn Gly Thr Phe Ala
1   5   10   15

Gln Ser Lys Cys Pro Gln Val Glu Trp Leu Gly Trp Leu Asn Thr Ile
            20   25   30

Gln Pro Pro Phe Leu Trp Val Leu Phe Val Leu Ala Thr Leu Glu Asn
        35   40   45

Ile Phe Val Leu Ser Val Phe Cys Leu His Lys Ser Ser Cys Thr Val
    50   55   60

Ala Glu Ile Tyr Leu Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala
65   70   75   80

Cys Gly Leu Pro Phe Trp Ala Ile Thr Ile Ser Asn Asn Phe Asp Trp
                85   90   95

Leu Phe Gly Glu Thr Leu Cys Arg Val Val Asn Ala Ile Ile Ser Met
            100   105   110

```
Asn Leu Tyr Ser Ser Ile Cys Phe Leu Met Leu Val Ser Ile Asp Arg
        115                 120                 125

Tyr Leu Ala Leu Val Lys Thr Met Ser Met Gly Arg Met Arg Gly Val
    130                 135                 140

Arg Trp Ala Lys Leu Tyr Ser Leu Val Ile Trp Gly Cys Thr Leu Leu
145                 150                 155                 160

Leu Ser Ser Pro Met Leu Val Phe Arg Thr Met Lys Glu Tyr Ser Asp
                165                 170                 175

Glu Gly His Asn Val Thr Ala Cys Val Ile Ser Tyr Pro Ser Leu Ile
            180                 185                 190

Trp Glu Val Phe Thr Asn Met Leu Leu Asn Val Val Gly Phe Leu Leu
        195                 200                 205

Pro Leu Ser Val Ile Thr Phe Cys Thr Met Gln Ile Met Gln Val Leu
    210                 215                 220

Arg Asn Asn Glu Met Gln Lys Phe Lys Glu Ile Gln Thr Glu Arg Arg
225                 230                 235                 240

Ala Thr Val Leu Val Leu Val Val Leu Leu Leu Phe Ile Ile Cys Trp
                245                 250                 255

Leu Pro Phe Gln Ile Ser Thr Phe Leu Asp Thr Leu His Arg Leu Gly
            260                 265                 270

Ile Leu Ser Ser Cys Gln Asp Glu Arg Ile Ile Asp Val Ile Thr Gln
        275                 280                 285

Ile Ala Ser Phe Met Ala Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val
    290                 295                 300

Tyr Val Ile Val Gly Lys Arg Phe Arg Lys Lys Ser Trp Glu Val Tyr
305                 310                 315                 320

Gln Gly Val Cys Gln Lys Gly Gly Cys Arg Ser Glu Pro Ile Gln Met
                325                 330                 335

Glu Asn Ser Met Gly Thr Leu Arg Thr Ser Ile Ser Val Glu Arg Gln
```

340 345 350

Ile His Lys Leu Gln Asp Trp Ala Gly Ser Arg Gln
355 360

<210> 9409
<211> 391
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1923; "

<220>
<221> source
<223> /note="Gene Symbol: BDKRB2; "

<220>
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<223> /note="Gene Name:
bradykinin receptor B2; "

<220>
<221> source
<223> /note="Uniprot ID: P30411; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450482"

<400> 9409
Met Phe Ser Pro Trp Lys Ile Ser Met Phe Leu Ser Val Arg Glu Asp
1 5 10 15

Ser Val Pro Thr Thr Ala Ser Phe Ser Ala Asp Met Leu Asn Val Thr
20 25 30

Leu Gln Gly Pro Thr Leu Asn Gly Thr Phe Ala Gln Ser Lys Cys Pro
35 40 45

Gln Val Glu Trp Leu Gly Trp Leu Asn Thr Ile Gln Pro Pro Phe Leu
50 55 60

Trp Val Leu Phe Val Leu Ala Thr Leu Glu Asn Ile Phe Val Leu Ser
65 70 75 80

Val Phe Cys Leu His Lys Ser Ser Cys Thr Val Ala Glu Ile Tyr Leu
85 90 95

```
Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala Cys Gly Leu Pro Phe
            100                 105                 110

Trp Ala Ile Thr Ile Ser Asn Asn Phe Asp Trp Leu Phe Gly Glu Thr
        115                 120                 125

Leu Cys Arg Val Val Asn Ala Ile Ile Ser Met Asn Leu Tyr Ser Ser
    130                 135                 140

Ile Cys Phe Leu Met Leu Val Ser Ile Asp Arg Tyr Leu Ala Leu Val
145                 150                 155                 160

Lys Thr Met Ser Met Gly Arg Met Arg Gly Val Arg Trp Ala Lys Leu
                165                 170                 175

Tyr Ser Leu Val Ile Trp Gly Cys Thr Leu Leu Leu Ser Ser Pro Met
            180                 185                 190

Leu Val Phe Arg Thr Met Lys Glu Tyr Ser Asp Glu Gly His Asn Val
        195                 200                 205

Thr Ala Cys Val Ile Ser Tyr Pro Ser Leu Ile Trp Glu Val Phe Thr
    210                 215                 220

Asn Met Leu Leu Asn Val Val Gly Phe Leu Leu Pro Leu Ser Val Ile
225                 230                 235                 240

Thr Phe Cys Thr Met Gln Ile Met Gln Val Leu Arg Asn Asn Glu Met
                245                 250                 255

Gln Lys Phe Lys Glu Ile Gln Thr Glu Arg Arg Ala Thr Val Leu Val
            260                 265                 270

Leu Val Val Leu Leu Leu Phe Ile Ile Cys Trp Leu Pro Phe Gln Ile
        275                 280                 285

Ser Thr Phe Leu Asp Thr Leu His Arg Leu Gly Ile Leu Ser Ser Cys
    290                 295                 300

Gln Asp Glu Arg Ile Ile Asp Val Ile Thr Gln Ile Ala Ser Phe Met
305                 310                 315                 320
```

```
Ala Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val Tyr Val Ile Val Gly
                325                 330                 335

Lys Arg Phe Arg Lys Lys Ser Trp Glu Val Tyr Gln Gly Val Cys Gln
            340                 345                 350

Lys Gly Gly Cys Arg Ser Glu Pro Ile Gln Met Glu Asn Ser Met Gly
        355                 360                 365

Thr Leu Arg Thr Ser Ile Ser Val Glu Arg Gln Ile His Lys Leu Gln
    370                 375                 380

Asp Trp Ala Gly Ser Arg Gln
385                 390


<210> 9410
<211> 766
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1924; "

<220>
<221> source
<223> /note="Gene Symbol: BRAF; "

<220>
<221> source
<223> /note="Gene Name:
      B-Raf proto-oncogene, serine/threonine kinase; "

<220>
<221> source
<223> /note="Uniprot ID:  P15056; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000288602"

<400> 9410
Met Ala Ala Leu Ser Gly Gly Gly Gly Gly Gly Ala Glu Pro Gly Gln
1               5                   10                  15

Ala Leu Phe Asn Gly Asp Met Glu Pro Glu Ala Gly Ala Gly Ala Gly
            20                  25                  30

Ala Ala Ala Ser Ser Ala Ala Asp Pro Ala Ile Pro Glu Glu Val Trp
        35                  40                  45
```

```
Asn Ile Lys Gln Met Ile Lys Leu Thr Gln Glu His Ile Glu Ala Leu
    50                  55                  60

Leu Asp Lys Phe Gly Gly Glu His Asn Pro Pro Ser Ile Tyr Leu Glu
65                  70                  75                  80

Ala Tyr Glu Glu Tyr Thr Ser Lys Leu Asp Ala Leu Gln Gln Arg Glu
                85                  90                  95

Gln Gln Leu Leu Glu Ser Leu Gly Asn Gly Thr Asp Phe Ser Val Ser
            100                 105                 110

Ser Ser Ala Ser Met Asp Thr Val Thr Ser Ser Ser Ser Ser Ser Leu
        115                 120                 125

Ser Val Leu Pro Ser Ser Leu Ser Val Phe Gln Asn Pro Thr Asp Val
    130                 135                 140

Ala Arg Ser Asn Pro Lys Ser Pro Gln Lys Pro Ile Val Arg Val Phe
145                 150                 155                 160

Leu Pro Asn Lys Gln Arg Thr Val Val Pro Ala Arg Cys Gly Val Thr
                165                 170                 175

Val Arg Asp Ser Leu Lys Lys Ala Leu Met Met Arg Gly Leu Ile Pro
            180                 185                 190

Glu Cys Cys Ala Val Tyr Arg Ile Gln Asp Gly Glu Lys Lys Pro Ile
        195                 200                 205

Gly Trp Asp Thr Asp Ile Ser Trp Leu Thr Gly Glu Glu Leu His Val
    210                 215                 220

Glu Val Leu Glu Asn Val Pro Leu Thr Thr His Asn Phe Val Arg Lys
225                 230                 235                 240

Thr Phe Phe Thr Leu Ala Phe Cys Asp Phe Cys Arg Lys Leu Leu Phe
                245                 250                 255

Gln Gly Phe Arg Cys Gln Thr Cys Gly Tyr Lys Phe His Gln Arg Cys
            260                 265                 270
```

```
Ser Thr Glu Val Pro Leu Met Cys Val Asn Tyr Asp Gln Leu Asp Leu
        275                 280                 285

Leu Phe Val Ser Lys Phe Phe Glu His His Pro Ile Pro Gln Glu Glu
    290                 295                 300

Ala Ser Leu Ala Glu Thr Ala Leu Thr Ser Gly Ser Ser Pro Ser Ala
305                 310                 315                 320

Pro Ala Ser Asp Ser Ile Gly Pro Gln Ile Leu Thr Ser Pro Ser Pro
                325                 330                 335

Ser Lys Ser Ile Pro Ile Pro Gln Pro Phe Arg Pro Ala Asp Glu Asp
            340                 345                 350

His Arg Asn Gln Phe Gly Gln Arg Asp Arg Ser Ser Ser Ala Pro Asn
        355                 360                 365

Val His Ile Asn Thr Ile Glu Pro Val Asn Ile Asp Asp Leu Ile Arg
    370                 375                 380

Asp Gln Gly Phe Arg Gly Asp Gly Gly Ser Thr Thr Gly Leu Ser Ala
385                 390                 395                 400

Thr Pro Pro Ala Ser Leu Pro Gly Ser Leu Thr Asn Val Lys Ala Leu
                405                 410                 415

Gln Lys Ser Pro Gly Pro Gln Arg Glu Arg Lys Ser Ser Ser Ser Ser
            420                 425                 430

Glu Asp Arg Asn Arg Met Lys Thr Leu Gly Arg Arg Asp Ser Ser Asp
        435                 440                 445

Asp Trp Glu Ile Pro Asp Gly Gln Ile Thr Val Gly Gln Arg Ile Gly
    450                 455                 460

Ser Gly Ser Phe Gly Thr Val Tyr Lys Gly Lys Trp His Gly Asp Val
465                 470                 475                 480

Ala Val Lys Met Leu Asn Val Thr Ala Pro Thr Pro Gln Gln Leu Gln
                485                 490                 495
```

Ala Phe Lys Asn Glu Val Gly Val Leu Arg Lys Thr Arg His Val Asn
500 505 510

Ile Leu Leu Phe Met Gly Tyr Ser Thr Lys Pro Gln Leu Ala Ile Val
515 520 525

Thr Gln Trp Cys Glu Gly Ser Ser Leu Tyr His His Leu His Ile Ile
530 535 540

Glu Thr Lys Phe Glu Met Ile Lys Leu Ile Asp Ile Ala Arg Gln Thr
545 550 555 560

Ala Gln Gly Met Asp Tyr Leu His Ala Lys Ser Ile Ile His Arg Asp
565 570 575

Leu Lys Ser Asn Asn Ile Phe Leu His Glu Asp Leu Thr Val Lys Ile
580 585 590

Gly Asp Phe Gly Leu Ala Thr Val Lys Ser Arg Trp Ser Gly Ser His
595 600 605

Gln Phe Glu Gln Leu Ser Gly Ser Ile Leu Trp Met Ala Pro Glu Val
610 615 620

Ile Arg Met Gln Asp Lys Asn Pro Tyr Ser Phe Gln Ser Asp Val Tyr
625 630 635 640

Ala Phe Gly Ile Val Leu Tyr Glu Leu Met Thr Gly Gln Leu Pro Tyr
645 650 655

Ser Asn Ile Asn Asn Arg Asp Gln Ile Ile Phe Met Val Gly Arg Gly
660 665 670

Tyr Leu Ser Pro Asp Leu Ser Lys Val Arg Ser Asn Cys Pro Lys Ala
675 680 685

Met Lys Arg Leu Met Ala Glu Cys Leu Lys Lys Lys Arg Asp Glu Arg
690 695 700

Pro Leu Phe Pro Gln Ile Leu Ala Ser Ile Glu Leu Leu Ala Arg Ser
705 710 715 720

Leu Pro Lys Ile His Arg Ser Ala Ser Glu Pro Ser Leu Asn Arg Ala

725 730 735

Gly Phe Gln Thr Glu Asp Phe Ser Leu Tyr Ala Cys Ala Ser Pro Lys
740 745 750

Thr Pro Ile Gln Ala Gly Gly Tyr Gly Ala Phe Pro Val His
755 760 765

<210> 9411
<211> 102
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1924; "

<220>
<221> source
<223> /note="Gene Symbol: BRAF; "

<220>
<221> source
<223> /note="Gene Name:
B-Raf proto-oncogene, serine/threonine kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418033"

<400> 9411
Ile His Arg Asp Leu Lys Ser Asn Asn Ile Phe Leu His Glu Asp Leu
1 5 10 15

Thr Val Lys Ile Gly Asp Phe Gly Leu Ala Thr Val Lys Ser Arg Trp
20 25 30

Ser Gly Ser His Gln Phe Glu Gln Leu Ser Gly Ser Ile Leu Trp Met
35 40 45

Ala Pro Glu Val Ile Arg Met Gln Asp Lys Asn Pro Tyr Ser Phe Gln
50 55 60

Ser Asp Val Tyr Ala Phe Gly Ile Val Leu Tyr Glu Leu Met Thr Gly
65 70 75 80

Gln Leu Pro Tyr Ser Asn Ile Asn Asn Arg Asp Gln Val Leu Cys Pro
85 90 95

Pro Trp Glu Tyr Asn Lys
100

<210> 9412
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1924; "

<220>
<221> source
<223> /note="Gene Symbol: BRAF; "

<220>
<221> source
<223> /note="Gene Name:
B-Raf proto-oncogene, serine/threonine kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419060"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9412
Xaa Ser Thr Thr Gly Leu Ser Ala Thr Pro Pro Ala Ser Leu Pro Gly
1 5 10 15

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

Glu Arg Lys Ser Ser Ser Ser Ser Glu Asp Arg Asn Arg Met Lys Thr
35 40 45

Leu Gly Arg Arg Asp Ser Ser Asp Asp Trp Glu Ile Pro Asp Gly Gln
50 55 60

Ile Thr Val Gly Gln Arg Ile Gly Ser Gly Ser Phe Gly Thr Val Tyr
65 70 75 80

Lys Gly Lys Trp His Gly Asp Val Ala Val Lys Met Leu Asn Val Thr
85 90 95

```
Ala Pro Thr Pro Gln Gln Leu Gln Ala Phe Lys Asn Glu Val Gly Val
            100                 105                 110

Leu Arg Lys Thr Arg His Val Asn Ile Leu Leu Phe Met Gly Tyr Ser
        115                 120                 125

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

Leu Tyr His His Leu His Ile Ile Glu Thr Lys Phe Glu Met Ile Lys
145                 150                 155                 160

Leu Ile Asp Ile Ala Arg Gln Thr Ala Gln Gly Met Asp Tyr Leu His
                165                 170                 175

Ala Lys Ser Ile Ile His Arg Asp Leu Lys Ser Asn Asn Ile Phe Leu
            180                 185                 190

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

Lys Ser Arg Trp Ser Gly Ser His Gln Phe Glu Gln Leu Ser Gly Ser
    210                 215                 220

Ile Leu Trp Met Ala Pro Glu Val Ile Arg Met Gln Asp Lys Asn Pro
225                 230                 235                 240

Tyr Ser Phe Gln Ser Asp Val Tyr Ala Phe Gly Ile Val Leu Tyr Glu
                245                 250                 255

Leu Met Thr Gly Gln Leu Pro Tyr Ser Asn Ile Asn Asn Arg Asp Gln
            260                 265                 270

Ile Ile Phe Met Val Gly Arg Gly Tyr Leu Ser Pro Asp Leu Ser Lys
        275                 280                 285

Val Arg Ser Asn Cys Pro Lys Ala Met Lys Arg Leu Met Ala Glu Cys
    290                 295                 300

Leu Lys Lys Lys Arg Asp Glu Arg Pro Leu Phe Pro Gln Ile Leu Ala
305                 310                 315                 320
```

```
Ser Ile Glu Leu Leu Ala Arg Ser Leu Pro Lys Ile His Arg Ser Ala
                325                 330                 335

Ser Glu Pro Ser Leu Asn Arg Ala Gly Phe Gln Thr Glu Asp Phe Ser
            340                 345                 350

Leu Tyr Ala Cys Ala Ser Pro Lys Thr Pro Ile Gln Ala Gly Gly Tyr
        355                 360                 365

Gly Glu Phe Ala Ala Phe Lys
    370                 375
```

<210> 9413
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1924; "

<220>
<221> source
<223> /note="Gene Symbol: BRAF; "

<220>
<221> source
<223> /note="Gene Name:
B-Raf proto-oncogene, serine/threonine kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420119"

<400> 9413

```
Gln Ala Leu Phe Asn Gly Asp Met Glu Pro Glu Ala Gly Ala Gly Ala
1               5                   10                  15

Gly Ala Ala Ala Ser Ser Ala Ala Asp Pro Ala Ile Pro Glu Glu Val
            20                  25                  30

Trp Asn Ile Lys Gln Met Ile Lys Leu Thr Gln Glu His Ile Glu Ala
        35                  40                  45

Leu Leu Asp Lys Phe Gly Gly Glu His Asn Pro Pro Ser Ile Tyr Leu
    50                  55                  60

Glu Ala Tyr Glu Glu Tyr Thr Ser Lys Leu Asp Ala Leu Gln Gln Arg
65                  70                  75                  80
```

```
Glu Gln Gln Leu Leu Glu Ser Leu Gly Asn Gly Thr Asp Phe Ser Val
                85                  90                  95

Ser Ser Ser Ala Ser Met Asp Thr Val Thr Ser Ser Ser Ser Ser Ser
            100                 105                 110

Leu Ser Val Leu Pro Ser Ser Leu Ser Val Phe Gln Asn Pro Thr Asp
        115                 120                 125

Val Ala Arg Ser Asn Pro Lys Ser Pro Gln Lys Pro Ile Val Arg Val
    130                 135                 140

Phe Leu Pro Asn Lys Gln Arg Thr Val Val Pro Ala Arg Cys Gly Val
145                 150                 155                 160

Thr Val Arg Asp Ser Leu Lys Lys Ala Leu Met Met Arg Gly Leu Ile
                165                 170                 175

Pro Glu Cys Cys Ala Val Tyr Arg Ile Gln Asp Gly Ser Phe Leu Glu
            180                 185                 190

Leu Thr
```

<210> 9414
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1925; "

<220>
<221> source
<223> /note="Gene Symbol: BASP1; "

<220>
<221> source
<223> /note="Gene Name:
brain abundant, membrane attached signal prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: P80723; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000319281"

<400> 9414
Met Gly Gly Lys Leu Ser Lys Lys Lys Lys Gly Tyr Asn Val Asn Asp
1 5 10 15

Glu Lys Ala Lys Glu Lys Asp Lys Lys Ala Glu Gly Ala Ala Thr Glu
20 25 30

Glu Glu Gly Thr Pro Lys Glu Ser Glu Pro Gln Ala Ala Ala Glu Pro
35 40 45

Ala Glu Ala Lys Glu Gly Lys Glu Lys Pro Asp Gln Asp Ala Glu Gly
50 55 60

Lys Ala Glu Glu Lys Glu Gly Glu Lys Asp Ala Ala Ala Ala Lys Glu
65 70 75 80

Glu Ala Pro Lys Ala Glu Pro Glu Lys Thr Glu Gly Ala Ala Glu Ala
85 90 95

Lys Ala Glu Pro Pro Lys Ala Pro Glu Gln Glu Gln Ala Ala Pro Gly
100 105 110

Pro Ala Ala Gly Gly Glu Ala Pro Lys Ala Ala Glu Ala Ala Ala Ala
115 120 125

Pro Ala Glu Ser Ala Ala Pro Ala Ala Gly Glu Glu Pro Ser Lys Glu
130 135 140

Glu Gly Glu Pro Lys Lys Thr Glu Ala Pro Ala Ala Pro Ala Ala Gln
145 150 155 160

Glu Thr Lys Ser Asp Gly Ala Pro Ala Ser Asp Ser Lys Pro Gly Ser
165 170 175

Ser Glu Ala Ala Pro Ser Ser Lys Glu Thr Pro Ala Ala Thr Glu Ala
180 185 190

Pro Ser Ser Thr Pro Lys Ala Gln Gly Pro Ala Ala Ser Ala Glu Glu
195 200 205

Pro Lys Pro Val Glu Ala Pro Ala Ala Asn Ser Asp Gln Thr Val Thr

```
    210                 215                 220

Val Lys Glu
225


<210> 9415
<211> 45
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1925; "

<220>
<221> source
<223> /note="Gene Symbol: BASP1; "

<220>
<221> source
<223> /note="Gene Name:
      brain abundant, membrane attached signal prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476090"

<400> 9415
Met Gly Gly Lys Leu Ser Lys Lys Lys Lys Gly Tyr Asn Val Asn Asp
1               5                   10                  15


Glu Lys Ala Lys Glu Lys Asp Lys Lys Ala Glu Gly Ala Ala Thr Glu
            20                  25                  30


Glu Glu Gly Thr Pro Lys Glu Ser Glu Pro Gln Ala Ala
        35                  40                  45


<210> 9416
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1925; "

<220>
<221> source
<223> /note="Gene Symbol: BASP1; "

<220>
<221> source
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<223> /note="Gene Name:
brain abundant, membrane attached signal prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: P80723; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482066"

<400> 9416

```
Met Gly Gly Lys Leu Ser Lys Lys Lys Lys Gly Tyr Asn Val Asn Asp
1               5                  10                  15

Glu Lys Ala Lys Glu Lys Asp Lys Lys Ala Glu Gly Ala Ala Thr Glu
            20                  25                  30

Glu Glu Gly Thr Pro Lys Glu Ser Glu Pro Gln Ala Ala Ala Glu Pro
        35                  40                  45

Ala Glu Ala Lys Glu Gly Lys Glu Lys Pro Asp Gln Asp Ala Glu Gly
    50                  55                  60

Lys Ala Glu Glu Lys Glu Gly Glu Lys Asp Ala Ala Ala Ala Lys Glu
65                  70                  75                  80

Glu Ala Pro Lys Ala Glu Pro Glu Lys Thr Glu Gly Ala Ala Glu Ala
                85                  90                  95

Lys Ala Glu Pro Pro Lys Ala Pro Glu Gln Glu Gln Ala Ala Pro Gly
            100                 105                 110

Pro Ala Ala Gly Gly Glu Ala Pro Lys Ala Ala Glu Ala Ala Ala Ala
        115                 120                 125

Pro Ala Glu Ser Ala Ala Pro Ala Ala Gly Glu Glu Pro Ser Lys Glu
    130                 135                 140

Glu Gly Glu Pro Lys Lys Thr Glu Ala Pro Ala Ala Pro Ala Ala Gln
145                 150                 155                 160

Glu Thr Lys Ser Asp Gly Ala Pro Ala Ser Asp Ser Lys Pro Gly Ser
                165                 170                 175

Ser Glu Ala Ala Pro Ser Ser Lys Glu Thr Pro Ala Ala Thr Glu Ala
```

180 185 190

Pro Ser Ser Thr Pro Lys Ala Gln Gly Pro Ala Ala Ser Ala Glu Glu
195 200 205

Pro Lys Pro Val Glu Ala Pro Ala Ala Asn Ser Asp Gln Thr Val Thr
210 215 220

Val Lys Glu
225

<210> 9417
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1926; "

<220>
<221> source
<223> /note="Gene Symbol: BAALC; "

<220>
<221> source
<223> /note="Gene Name:
brain and acute leukemia, cytoplasmic; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WXS3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000297574"

<400> 9417
Met Gly Cys Gly Gly Ser Arg Ala Asp Ala Ile Glu Pro Arg Tyr Tyr
1 5 10 15

Glu Ser Trp Thr Arg Glu Thr Glu Ser Thr Trp Leu Thr Tyr Thr Asp
20 25 30

Ser Asp Ala Pro Pro Ser Ala Ala Ala Pro Asp Ser Gly Pro Glu Ala
35 40 45

Gly Gly Leu His Ser Val Leu Glu Ala Glu Lys Ser Lys Ile Lys Ala
50 55 60

```
Pro Thr Asp Ser Val Ser Asp Glu Gly Leu Phe Ser Ala Ser Lys Met
65                  70                  75                  80

Ala Pro Leu Ala Val Phe Ser His Gly Met Leu Glu Asp Gly Leu Pro
                85                  90                  95

Ser Asn Gly Val Pro Arg Ser Thr Ala Pro Gly Gly Ile Pro Asn Pro
            100                 105                 110

Glu Lys Lys Thr Asn Cys Glu Thr Gln Cys Pro Asn Pro Gln Ser Leu
        115                 120                 125

Ser Ser Gly Pro Leu Thr Gln Lys Gln Asn Gly Leu Gln Thr Thr Glu
    130                 135                 140

Ala Lys Arg Asp Ala Lys Arg Met Pro Ala Lys Glu Val Thr Ile Asn
145                 150                 155                 160

Val Thr Asp Ser Ile Gln Gln Met Asp Arg Ser Arg Arg Ile Thr Lys
                165                 170                 175

Asn Cys Val Asn
            180


<210> 9418
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1926; "

<220>
<221> source
<223> /note="Gene Symbol: BAALC; "

<220>
<221> source
<223> /note="Gene Name:
      brain and acute leukemia, cytoplasmic; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8WXS3; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000302559"

<400> 9418
Met Gly Cys Gly Gly Ser Arg Ala Asp Ala Ile Glu Pro Arg Tyr Tyr
1   5   10   15

Glu Ser Trp Thr Arg Glu Thr Glu Ser Thr Trp Leu Thr Tyr Thr Asp
            20   25   30

Ser Asp Ala Pro Pro Ser Ala Ala Ala Pro Asp Ser Gly Pro Glu Ala
        35   40   45

Gly Gly Leu His Ser Ala His Tyr Pro Leu Ala Phe Ala Leu Ala Trp
    50   55   60

Arg Asp Asn Ser Leu Gly Ala Leu Leu Val Gln Glu Gly Leu Cys Arg
65   70   75   80

<210> 9419
<211> 145
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1926; "

<220>
<221> source
<223> /note="Gene Symbol: BAALC; "

<220>
<221> source
<223> /note="Gene Name:
      brain and acute leukemia, cytoplasmic; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WXS3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312457"

<400> 9419
Met Gly Cys Gly Gly Ser Arg Ala Asp Ala Ile Glu Pro Arg Tyr Tyr
1   5   10   15

Glu Ser Trp Thr Arg Glu Thr Glu Ser Thr Trp Leu Thr Tyr Thr Asp
            20   25   30

```
Ser Asp Ala Pro Pro Ser Ala Ala Ala Pro Asp Ser Gly Pro Glu Ala
        35                  40                  45

Gly Gly Leu His Ser Gly Met Leu Glu Asp Gly Leu Pro Ser Asn Gly
    50                  55                  60

Val Pro Arg Ser Thr Ala Pro Gly Gly Ile Pro Asn Pro Glu Lys Lys
65                  70                  75                  80

Thr Asn Cys Glu Thr Gln Cys Pro Asn Pro Gln Ser Leu Ser Ser Gly
                85                  90                  95

Pro Leu Thr Gln Lys Gln Asn Gly Leu Gln Thr Thr Glu Ala Lys Arg
            100                 105                 110

Asp Ala Lys Arg Met Pro Ala Lys Glu Val Thr Ile Asn Val Thr Asp
        115                 120                 125

Ser Ile Gln Gln Met Asp Arg Ser Arg Arg Ile Thr Lys Asn Cys Val
    130                 135                 140

Asn
145


<210> 9420
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1926; "

<220>
<221> source
<223> /note="Gene Symbol: BAALC; "

<220>
<221> source
<223> /note="Gene Name:
      brain and acute leukemia, cytoplasmic; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8WXS3; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000331579"

<400> 9420
Met Gly Cys Gly Gly Ser Arg Ala Asp Ala Ile Glu Pro Arg Tyr Tyr
1   5   10   15

Glu Ser Trp Thr Arg Glu Thr Glu Ser Thr Trp Leu Thr Tyr Thr Asp
            20   25   30

Ser Asp Ala Pro Pro Ser Ala Ala Ala Pro Asp Ser Gly Pro Glu Ala
        35   40   45

Gly Gly Leu His Ser Gly Cys Leu Glu Glu His Tyr His Leu Thr Ala
    50   55   60

Leu Gln Lys Val Gly His Pro Asn His
65   70

<210> 9421
<211> 54
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1926; "

<220>
<221> source
<223> /note="Gene Symbol: BAALC; "

<220>
<221> source
<223> /note="Gene Name:
      brain and acute leukemia, cytoplasmic; "

<220>
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<223> /note="Uniprot ID: Q8WXS3; "

<220>
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<223> /note="ENSP ID: ENSP00000395024"

<400> 9421
Met Gly Cys Gly Gly Ser Arg Ala Asp Ala Ile Glu Pro Arg Tyr Tyr
1   5   10   15

Glu Ser Trp Thr Arg Glu Thr Glu Ser Thr Trp Leu Thr Tyr Thr Asp
            20   25   30

Ser Asp Ala Pro Pro Ser Ala Ala Ala Pro Asp Ser Gly Pro Glu Ala
        35   40   45

Gly Gly Leu His Ser Gly
    50

<210> 9422
<211> 383
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1927; "

<220>
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<223> /note="Gene Symbol: BRE; "

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<223> /note="Gene Name:
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      modulator); "

<220>
<221> source
<223> /note="Uniprot ID: Q9NXR7; "

<220>
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<223> /note="ENSP ID: ENSP00000339371"

<400> 9422
Met Ser Pro Glu Val Ala Leu Asn Arg Ile Ser Pro Met Leu Ser Pro
1   5   10   15

Phe Ile Ser Ser Val Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr
            20   25   30

Asn Cys Leu Arg Ile Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr
        35   40   45

Pro Gly Pro Asn Cys Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly
    50   55   60

Glu Thr Leu Lys Trp Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu
65   70   75   80

```
Pro Pro Asp Phe Ile Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro
                85                  90                  95

Ser Ala Leu Gln Asn Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys
            100                 105                 110

Leu Leu Leu Val Val Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln
        115                 120                 125

Cys Ser Arg Leu Arg Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr
    130                 135                 140

Leu Leu Glu Glu Pro Gln Tyr Gly Glu Asn Met Glu Ile Tyr Ala Gly
145                 150                 155                 160

Lys Lys Asn Asn Trp Thr Gly Glu Phe Ser Ala Arg Phe Leu Leu Lys
                165                 170                 175

Leu Pro Val Asp Phe Ser Asn Ile Pro Thr Tyr Leu Leu Lys Asp Val
            180                 185                 190

Asn Glu Asp Pro Gly Glu Asp Val Ala Leu Leu Ser Val Ser Phe Glu
        195                 200                 205

Asp Thr Glu Ala Thr Gln Val Tyr Pro Lys Leu Tyr Leu Ser Pro Arg
    210                 215                 220

Ile Glu His Ala Leu Gly Gly Ser Ser Ala Leu His Ile Pro Ala Phe
225                 230                 235                 240

Pro Gly Gly Gly Cys Leu Ile Asp Tyr Val Pro Gln Val Cys His Leu
                245                 250                 255

Leu Thr Asn Lys Val Gln Tyr Val Ile Gln Gly Tyr His Lys Arg Arg
            260                 265                 270

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

Tyr Asp Ala Glu Gly Phe Thr Lys Leu Thr Leu Leu Leu Met Trp Lys
    290                 295                 300

Asp Phe Cys Phe Leu Val His Ile Asp Leu Pro Leu Phe Phe Pro Arg
```

```
305                 310                 315                 320

Asp Gln Pro Thr Leu Thr Phe Gln Ser Val Tyr His Phe Thr Asn Ser
                325                 330                 335

Gly Gln Leu Tyr Ser Gln Ala Gln Lys Asn Tyr Pro Tyr Ser Pro Arg
            340                 345                 350

Trp Asp Gly Asn Glu Met Ala Lys Arg Ala Lys Ala Tyr Phe Lys Thr
        355                 360                 365

Phe Val Pro Gln Phe Gln Glu Ala Ala Phe Ala Asn Gly Lys Leu
    370                 375                 380


<210> 9423
<211> 415
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1927; "

<220>
<221> source
<223> /note="Gene Symbol: BRE; "

<220>
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<223> /note="Gene Name:
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      modulator); "

<220>
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<223> /note="Uniprot ID:  Q9NXR7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343412"

<400> 9423
Met Ser Pro Glu Val Ala Leu Asn Arg Ile Ser Pro Met Leu Ser Pro
1               5                   10                  15

Phe Ile Ser Ser Val Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr
            20                  25                  30

Asn Cys Leu Arg Ile Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr
        35                  40                  45
```

```
Pro Gly Pro Asn Cys Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly
    50                  55                  60

Glu Thr Leu Lys Trp Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu
65                  70                  75                  80

Pro Pro Asp Phe Ile Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro
                85                  90                  95

Ser Ala Leu Gln Asn Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys
            100                 105                 110

Leu Leu Leu Val Val Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln
        115                 120                 125

Cys Ser Arg Leu Arg Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr
    130                 135                 140

Leu Leu Glu Glu Pro Gln Tyr Gly Glu Asn Met Glu Ile Tyr Ala Gly
145                 150                 155                 160

Lys Lys Asn Asn Trp Thr Gly Glu Phe Ser Ala Arg Phe Leu Leu Lys
                165                 170                 175

Leu Pro Val Asp Phe Ser Asn Ile Pro Thr Tyr Leu Leu Lys Asp Val
            180                 185                 190

Asn Glu Asp Pro Gly Glu Asp Val Ala Leu Leu Ser Val Ser Phe Glu
        195                 200                 205

Asp Thr Glu Ala Thr Gln Val Tyr Pro Lys Leu Tyr Leu Ser Pro Arg
    210                 215                 220

Ile Glu His Ala Leu Gly Gly Ser Ser Ala Leu His Ile Pro Ala Phe
225                 230                 235                 240

Pro Gly Gly Gly Cys Leu Ile Asp Tyr Val Pro Gln Val Cys His Leu
                245                 250                 255

Leu Thr Asn Lys Val Gln Tyr Val Ile Gln Gly Tyr His Lys Arg Arg
            260                 265                 270
```

```
Glu Tyr Ile Ala Ala Phe Leu Ser His Phe Gly Thr Gly Val Val Glu
        275                 280                 285

Tyr Asp Ala Glu Gly Phe Thr Lys Leu Thr Leu Leu Leu Met Trp Lys
    290                 295                 300

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

Asp Gln Pro Thr Leu Thr Phe Gln Ser Val Tyr His Phe Thr Asn Ser
                325                 330                 335

Gly Gln Leu Tyr Ser Gln Ala Gln Lys Asn Tyr Pro Tyr Ser Pro Arg
            340                 345                 350

Trp Asp Gly Asn Glu Met Ala Lys Arg Ala Lys Gly Cys Gln Gly Ser
        355                 360                 365

Arg Asp Ala Cys Ser Pro Trp Glu Gln Val Leu Ala Phe Ala Val Ala
    370                 375                 380

Lys Thr Gly Cys Lys Leu Leu Gln Pro Gln Arg Asn Trp Pro Ser Ser
385                 390                 395                 400

Arg Gly Pro Pro Trp Arg Ala Ser Glu Gly Glu Arg Thr Ala Gln
                405                 410                 415


<210> 9424
<211> 376
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1927; "

<220>
<221> source
<223> /note="Gene Symbol: BRE; "

<220>
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<223> /note="Gene Name:
      brain and reproductive organ-expressed (TNFRSF1A
      modulator); "

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<221> source
<223> /note="Uniprot ID: Q9NXR7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354699"

<400> 9424
Met Ser Pro Glu Val Ala Leu Asn Arg Ile Ser Pro Met Leu Ser Pro
1   5   10   15

Phe Ile Ser Ser Val Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr
            20   25   30

Asn Cys Leu Arg Ile Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr
        35   40   45

Pro Gly Pro Asn Cys Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly
    50   55   60

Glu Thr Leu Lys Trp Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu
65   70   75   80

Pro Pro Asp Phe Ile Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro
                85   90   95

Ser Ala Leu Gln Asn Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys
            100   105   110

Leu Leu Leu Val Val Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln
        115   120   125

Cys Ser Arg Leu Arg Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr
    130   135   140

Leu Leu Glu Glu Pro Gln Tyr Gly Glu Asn Met Glu Ile Tyr Ala Gly
145   150   155   160

Lys Lys Asn Asn Trp Thr Gly Glu Phe Ser Ala Arg Phe Leu Leu Lys
                165   170   175

Leu Pro Val Asp Phe Ser Asn Ile Pro Thr Tyr Leu Leu Lys Asp Val
            180   185   190

Asn Glu Asp Pro Gly Glu Asp Val Ala Leu Leu Ser Val Ser Phe Glu

```
        195                 200                 205

Asp Thr Glu Ala Thr Gln Val Tyr Pro Lys Leu Tyr Leu Ser Pro Arg
    210                 215                 220

Ile Glu His Ala Leu Gly Gly Ser Ser Ala Leu His Ile Pro Ala Phe
225                 230                 235                 240

Pro Gly Gly Gly Cys Leu Ile Asp Tyr Val Pro Gln Val Cys His Leu
                245                 250                 255

Leu Thr Asn Lys Val Gln Tyr Val Ile Gln Gly Tyr His Lys Arg Arg
            260                 265                 270

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

Tyr Asp Ala Glu Gly Phe Thr Lys Leu Thr Leu Leu Leu Met Trp Lys
    290                 295                 300

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

Asp Gln Pro Thr Leu Thr Phe Gln Ser Val Tyr His Phe Thr Asn Ser
                325                 330                 335

Gly Gln Leu Tyr Ser Gln Ala Gln Lys Asn Tyr Pro Tyr Ser Pro Arg
            340                 345                 350

Trp Asp Gly Asn Glu Met Ala Lys Arg Ala Lys Arg Glu Ser Asn Arg
        355                 360                 365

Asp Gly Glu Glu Ser Ser Ser Ala
    370                 375


<210> 9425
<211> 383
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1927; "

<220>
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<221> source
<223> /note="Gene Symbol: BRE; "

<220>
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<223> /note="Gene Name:
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modulator); "

<220>
<221> source
<223> /note="Uniprot ID: Q9NXR7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368945"

<400> 9425

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Met Ser Pro Glu Val Ala Leu Asn Arg Ile Ser Pro Met Leu Ser Pro
1               5                  10                  15

Phe Ile Ser Ser Val Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr
            20                  25                  30

Asn Cys Leu Arg Ile Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr
        35                  40                  45

Pro Gly Pro Asn Cys Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly
    50                  55                  60

Glu Thr Leu Lys Trp Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu
65                  70                  75                  80

Pro Pro Asp Phe Ile Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro
                85                  90                  95

Ser Ala Leu Gln Asn Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys
            100                 105                 110

Leu Leu Leu Val Val Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln
        115                 120                 125

Cys Ser Arg Leu Arg Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr
    130                 135                 140

Leu Leu Glu Glu Pro Gln Tyr Gly Glu Asn Met Glu Ile Tyr Ala Gly
145                 150                 155                 160
```

Lys Lys Asn Asn Trp Thr Gly Glu Phe Ser Ala Arg Phe Leu Leu Lys
165 170 175

Leu Pro Val Asp Phe Ser Asn Ile Pro Thr Tyr Leu Leu Lys Asp Val
180 185 190

Asn Glu Asp Pro Gly Glu Asp Val Ala Leu Leu Ser Val Ser Phe Glu
195 200 205

Asp Thr Glu Ala Thr Gln Val Tyr Pro Lys Leu Tyr Leu Ser Pro Arg
210 215 220

Ile Glu His Ala Leu Gly Gly Ser Ser Ala Leu His Ile Pro Ala Phe
225 230 235 240

Pro Gly Gly Gly Cys Leu Ile Asp Tyr Val Pro Gln Val Cys His Leu
245 250 255

Leu Thr Asn Lys Val Gln Tyr Val Ile Gln Gly Tyr His Lys Arg Arg
260 265 270

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

Tyr Asp Ala Glu Gly Phe Thr Lys Leu Thr Leu Leu Leu Met Trp Lys
290 295 300

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

Asp Gln Pro Thr Leu Thr Phe Gln Ser Val Tyr His Phe Thr Asn Ser
325 330 335

Gly Gln Leu Tyr Ser Gln Ala Gln Lys Asn Tyr Pro Tyr Ser Pro Arg
340 345 350

Trp Asp Gly Asn Glu Met Ala Lys Arg Ala Lys Ala Tyr Phe Lys Thr
355 360 365

Phe Val Pro Gln Phe Gln Glu Ala Ala Phe Ala Asn Gly Lys Leu
370 375 380

<210> 9426
<211> 284
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1927; "

<220>
<221> source
<223> /note="Gene Symbol: BRE; "

<220>
<221> source
<223> /note="Gene Name:
brain and reproductive organ-expressed (TNFRSF1A
modulator); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368950"

<400> 9426
Met Ser Pro Glu Val Ala Leu Asn Arg Ile Ser Pro Met Leu Ser Pro
1 5 10 15

Phe Ile Ser Ser Val Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr
20 25 30

Asn Cys Leu Arg Ile Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr
35 40 45

Pro Gly Pro Asn Cys Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly
50 55 60

Glu Thr Leu Lys Trp Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu
65 70 75 80

Pro Pro Asp Phe Ile Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro
85 90 95

Ser Ala Leu Gln Asn Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys
100 105 110

Leu Leu Leu Val Val Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln
115 120 125

Cys Ser Arg Leu Arg Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr

```
    130                 135                 140

Leu Leu Glu Glu Pro Gln Tyr Gly Glu Asn Met Glu Ile Tyr Ala Gly
145                 150                 155                 160

Lys Lys Asn Asn Trp Thr Gly Glu Phe Ser Ala Arg Phe Leu Leu Lys
                165                 170                 175

Leu Pro Val Asp Phe Ser Asn Ile Pro Thr Tyr Leu Leu Lys Asp Val
            180                 185                 190

Asn Glu Asp Pro Gly Glu Asp Val Ala Leu Leu Ser Val Ser Phe Glu
        195                 200                 205

Asp Thr Glu Ala Thr Gln Val Tyr Pro Lys Leu Tyr Leu Ser Pro Arg
    210                 215                 220

Ile Glu Gln Leu Ser Leu Ser Pro Cys His Thr Asp Phe Leu Leu Thr
225                 230                 235                 240

Arg Phe Leu Pro Ala Pro Leu Trp Gly Ser Glu Val Ser Val Pro Ser
                245                 250                 255

Gly Pro Phe His Leu Leu Ile Ile Leu Pro Gln Pro Leu Ser Gly Leu
            260                 265                 270

Val Arg Pro Cys Leu Leu Phe Ser Gln Pro Cys Ser
        275                 280
```

<210> 9427
<211> 376
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1927; "

<220>
<221> source
<223> /note="Gene Symbol: BRE; "

<220>
<221> source
<223> /note="Gene Name:
brain and reproductive organ-expressed (TNFRSF1A
modulator); "

<220>
<221> source
<223> /note="Uniprot ID: Q9NXR7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368953"

<400> 9427
Met Ser Pro Glu Val Ala Leu Asn Arg Ile Ser Pro Met Leu Ser Pro
1   5   10   15

Phe Ile Ser Ser Val Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr
            20   25   30

Asn Cys Leu Arg Ile Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr
        35   40   45

Pro Gly Pro Asn Cys Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly
    50   55   60

Glu Thr Leu Lys Trp Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu
65   70   75   80

Pro Pro Asp Phe Ile Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro
                85   90   95

Ser Ala Leu Gln Asn Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys
            100   105   110

Leu Leu Leu Val Val Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln
        115   120   125

Cys Ser Arg Leu Arg Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr
    130   135   140

Leu Leu Glu Glu Pro Gln Tyr Gly Glu Asn Met Glu Ile Tyr Ala Gly
145   150   155   160

Lys Lys Asn Asn Trp Thr Gly Glu Phe Ser Ala Arg Phe Leu Leu Lys
                165   170   175

Leu Pro Val Asp Phe Ser Asn Ile Pro Thr Tyr Leu Leu Lys Asp Val
            180   185   190

```
Asn Glu Asp Pro Gly Glu Asp Val Ala Leu Leu Ser Val Ser Phe Glu
        195                 200                 205

Asp Thr Glu Ala Thr Gln Val Tyr Pro Lys Leu Tyr Leu Ser Pro Arg
    210                 215                 220

Ile Glu His Ala Leu Gly Gly Ser Ser Ala Leu His Ile Pro Ala Phe
225                 230                 235                 240

Pro Gly Gly Gly Cys Leu Ile Asp Tyr Val Pro Gln Val Cys His Leu
                245                 250                 255

Leu Thr Asn Lys Val Gln Tyr Val Ile Gln Gly Tyr His Lys Arg Arg
            260                 265                 270

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

Tyr Asp Ala Glu Gly Phe Thr Lys Leu Thr Leu Leu Leu Met Trp Lys
    290                 295                 300

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

Asp Gln Pro Thr Leu Thr Phe Gln Ser Val Tyr His Phe Thr Asn Ser
                325                 330                 335

Gly Gln Leu Tyr Ser Gln Ala Gln Lys Asn Tyr Pro Tyr Ser Pro Arg
            340                 345                 350

Trp Asp Gly Asn Glu Met Ala Lys Arg Ala Lys Arg Glu Ser Asn Arg
        355                 360                 365

Asp Gly Glu Glu Ser Ser Ser Ala
    370                 375


<210> 9428
<211> 153
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1927; "
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<220>
<221> source
<223> /note="Gene Symbol: BRE; "

<220>
<221> source
<223> /note="Gene Name:
brain and reproductive organ-expressed (TNFRSF1A
modulator); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392345"

<400> 9428

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Met Ser Pro Glu Val Ala Leu Asn Arg Ile Ser Pro Met Leu Ser Pro
1               5                  10                  15


Phe Ile Ser Ser Val Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr
            20                  25                  30


Asn Cys Leu Arg Ile Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr
        35                  40                  45


Pro Gly Pro Asn Cys Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly
    50                  55                  60


Glu Thr Leu Lys Trp Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu
65                  70                  75                  80


Pro Pro Asp Phe Ile Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro
                85                  90                  95


Ser Ala Leu Gln Asn Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys
            100                 105                 110


Leu Leu Leu Val Val Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln
        115                 120                 125


Cys Ser Arg Leu Arg Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr
    130                 135                 140


Leu Leu Glu Glu Pro Gln Tyr Gly Glu
145                 150
```

<210> 9429

<211> 166
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1927; "

<220>
<221> source
<223> /note="Gene Symbol: BRE; "

<220>
<221> source
<223> /note="Gene Name:
brain and reproductive organ-expressed (TNFRSF1A
modulator); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474342"

<400> 9429

```
Val Arg Asn Gly Lys Val Gly Leu Asp Ala Thr Asn Cys Leu Arg Ile
1               5                  10                  15

Thr Asp Leu Lys Ser Gly Cys Thr Ser Leu Thr Pro Gly Pro Asn Cys
            20                  25                  30

Asp Arg Phe Lys Leu His Ile Pro Tyr Ala Gly Glu Thr Leu Lys Trp
        35                  40                  45

Asp Ile Ile Phe Asn Ala Gln Tyr Pro Glu Leu Pro Pro Asp Phe Ile
    50                  55                  60

Phe Gly Glu Asp Ala Glu Phe Leu Pro Asp Pro Ser Ala Leu Gln Asn
65                  70                  75                  80

Leu Ala Ser Trp Asn Pro Ser Asn Pro Glu Cys Leu Leu Leu Val Val
                85                  90                  95

Lys Glu Leu Val Gln Gln Tyr His Gln Phe Gln Cys Ser Arg Leu Arg
            100                 105                 110

Glu Ser Ser Arg Leu Met Phe Glu Tyr Gln Thr Leu Leu Glu Glu Pro
        115                 120                 125

Gln Tyr Gly Glu Asn Met Glu Ile Tyr Ala Gly Lys Lys Asn Asn Trp
    130                 135                 140
```

```
Val Arg Ile Phe Glu Asn Gly Lys Lys Asp Asp Phe Ile His Asn Lys
145                 150                 155                 160


Ile Ile Asn Ser Tyr Val
                165


<210> 9430
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1928; "

<220>
<221> source
<223> /note="Gene Symbol: BEX2; "

<220>
<221> source
<223> /note="Gene Name:
      brain expressed X-linked 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BXY8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361759"

<400> 9430
Met Glu Ser Lys Glu Glu Arg Ala Leu Asn Asn Leu Ile Val Glu Asn
1               5                   10                  15


Val Asn Gln Glu Asn Asp Glu Lys Asp Glu Lys Glu Gln Val Ala Asn
            20                  25                  30


Lys Gly Glu Pro Leu Ala Leu Pro Leu Asn Val Ser Glu Tyr Cys Val
        35                  40                  45


Pro Arg Gly Asn Arg Arg Arg Phe Arg Val Arg Gln Pro Ile Leu Gln
    50                  55                  60


Tyr Arg Trp Asp Ile Met His Arg Leu Gly Glu Pro Gln Ala Arg Met
65                  70                  75                  80
```

```
Arg Glu Glu Asn Met Glu Arg Ile Gly Glu Glu Val Arg Gln Leu Met
                85                  90                  95

Glu Lys Leu Arg Glu Lys Gln Leu Ser His Ser Leu Arg Ala Val Ser
            100                 105                 110

Thr Asp Pro Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro
        115                 120                 125


<210> 9431
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1928; "

<220>
<221> source
<223> /note="Gene Symbol: BEX2; "

<220>
<221> source
<223> /note="Gene Name:
      brain expressed X-linked 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BXY8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361762"

<400> 9431
Met Glu Ser Lys Glu Glu Arg Ala Leu Asn Asn Leu Ile Val Glu Asn
1               5                   10                  15

Val Asn Gln Glu Asn Asp Glu Lys Asp Glu Lys Glu Gln Val Ala Asn
            20                  25                  30

Lys Gly Glu Pro Leu Ala Leu Pro Leu Asn Val Ser Glu Tyr Cys Val
        35                  40                  45

Pro Arg Gly Asn Arg Arg Arg Phe Arg Val Arg Gln Pro Ile Leu Gln
    50                  55                  60

Tyr Arg Trp Asp Ile Met His Arg Leu Gly Glu Pro Gln Ala Arg Met
65                  70                  75                  80
```

```
Arg Glu Glu Asn Met Glu Arg Ile Gly Glu Glu Val Arg Gln Leu Met
                85                  90                  95

Glu Lys Leu Arg Glu Lys Gln Leu Ser His Ser Leu Arg Ala Val Ser
            100                 105                 110

Thr Asp Pro Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro
        115                 120                 125


<210> 9432
<211> 101
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1928; "

<220>
<221> source
<223> /note="Gene Symbol: BEX2; "

<220>
<221> source
<223> /note="Gene Name:
      brain expressed X-linked 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394915"

<400> 9432
Met Glu Ser Lys Glu Glu Arg Ala Leu Asn Asn Leu Ile Val Glu Asn
1               5                   10                  15

Val Asn Gln Glu Asn Asp Glu Lys Asp Glu Lys Glu Gln Val Ala Asn
            20                  25                  30

Lys Gly Glu Pro Leu Ala Leu Pro Leu Asn Val Ser Glu Tyr Cys Val
        35                  40                  45

Pro Arg Gly Asn Arg Arg Arg Phe Arg Val Arg Gln Pro Ile Leu Gln
    50                  55                  60

Tyr Arg Trp Asp Ile Met His Arg Leu Gly Glu Pro Gln Ala Arg Met
65                  70                  75                  80
```

```
Arg Glu Glu Asn Met Glu Arg Ile Gly Glu Glu Val Arg Gln Leu Met
                85                  90                  95


Glu Lys Leu Arg Glu
            100


<210> 9433
<211> 160
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1928; "

<220>
<221> source
<223> /note="Gene Symbol: BEX2; "

<220>
<221> source
<223> /note="Gene Name:
      brain expressed X-linked 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BXY8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442521"

<400> 9433
Met Gln Lys Met Val Val Cys Gly Ala Lys Cys Cys Gly Asp Ala Pro
1               5                  10                  15


His Val Glu Asn Arg Glu Glu Glu Thr Ala Arg Ile Gly Pro Gly Val
            20                  25                  30


Met Glu Ser Lys Glu Glu Arg Ala Leu Asn Asn Leu Ile Val Glu Asn
        35                  40                  45


Val Asn Gln Glu Asn Asp Glu Lys Asp Glu Lys Glu Gln Val Ala Asn
    50                  55                  60


Lys Gly Glu Pro Leu Ala Leu Pro Leu Asn Val Ser Glu Tyr Cys Val
65                  70                  75                  80


Pro Arg Gly Asn Arg Arg Arg Phe Arg Val Arg Gln Pro Ile Leu Gln
                85                  90                  95
```

```
Tyr Arg Trp Asp Ile Met His Arg Leu Gly Glu Pro Gln Ala Arg Met
            100                 105                 110

Arg Glu Glu Asn Met Glu Arg Ile Gly Glu Glu Val Arg Gln Leu Met
        115                 120                 125

Glu Lys Leu Arg Glu Lys Gln Leu Ser His Ser Leu Arg Ala Val Ser
    130                 135                 140

Thr Asp Pro Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro
145                 150                 155                 160


<210> 9434
<211> 150
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1929; "

<220>
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<223> /note="Gene Symbol: BEAN1; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID:  Q3B7T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299694"

<400> 9434
Met Arg Tyr Ala Cys Ser Ser Ser Glu Asp Trp Pro Pro Pro Leu Asp
1               5                   10                  15

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

Pro Asp Ser Pro Pro Gly Tyr Glu Glu Cys Val Gly Pro Gly Ala Thr
        35                  40                  45
```

```
Gln Leu Tyr Val Pro Thr Asp Ala Pro Pro Pro Tyr Ser Leu Thr Asp
    50                  55                  60

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

Pro Gly Arg His Gln Gln Glu Gln Arg Thr Pro Ala Gln Gly Gly Leu
                85                  90                  95

His Thr Val Ser Met Asp Thr Leu Pro Pro Tyr Glu Ala Val Cys Gly
            100                 105                 110

Ala Gly Pro Pro Ser Gly Leu Leu Pro Leu Pro Gly Pro Asp Pro Gly
        115                 120                 125

Pro Arg Gly Ser Gln Gly Ser Pro Thr Pro Thr Arg Ala Pro Ala Ser
    130                 135                 140

Gly Pro Glu Arg Ile Val
145                 150


<210> 9435
<211> 259
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<220>
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<223> /note="Uniprot ID:  Q3B7T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442793"

<400> 9435
Met Ser Phe Lys Arg Pro Cys Pro Leu Ala Arg Tyr Asn Arg Thr Ser
1               5                   10                  15
```

```
Tyr Phe Tyr Pro Thr Phe Ser Glu Ser Ser Glu His Ser His Leu Leu
            20                  25                  30

Val Ser Pro Val Leu Val Ala Ser Ala Val Ile Gly Val Val Ile Ile
        35                  40                  45

Leu Ser Cys Ile Thr Ile Ile Val Gly Ser Ile Arg Arg Asp Arg Gln
    50                  55                  60

Ala Arg Leu Gln Arg His Arg His Arg His His Arg His His His His
65                  70                  75                  80

His His His His Arg Arg Arg Arg His Arg Glu Tyr Glu His Gly Tyr
                85                  90                  95

Val Ser Asp Glu His Thr Tyr Ser Arg Ser Ser Arg Arg Met Arg Tyr
            100                 105                 110

Ala Cys Ser Ser Ser Glu Asp Trp Pro Pro Pro Leu Asp Ile Ser Ser
        115                 120                 125

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

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

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

Thr Leu Asp Gly Thr Ser Asp Ser Gly Ser Gly His Ser Pro Gly Arg
            180                 185                 190

His Gln Gln Glu Gln Arg Thr Pro Ala Gln Gly Gly Leu His Thr Val
        195                 200                 205

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

Pro Ser Gly Leu Leu Pro Leu Pro Gly Pro Asp Pro Gly Pro Arg Gly
225                 230                 235                 240
```

Ser Gln Gly Ser Pro Thr Pro Thr Arg Ala Pro Ala Ser Gly Pro Glu
245 250 255

Arg Ile Val

<210> 9436
<211> 208
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1929; "

<220>
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<223> /note="Gene Symbol: BEAN1; "

<220>
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<223> /note="Gene Name:
brain expressed, associated with NEDD4, 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q3B7T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455212"

<400> 9436
Met Arg Tyr Ala Cys Ser Ser Ser Glu Asp Trp Pro Pro Pro Leu Asp
1 5 10 15

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

Pro Asp Ser Pro Pro Gly Val Ser Leu Ser Arg Leu Arg Trp Ser Ala
35 40 45

Met Met Tyr Thr Gly Ser Phe Thr Tyr Trp Val Arg Ser Met Leu Ser
50 55 60

Arg His Lys Leu Asp Ala Ile Leu Gly Arg Leu Gly Tyr Thr Ala Thr
65 70 75 80

Leu Glu Ser Glu Phe Ser Leu Val Gln Ala Ile Ser Lys Glu Asn Val

```
                85                  90                  95

Lys Gln Met Val Phe Lys Ile Phe Leu Val Arg Val Ser Cys Glu Ala
            100                 105                 110

Val Leu Arg Thr Ala Gly Thr Arg Met Leu Glu Pro Gly Thr Glu Lys
        115                 120                 125

Leu Ala Arg Thr His Ser Arg His Ser Ser Glu Lys Arg Leu Val Lys
    130                 135                 140

Pro Cys Ser Cys Leu Glu Gly Val Gln Pro Gly Pro Gly Ser Gly Gly
145                 150                 155                 160

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

Glu Gly Thr Ala Gly Gln Arg Ser Leu Pro Met Ala Leu Ser Pro Ser
            180                 185                 190

Glu Val Ser Thr Ala Pro Asn Ser Leu Pro Ser Gly Ser Pro Val Leu
        195                 200                 205


<210> 9437
<211> 72
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1929; "

<220>
<221> source
<223> /note="Gene Symbol: BEAN1; "

<220>
<221> source
<223> /note="Gene Name:
      brain expressed, associated with NEDD4, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456430"

<400> 9437
Met Arg Tyr Ala Cys Ser Ser Ser Glu Asp Trp Pro Pro Pro Leu Asp
1               5                   10                  15
```

```
Ile Ser Ser Asp Gly Asp Val Asp Ala Thr Val Leu Arg Glu Leu Tyr
            20                  25                  30

Pro Asp Ser Pro Pro Gly Gln Gly Leu Thr Gln Ser Pro Thr Leu Glu
        35                  40                  45

Cys Asn Gly Met Asn Ile Ala His Cys Ser Leu Glu Leu Leu Gly Ser
    50                  55                  60

Ser Asp Pro Pro Thr Ser Ala Ser
65                  70


<210> 9438
<211> 150
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1929; "

<220>
<221> source
<223> /note="Gene Symbol: BEAN1; "

<220>
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<223> /note="Gene Name:
      brain expressed, associated with NEDD4, 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q3B7T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456822"

<400> 9438
Met Arg Tyr Ala Cys Ser Ser Ser Glu Asp Trp Pro Pro Pro Leu Asp
1               5                   10                  15

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

Pro Asp Ser Pro Pro Gly Tyr Glu Glu Cys Val Gly Pro Gly Ala Thr
        35                  40                  45

Gln Leu Tyr Val Pro Thr Asp Ala Pro Pro Pro Tyr Ser Leu Thr Asp
```

```
    50                  55                  60

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

Pro Gly Arg His Gln Gln Glu Gln Arg Thr Pro Ala Gln Gly Gly Leu
                85                  90                  95

His Thr Val Ser Met Asp Thr Leu Pro Pro Tyr Glu Ala Val Cys Gly
            100                 105                 110

Ala Gly Pro Pro Ser Gly Leu Leu Pro Leu Pro Gly Pro Asp Pro Gly
        115                 120                 125

Pro Arg Gly Ser Gln Gly Ser Pro Thr Pro Thr Arg Ala Pro Ala Ser
    130                 135                 140

Gly Pro Glu Arg Ile Val
145                 150


<210> 9439
<211> 82
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1929; "

<220>
<221> source
<223> /note="Gene Symbol: BEAN1; "

<220>
<221> source
<223> /note="Gene Name:
      brain expressed, associated with NEDD4, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462088"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9439
Xaa Pro Leu Asp Ile Ser Ser Asp Gly Asp Val Asp Ala Thr Val Leu
```

1 5 10 15

Arg Glu Leu Tyr Pro Asp Ser Pro Pro Gly Cys Thr Leu Gly Ala Leu
20 25 30

Pro Thr Gly Cys Asp Leu Cys Phe Pro Asp Thr Asn Trp Thr Pro Ser
35 40 45

Trp Ala Gly Trp Ala Thr Arg Pro Pro Trp Ser Leu Ser Ser His Trp
50 55 60

Ser Arg Pro Ser Ala Lys Arg Met Ser Ser Arg Trp Cys Ser Arg Ser
65 70 75 80

Ser Trp

<210> 9440
<211> 113
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1929; "

<220>
<221> source
<223> /note="Gene Symbol: BEAN1; "

<220>
<221> source
<223> /note="Gene Name:
brain expressed, associated with NEDD4, 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477843"

<400> 9440
Met Ser Phe Lys Arg Pro Cys Pro Cys Lys Phe Pro Pro His Ile Leu
1 5 10 15

Pro Pro Leu Gly Ala Arg Gln Gly Gln Ser Leu Glu Ser Ser Cys Arg
20 25 30

Glu Arg Leu Glu Val Phe Gly Gln Arg Thr Ala Gly Val Gln Pro Glu
35 40 45

```
Ala Asn Val Ala Cys Trp Val Gly Arg Gly Gln His Gly Arg Pro Leu
    50                  55                  60

Thr Ser Ala Arg Cys Ser Leu Arg Thr Glu Asn Arg Thr Leu Ala His
65                  70                  75                  80

Ser Ser Val Ser Ala Leu Pro Glu Val Trp Ile Gly Val Pro Leu Arg
                85                  90                  95

Asp Val Asn Gly Met Thr His Thr His Thr Gln Ile Lys Asp Tyr Met
            100                 105                 110

Ala
```

<210> 9441
<211> 208
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1929; "

<220>
<221> source
<223> /note="Gene Symbol: BEAN1; "

<220>
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<223> /note="Gene Name:
brain expressed, associated with NEDD4, 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q3B7T3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483700"

<400> 9441

```
Met Arg Tyr Ala Cys Ser Ser Ser Glu Asp Trp Pro Pro Pro Leu Asp
1               5                   10                  15

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

Pro Asp Ser Pro Pro Gly Val Ser Leu Ser Arg Leu Arg Trp Ser Ala
```

```
        35                  40                  45

Met Met Tyr Thr Gly Ser Phe Thr Tyr Trp Val Arg Ser Met Leu Ser
    50                  55                  60

Arg His Lys Leu Asp Ala Ile Leu Gly Arg Leu Gly Tyr Thr Ala Thr
65                  70                  75                  80

Leu Glu Ser Glu Phe Ser Leu Val Gln Ala Ile Ser Lys Glu Asn Val
                85                  90                  95

Lys Gln Met Val Phe Lys Ile Phe Leu Val Arg Val Ser Cys Glu Ala
            100                 105                 110

Val Leu Arg Thr Ala Gly Thr Arg Met Leu Glu Pro Gly Thr Glu Lys
        115                 120                 125

Leu Ala Arg Thr His Ser Arg His Ser Ser Glu Lys Arg Leu Val Lys
    130                 135                 140

Pro Cys Ser Cys Leu Glu Gly Val Gln Pro Gly Pro Gly Ser Gly Gly
145                 150                 155                 160

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

Glu Gly Thr Ala Gly Gln Arg Ser Leu Pro Met Ala Leu Ser Pro Ser
            180                 185                 190

Glu Val Ser Thr Ala Pro Asn Ser Leu Pro Ser Gly Ser Pro Val Leu
        195                 200                 205


<210> 9442
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1930; "

<220>
<221> source
<223> /note="Gene Symbol: BEX1; "

<220>
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<221> source
<223> /note="Gene Name:
brain expressed, X-linked 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HBH7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361813"

<400> 9442
Met Glu Ser Lys Glu Lys Arg Ala Val Asn Ser Leu Ser Met Glu Asn
1   5   10   15

Ala Asn Gln Glu Asn Glu Glu Lys Glu Gln Val Ala Asn Lys Gly Glu
            20   25   30

Pro Leu Ala Leu Pro Leu Asp Ala Gly Glu Tyr Cys Val Pro Arg Gly
        35   40   45

Asn Arg Arg Arg Phe Arg Val Arg Gln Pro Ile Leu Gln Tyr Arg Trp
    50   55   60

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

Asn Met Glu Arg Ile Gly Glu Glu Val Arg Gln Leu Met Glu Lys Leu
                85   90   95

Arg Glu Lys Gln Leu Ser His Ser Leu Arg Ala Val Ser Thr Asp Pro
            100   105   110

Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro
        115   120   125

<210> 9443
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1931; "

<220>
<221> source
<223> /note="Gene Symbol: BEX4; "

<220>
<221> source
<223> /note="Gene Name:
brain expressed, X-linked 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NWD9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361776"

<400> 9443
Met Glu Ser Lys Glu Glu Leu Ala Ala Asn Asn Leu Asn Gly Glu Asn
1 5 10 15

Ala Gln Gln Glu Asn Glu Gly Gly Glu Gln Ala Pro Thr Gln Asn Glu
            20 25 30

Glu Glu Ser Arg His Leu Gly Gly Gly Glu Gly Gln Lys Pro Gly Gly
        35 40 45

Asn Ile Arg Arg Gly Arg Val Arg Arg Leu Val Pro Asn Phe Arg Trp
    50 55 60

Ala Ile Pro Asn Arg His Ile Glu His Asn Glu Ala Arg Asp Asp Val
65 70 75 80

Glu Arg Phe Val Gly Gln Met Met Glu Ile Lys Arg Lys Thr Arg Glu
                85 90 95

Gln Gln Met Arg His Tyr Met Arg Phe Gln Thr Pro Glu Pro Asp Asn
            100 105 110

His Tyr Asp Phe Cys Leu Ile Pro
        115 120

<210> 9444
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1931; "

<220>

<221> source
<223> /note="Gene Symbol: BEX4; "

<220>
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<223> /note="Gene Name:
brain expressed, X-linked 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NWD9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361780"

<400> 9444
Met Glu Ser Lys Glu Glu Leu Ala Ala Asn Asn Leu Asn Gly Glu Asn
1 5 10 15

Ala Gln Gln Glu Asn Glu Gly Gly Glu Gln Ala Pro Thr Gln Asn Glu
            20 25 30

Glu Glu Ser Arg His Leu Gly Gly Gly Glu Gly Gln Lys Pro Gly Gly
        35 40 45

Asn Ile Arg Arg Gly Arg Val Arg Arg Leu Val Pro Asn Phe Arg Trp
    50 55 60

Ala Ile Pro Asn Arg His Ile Glu His Asn Glu Ala Arg Asp Asp Val
65 70 75 80

Glu Arg Phe Val Gly Gln Met Met Glu Ile Lys Arg Lys Thr Arg Glu
                85 90 95

Gln Gln Met Arg His Tyr Met Arg Phe Gln Thr Pro Glu Pro Asp Asn
            100 105 110

His Tyr Asp Phe Cys Leu Ile Pro
        115 120

<210> 9445
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1932; "

<220>
<221> source
<223> /note="Gene Symbol: BEX5; "

<220>
<221> source
<223> /note="Gene Name:
brain expressed, X-linked 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q5H9J7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000328030"

<400> 9445
Met Glu Asn Val Pro Lys Glu Asn Lys Val Val Glu Lys Ala Pro Val
1   5   10   15

Gln Asn Glu Ala Pro Ala Leu Gly Gly Gly Glu Tyr Gln Glu Pro Gly
            20   25   30

Gly Asn Val Lys Gly Val Trp Ala Pro Pro Ala Pro Gly Phe Gly Glu
        35   40   45

Asp Val Pro Asn Arg Leu Val Asp Asn Ile Asp Met Ile Asp Gly Asp
    50   55   60

Gly Asp Asp Met Glu Arg Phe Met Glu Glu Met Arg Glu Leu Arg Arg
65   70   75   80

Lys Ile Arg Glu Leu Gln Leu Arg Tyr Ser Leu Arg Ile Leu Ile Gly
                85   90   95

Asp Pro Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro
            100   105   110

<210> 9446
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1932; "

<220>

<221> source
<223> /note="Gene Symbol: BEX5; "

<220>
<221> source
<223> /note="Gene Name:
brain expressed, X-linked 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q5H9J7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446054"

<400> 9446
Met Glu Asn Val Pro Lys Glu Asn Lys Val Val Glu Lys Ala Pro Val
1 5 10 15

Gln Asn Glu Ala Pro Ala Leu Gly Gly Gly Glu Tyr Gln Glu Pro Gly
            20 25 30

Gly Asn Val Lys Gly Val Trp Ala Pro Pro Ala Pro Gly Phe Gly Glu
        35 40 45

Asp Val Pro Asn Arg Leu Val Asp Asn Ile Asp Met Ile Asp Gly Asp
    50 55 60

Gly Asp Asp Met Glu Arg Phe Met Glu Glu Met Arg Glu Leu Arg Arg
65 70 75 80

Lys Ile Arg Glu Leu Gln Leu Arg Tyr Ser Leu Arg Ile Leu Ile Gly
                85 90 95

Asp Pro Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro
            100 105 110

<210> 9447
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1933; "

<220>
<221> source
<223> /note="Gene Symbol: BRI3; "

<220>
<221> source
<223> /note="Gene Name:
brain prt I3; "

<220>
<221> source
<223> /note="Uniprot ID: O95415; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000297290"

<400> 9447
Met Asp His Lys Pro Leu Leu Gln Glu Arg Pro Pro Ala Tyr Asn Leu
1   5   10   15

Glu Ala Gly Gln Gly Asp Tyr Ala Cys Gly Pro His Gly Tyr Gly Ala
            20   25   30

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

Ile Pro Thr His His Pro Arg Val Tyr Asn Ile His Ser Arg Thr Val
    50   55   60

Thr Arg Tyr Pro Ala Asn Ser Ile Val Val Val Gly Gly Cys Pro Val
65   70   75   80

Cys Arg Val Gly Val Leu Glu Asp Cys Phe Thr Phe Leu Gly Ile Phe
                85   90   95

Leu Ala Ile Ile Leu Phe Pro Phe Gly Phe Ile Cys Cys Phe Ala Leu
            100   105   110

Arg Lys Arg Arg Cys Pro Asn Cys Gly Ala Thr Phe Ala
        115   120   125

<210> 9448
<211> 98
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1933; "

<220>

<221> source
<223> /note="Gene Symbol: BRI3; "

<220>
<221> source
<223> /note="Gene Name:
brain prt I3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440936"

<400> 9448
Met Asp His Lys Pro Leu Leu Gln Glu Arg Pro Pro Ala Tyr Asn Leu
1 5 10 15

Glu Ala Gly Gln Gly Asp Tyr Ala Cys Gly Pro His Gly Tyr Gly Ala
20 25 30

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

Ile Pro Thr His His Pro Arg Val Tyr Asn Ile His Ser Arg Thr Val
50 55 60

Thr Arg Tyr Pro Ala Asn Ser Ile Val Val Val Gly Gly Cys Pro Val
65 70 75 80

Cys Arg His Gln Arg Ser Ser Trp Leu Tyr Thr Tyr Pro Leu Arg Val
85 90 95

Cys Thr

<210> 9449
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1933; "

<220>
<221> source
<223> /note="Gene Symbol: BRI3; "

<220>
<221> source
<223> /note="Gene Name:

brain prt I3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000459133"

<400> 9449
Ile His Ser Arg Thr Val Thr Arg Tyr Pro Ala Asn Ser Ile Val Val
1 5 10 15

Val Gly Gly Cys Pro Val Cys Ser Asn Phe Val Tyr Asp Asp Gly Asn
20 25 30

Gln Pro Leu Leu Pro Ala Lys Arg Glu Lys Arg Pro Tyr Gln Gln
35 40 45

<210> 9450
<211> 255
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1934; "

<220>
<221> source
<223> /note="Gene Symbol: BDNF; "

<220>
<221> source
<223> /note="Gene Name:
brain-derived neurotrophic
factor; "

<220>
<221> source
<223> /note="Uniprot ID: P23560; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000320002"

<400> 9450
Met Phe His Gln Val Arg Arg Val Met Thr Ile Leu Phe Leu Thr Met
1 5 10 15

Val Ile Ser Tyr Phe Gly Cys Met Lys Ala Ala Pro Met Lys Glu Ala
20 25 30

Asn Ile Arg Gly Gln Gly Gly Leu Ala Tyr Pro Gly Val Arg Thr His
35 40 45

```
Gly Thr Leu Glu Ser Val Asn Gly Pro Lys Ala Gly Ser Arg Gly Leu
    50                  55                  60

Thr Ser Leu Ala Asp Thr Phe Glu His Val Ile Glu Glu Leu Leu Asp
65                  70                  75                  80

Glu Asp Gln Lys Val Arg Pro Asn Glu Glu Asn Asn Lys Asp Ala Asp
                85                  90                  95

Leu Tyr Thr Ser Arg Val Met Leu Ser Ser Gln Val Pro Leu Glu Pro
            100                 105                 110

Pro Leu Leu Phe Leu Leu Glu Glu Tyr Lys Asn Tyr Leu Asp Ala Ala
        115                 120                 125

Asn Met Ser Met Arg Val Arg Arg His Ser Asp Pro Ala Arg Arg Gly
    130                 135                 140

Glu Leu Ser Val Cys Asp Ser Ile Ser Glu Trp Val Thr Ala Ala Asp
145                 150                 155                 160

Lys Lys Thr Ala Val Asp Met Ser Gly Gly Thr Val Thr Val Leu Glu
                165                 170                 175

Lys Val Pro Val Ser Lys Gly Gln Leu Lys Gln Tyr Phe Tyr Glu Thr
            180                 185                 190

Lys Cys Asn Pro Met Gly Tyr Thr Lys Glu Gly Cys Arg Gly Ile Asp
        195                 200                 205

Lys Arg His Trp Asn Ser Gln Cys Arg Thr Thr Gln Ser Tyr Val Arg
    210                 215                 220

Ala Leu Thr Met Asp Ser Lys Lys Arg Ile Gly Trp Arg Phe Ile Arg
225                 230                 235                 240

Ile Asp Thr Ser Cys Val Cys Thr Leu Thr Ile Lys Arg Gly Arg
                245                 250                 255
```

<210> 9451
<211> 247
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1934; "

<220>
<221> source
<223> /note="Gene Symbol: BDNF; "

<220>
<221> source
<223> /note="Gene Name:
brain-derived neurotrophic
factor; "

<220>
<221> source
<223> /note="Uniprot ID: P23560; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349084"

<400> 9451

```
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                  10                  15


Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30


Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45


Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60


His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80


Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95


Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110


Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125
```

```
His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245
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<210> 9452
<211> 247
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000379302"

<400> 9452

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Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                  10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220
```

```
Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240


Leu Thr Ile Lys Arg Gly Arg
                245


<210> 9453
<211> 247
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<400> 9453
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                   10                  15


Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30


Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45


Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60


His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80
```

```
Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
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<400> 9454
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1   5   10   15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20   25   30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35   40   45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50   55   60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65   70   75   80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85   90   95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100   105   110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115   120   125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130   135   140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145   150   155   160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln

```
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245
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<210> 9455
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<213> Homo sapiens

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<400> 9455

```
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                   10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30
```

```
Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245
```

<210> 9456
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<212> PRT
<213> Homo sapiens

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<223> /note="Uniprot ID: P23560; "

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<400> 9456
Met Gln Ser Arg Glu Glu Glu Trp Phe His Gln Val Arg Arg Val Met
1   5   10   15

Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met Lys
            20   25   30

Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu Ala
        35   40   45

Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly Pro
    50   55   60

Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu His
65   70   75   80

Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn Glu
                85   90   95

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

```
Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu Tyr
        115                 120                 125

Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg His
    130                 135                 140

Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile Ser
145                 150                 155                 160

Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser Gly
                165                 170                 175

Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln Leu
            180                 185                 190

Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr Lys
        195                 200                 205

Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys Arg
    210                 215                 220

Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys Arg
225                 230                 235                 240

Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr Leu
                245                 250                 255

Thr Ile Lys Arg Gly Arg
            260
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<210> 9457
<211> 247
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<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1934; "

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<400> 9457
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1   5   10   15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20   25   30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35   40   45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50   55   60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65   70   75   80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85   90   95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100   105   110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115   120   125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130   135   140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145   150   155   160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165   170   175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180   185   190

```
Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245
```

<210> 9458
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<213> Homo sapiens

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<400> 9458

```
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                   10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45
```

```
Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245
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<210> 9459
<211> 247
<212> PRT
<213> Homo sapiens

<220>
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<400> 9459

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Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                  10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
```

```
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245


<210> 9460
<211> 329
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<400> 9460
Met Cys Gly Ala Thr Ser Phe Leu His Glu Cys Thr Arg Leu Ile Leu
1 5 10 15

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

Thr Cys Phe Gly Val Tyr Pro His Ala Ser Val Trp His Asp Cys Ala
35 40 45

Ser Gln Lys Lys Gly Cys Ala Val Tyr Leu His Val Ser Val Glu Phe
50 55 60

Asn Lys Leu Ile Pro Glu Asn Gly Phe Ile Lys Phe His Gln Val Arg
65 70 75 80

Arg Val Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly
85 90 95

Cys Met Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly
100 105 110

Gly Leu Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val
115 120 125

Asn Gly Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr
130 135 140

Phe Glu His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg
145 150 155 160

Pro Asn Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val
165 170 175

Met Leu Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu
180 185 190

Glu Glu Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val
195 200 205

Arg Arg His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp
210 215 220

```
Ser Ile Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp
225                 230                 235                 240

Met Ser Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys
                245                 250                 255

Gly Gln Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly
            260                 265                 270

Tyr Thr Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser
        275                 280                 285

Gln Cys Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser
    290                 295                 300

Lys Lys Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val
305                 310                 315                 320

Cys Thr Leu Thr Ile Lys Arg Gly Arg
                325


<210> 9461
<211> 247
<212> PRT
<213> Homo sapiens

<220>
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<400> 9461
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Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                  10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
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225 230 235 240

Leu Thr Ile Lys Arg Gly Arg
245

<210> 9462
<211> 247
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000432376"

<400> 9462
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1 5 10 15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
20 25 30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
35 40 45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
50 55 60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65 70 75 80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
85 90 95

```
Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245
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<210> 9463
<211> 247
<212> PRT
<213> Homo sapiens

<220>
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<400> 9463

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Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                  10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175
```

```
Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245


<210> 9464
<211> 77
<212> PRT
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<220>
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      factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433003"

<400> 9464
Met Cys Gly Ala Thr Ser Phe Leu His Glu Cys Thr Arg Leu Ile Leu
1               5                   10                  15

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

Thr Cys Phe Gly Val Tyr Pro His Ala Ser Val Trp His Asp Cys Ala
        35                  40                  45

Ser Gln Lys Lys Gly Cys Ala Val Tyr Leu His Val Ser Val Glu Phe
```

```
    50                  55                  60

Asn Lys Leu Ile Pro Glu Asn Gly Phe Ile Lys Gly Trp
65                  70                  75


<210> 9465
<211> 247
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1934; "

<220>
<221> source
<223> /note="Gene Symbol: BDNF; "

<220>
<221> source
<223> /note="Gene Name:
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      factor; "

<220>
<221> source
<223> /note="Uniprot ID:  P23560; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435564"

<400> 9465
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                   10                  15


Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30


Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45


Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60


His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80


Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95
```

```
Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245
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<210> 9466
<211> 247
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1934; "

<220>
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<223> /note="Gene Symbol: BDNF; "

<220>
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<223> /note="Gene Name:
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factor; "

<220>
<221> source
<223> /note="Uniprot ID: P23560; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435805"

<400> 9466

```
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                  10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30

Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
        35                  40                  45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
    50                  55                  60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65                  70                  75                  80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
                85                  90                  95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
            100                 105                 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
        115                 120                 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
    130                 135                 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145                 150                 155                 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
                165                 170                 175
```

```
Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
            180                 185                 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
        195                 200                 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
    210                 215                 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225                 230                 235                 240

Leu Thr Ile Lys Arg Gly Arg
                245


<210> 9467
<211> 247
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1934; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
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      factor; "

<220>
<221> source
<223> /note="Uniprot ID:  P23560; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437138"

<400> 9467
Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
1               5                   10                  15

Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
            20                  25                  30

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

35 40 45

Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
50 55 60

His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
65 70 75 80

Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
85 90 95

Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
100 105 110

Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
115 120 125

His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
130 135 140

Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
145 150 155 160

Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
165 170 175

Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
180 185 190

Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
195 200 205

Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
210 215 220

Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
225 230 235 240

Leu Thr Ile Lys Arg Gly Arg
245

<210> 9468
<211> 593

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: Q9BUH8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000347301"

<400> 9468

```
Met Glu Lys Leu Ser Ala Leu Gln Glu Gln Lys Gly Glu Leu Arg Lys
1               5                  10                  15

Arg Leu Ser Tyr Thr Thr His Lys Leu Glu Lys Leu Glu Thr Glu Phe
            20                  25                  30

Asp Ser Thr Arg His Tyr Leu Glu Ile Glu Leu Arg Arg Ala Gln Glu
        35                  40                  45

Glu Leu Glu Lys Val Thr Glu Lys Leu Arg Arg Ile Gln Ser Asn Tyr
    50                  55                  60

Met Ala Leu Gln Arg Ile Asn Gln Glu Leu Glu Asp Lys Leu Tyr Arg
65                  70                  75                  80

Met Gly Gln His Tyr Glu Glu Glu Lys Arg Ala Leu Ser His Glu Ile
                85                  90                  95

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

Leu Ser Glu Asp Asn Glu Leu Tyr Arg Lys Asp Cys Asn Leu Ala Ala
        115                 120                 125
```

```
Gln Leu Leu Gln Cys Ser Gln Thr Tyr Gly Arg Val His Lys Val Ser
    130                 135                 140

Glu Leu Pro Ser Asp Phe Gln Glu Arg Val Ser Leu His Met Glu Lys
145                 150                 155                 160

His Gly Cys Ser Leu Pro Ser Pro Leu Cys His Pro Ala Tyr Ala Asp
                165                 170                 175

Ser Val Pro Thr Cys Val Ile Ala Lys Val Leu Glu Lys Pro Asp Pro
            180                 185                 190

Ala Ser Leu Ser Ser Arg Leu Ser Asp Ala Ser Ala Arg Asp Leu Ala
        195                 200                 205

Phe Cys Asp Gly Val Glu Lys Pro Gly Pro Arg Pro Pro Tyr Lys Gly
    210                 215                 220

Asp Ile Tyr Cys Ser Asp Thr Ala Leu Tyr Cys Pro Glu Glu Arg Arg
225                 230                 235                 240

Arg Asp Arg Arg Pro Ser Val Asp Ala Pro Val Thr Asp Val Gly Phe
                245                 250                 255

Leu Arg Ala Gln Asn Ser Thr Asp Ser Ala Ala Glu Glu Glu Glu Glu
            260                 265                 270

Ala Glu Ala Ala Ala Phe Pro Ala Gly Phe Gln His Glu Ala Phe Pro
        275                 280                 285

Ser Tyr Ala Gly Ser Leu Pro Thr Ser Ser Ser Tyr Ser Ser Phe Ser
    290                 295                 300

Ala Thr Ser Glu Glu Lys Glu His Ala Gln Ala Ser Thr Leu Thr Ala
305                 310                 315                 320

Ser Gln Gln Ala Ile Tyr Leu Asn Ser Arg Asp Glu Leu Phe Asp Arg
                325                 330                 335

Lys Pro Pro Ala Thr Thr Tyr Glu Gly Ser Pro Arg Phe Ala Lys Ala
            340                 345                 350

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

355 360 365

Gly Arg Thr Met Ser Pro Tyr Pro Ala Glu Thr Phe Arg Phe Pro Ala
370 375 380

Ser Pro Gly Pro Gln Gln Ala Leu Met Pro Pro Asn Leu Trp Ser Leu
385 390 395 400

Arg Ala Lys Pro Gly Thr Ala Arg Leu Pro Gly Glu Asp Met Arg Gly
405 410 415

Gln Trp Arg Pro Leu Ser Val Glu Asp Ile Gly Ala Tyr Ser Tyr Pro
420 425 430

Val Ser Ala Ala Gly Arg Ala Ser Pro Cys Ser Phe Ser Glu Arg Tyr
435 440 445

Tyr Gly Gly Ala Gly Gly Ser Pro Gly Lys Lys Ala Asp Gly Arg Ala
450 455 460

Ser Pro Leu Tyr Ala Ser Tyr Lys Ala Asp Ser Phe Ser Glu Gly Asp
465 470 475 480

Asp Leu Ser Gln Gly His Leu Ala Glu Pro Cys Phe Leu Arg Ala Gly
485 490 495

Gly Asp Leu Ser Leu Ser Pro Gly Arg Ser Ala Asp Pro Leu Pro Gly
500 505 510

Tyr Ala Pro Ser Glu Gly Gly Asp Gly Asp Arg Leu Gly Val Gln Leu
515 520 525

Cys Gly Thr Ala Ser Ser Pro Glu Pro Glu Gln Gly Ser Arg Asp Ser
530 535 540

Leu Glu Pro Ser Ser Met Glu Ala Ser Pro Glu Met His Pro Ala Ala
545 550 555 560

Arg Leu Ser Pro Gln Gln Ala Phe Pro Arg Thr Gly Gly Ser Gly Leu
565 570 575

Ser Arg Lys Asp Ser Leu Thr Lys Ala Gln Leu Tyr Gly Thr Leu Leu
580 585 590

Asn

<210> 9469
<211> 593
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

<220>
<221> source
<223> /note="Gene Name:
brain-enriched guanylate kinase-associated; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BUH8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000411124"

<400> 9469
Met Glu Lys Leu Ser Ala Leu Gln Glu Gln Lys Gly Glu Leu Arg Lys
1 5 10 15

Arg Leu Ser Tyr Thr Thr His Lys Leu Glu Lys Leu Glu Thr Glu Phe
20 25 30

Asp Ser Thr Arg His Tyr Leu Glu Ile Glu Leu Arg Arg Ala Gln Glu
35 40 45

Glu Leu Glu Lys Val Thr Glu Lys Leu Arg Arg Ile Gln Ser Asn Tyr
50 55 60

Met Ala Leu Gln Arg Ile Asn Gln Glu Leu Glu Asp Lys Leu Tyr Arg
65 70 75 80

Met Gly Gln His Tyr Glu Glu Glu Lys Arg Ala Leu Ser His Glu Ile
85 90 95

```
Val Ala Leu Asn Ser His Leu Leu Glu Ala Lys Val Thr Ile Asp Lys
            100                 105                 110

Leu Ser Glu Asp Asn Glu Leu Tyr Arg Lys Asp Cys Asn Leu Ala Ala
        115                 120                 125

Gln Leu Leu Gln Cys Ser Gln Thr Tyr Gly Arg Val His Lys Val Ser
    130                 135                 140

Glu Leu Pro Ser Asp Phe Gln Glu Arg Val Ser Leu His Met Glu Lys
145                 150                 155                 160

His Gly Cys Ser Leu Pro Ser Pro Leu Cys His Pro Ala Tyr Ala Asp
                165                 170                 175

Ser Val Pro Thr Cys Val Ile Ala Lys Val Leu Glu Lys Pro Asp Pro
            180                 185                 190

Ala Ser Leu Ser Ser Arg Leu Ser Asp Ala Ser Ala Arg Asp Leu Ala
        195                 200                 205

Phe Cys Asp Gly Val Glu Lys Pro Gly Pro Arg Pro Pro Tyr Lys Gly
    210                 215                 220

Asp Ile Tyr Cys Ser Asp Thr Ala Leu Tyr Cys Pro Glu Glu Arg Arg
225                 230                 235                 240

Arg Asp Arg Arg Pro Ser Val Asp Ala Pro Val Thr Asp Val Gly Phe
                245                 250                 255

Leu Arg Ala Gln Asn Ser Thr Asp Ser Ala Ala Glu Glu Glu Glu Glu
            260                 265                 270

Ala Glu Ala Ala Ala Phe Pro Ala Gly Phe Gln His Glu Ala Phe Pro
        275                 280                 285

Ser Tyr Ala Gly Ser Leu Pro Thr Ser Ser Ser Tyr Ser Ser Phe Ser
    290                 295                 300

Ala Thr Ser Glu Glu Lys Glu His Ala Gln Ala Ser Thr Leu Thr Ala
305                 310                 315                 320

Ser Gln Gln Ala Ile Tyr Leu Asn Ser Arg Asp Glu Leu Phe Asp Arg
```

325 330 335

Lys Pro Pro Ala Thr Thr Tyr Glu Gly Ser Pro Arg Phe Ala Lys Ala
340 345 350

Thr Ala Ala Val Ala Ala Pro Leu Glu Ala Glu Val Ala Pro Gly Phe
355 360 365

Gly Arg Thr Met Ser Pro Tyr Pro Ala Glu Thr Phe Arg Phe Pro Ala
370 375 380

Ser Pro Gly Pro Gln Gln Ala Leu Met Pro Pro Asn Leu Trp Ser Leu
385 390 395 400

Arg Ala Lys Pro Gly Thr Ala Arg Leu Pro Gly Glu Asp Met Arg Gly
405 410 415

Gln Trp Arg Pro Leu Ser Val Glu Asp Ile Gly Ala Tyr Ser Tyr Pro
420 425 430

Val Ser Ala Ala Gly Arg Ala Ser Pro Cys Ser Phe Ser Glu Arg Tyr
435 440 445

Tyr Gly Gly Ala Gly Gly Ser Pro Gly Lys Lys Ala Asp Gly Arg Ala
450 455 460

Ser Pro Leu Tyr Ala Ser Tyr Lys Ala Asp Ser Phe Ser Glu Gly Asp
465 470 475 480

Asp Leu Ser Gln Gly His Leu Ala Glu Pro Cys Phe Leu Arg Ala Gly
485 490 495

Gly Asp Leu Ser Leu Ser Pro Gly Arg Ser Ala Asp Pro Leu Pro Gly
500 505 510

Tyr Ala Pro Ser Glu Gly Gly Asp Gly Asp Arg Leu Gly Val Gln Leu
515 520 525

Cys Gly Thr Ala Ser Ser Pro Glu Pro Glu Gln Gly Ser Arg Asp Ser
530 535 540

Leu Glu Pro Ser Ser Met Glu Ala Ser Pro Glu Met His Pro Ala Ala
545 550 555 560

```
Arg Leu Ser Pro Gln Gln Ala Phe Pro Arg Thr Gly Gly Ser Gly Leu
                565                 570                 575

Ser Arg Lys Asp Ser Leu Thr Lys Ala Gln Leu Tyr Gly Thr Leu Leu
            580                 585                 590

Asn
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<210> 9470
<211> 167
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

<220>
<221> source
<223> /note="Gene Name:
brain-enriched guanylate kinase-associated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450722"

<400> 9470

```
Met Glu Lys Leu Ser Ala Leu Gln Glu Gln Lys Gly Glu Leu Arg Lys
1               5                   10                  15

Arg Leu Ser Tyr Thr Thr His Lys Leu Glu Lys Leu Glu Thr Glu Phe
            20                  25                  30

Asp Ser Thr Arg His Tyr Leu Glu Ile Glu Leu Arg Arg Ala Gln Glu
        35                  40                  45

Glu Leu Glu Lys Val Thr Glu Lys Leu Arg Arg Ile Gln Ser Asn Tyr
    50                  55                  60

Met Ala Leu Gln Arg Ile Asn Gln Glu Leu Glu Asp Lys Leu Tyr Arg
65                  70                  75                  80
```

```
Met Gly Gln His Tyr Glu Glu Glu Lys Arg Ala Leu Ser His Glu Ile
                85                  90                  95

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

Leu Ser Glu Asp Asn Glu Leu Tyr Arg Lys Asp Cys Asn Leu Ala Ala
        115                 120                 125

Gln Leu Leu Gln Cys Ser Gln Thr Tyr Gly Arg Val His Lys Val Ser
    130                 135                 140

Glu Leu Pro Ser Asp Phe Gln Glu Arg Val Ser Leu His Met Glu Lys
145                 150                 155                 160

His Gly Cys Ser Leu Pro Ser
                165
```

<210> 9471
<211> 169
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

<220>
<221> source
<223> /note="Gene Name:
brain-enriched guanylate kinase-associated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451125"

<400> 9471

```
Met Trp Thr Gly Gly Arg Arg Pro Gly Arg Leu Arg Arg Ala Ala Ser
1               5                   10                  15

Ala Ala Asp Met Glu Lys Leu Ser Ala Leu Gln Glu Gln Lys Gly Glu
            20                  25                  30

Leu Arg Lys Arg Leu Ser Tyr Thr Thr His Lys Leu Glu Lys Leu Glu
        35                  40                  45
```

```
Thr Glu Phe Asp Ser Thr Arg His Tyr Leu Glu Ile Glu Leu Arg Arg
    50                  55                  60

Ala Gln Glu Glu Leu Glu Lys Val Thr Glu Lys Leu Arg Arg Ile Gln
65                  70                  75                  80

Ser Asn Tyr Met Ala Leu Gln Arg Ile Asn Gln Glu Leu Glu Asp Lys
                85                  90                  95

Leu Tyr Arg Met Gly Gln His Tyr Glu Glu Glu Lys Arg Ala Leu Ser
            100                 105                 110

His Glu Ile Val Ala Leu Asn Ser His Leu Leu Glu Ala Lys Val Thr
        115                 120                 125

Ile Asp Lys Leu Ser Glu Asp Asn Glu Leu Tyr Arg Lys Asp Cys Asn
    130                 135                 140

Leu Ala Ala Gln Leu Leu Gln Cys Ser Gln Thr Tyr Gly Arg Val His
145                 150                 155                 160

Lys Val Ser Glu Leu Pro Ser Asp Phe
                165
```

<210> 9472
<211> 529
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000451380"

<400> 9472

```
Met Ala Leu Gln Arg Ile Asn Gln Glu Leu Glu Asp Lys Leu Tyr Arg
1               5                  10                  15

Met Gly Gln His Tyr Glu Glu Glu Lys Arg Ala Leu Ser His Glu Ile
            20                  25                  30

Val Ala Leu Asn Ser His Leu Leu Glu Ala Lys Val Thr Ile Asp Lys
        35                  40                  45

Leu Ser Glu Asp Asn Glu Leu Tyr Arg Lys Asp Cys Asn Leu Ala Ala
    50                  55                  60

Gln Leu Leu Gln Cys Ser Gln Thr Tyr Gly Arg Val His Lys Val Ser
65                  70                  75                  80

Glu Leu Pro Ser Asp Phe Gln Glu Arg Val Ser Leu His Met Glu Lys
                85                  90                  95

His Gly Cys Ser Leu Pro Ser Pro Leu Cys His Pro Ala Tyr Ala Asp
            100                 105                 110

Ser Val Pro Thr Cys Val Ile Ala Lys Val Leu Glu Lys Pro Asp Pro
        115                 120                 125

Ala Ser Leu Ser Ser Arg Leu Ser Asp Ala Ser Ala Arg Asp Leu Ala
    130                 135                 140

Phe Cys Asp Gly Val Glu Lys Pro Gly Pro Arg Pro Pro Tyr Lys Gly
145                 150                 155                 160

Asp Ile Tyr Cys Ser Asp Thr Ala Leu Tyr Cys Pro Glu Glu Arg Arg
                165                 170                 175

Arg Asp Arg Arg Pro Ser Val Asp Ala Pro Val Thr Asp Val Gly Phe
            180                 185                 190

Leu Arg Ala Gln Asn Ser Thr Asp Ser Ala Ala Glu Glu Glu Glu Glu
        195                 200                 205

Ala Glu Ala Ala Ala Phe Pro Ala Gly Phe Gln His Glu Ala Phe Pro
    210                 215                 220

Ser Tyr Ala Gly Ser Leu Pro Thr Ser Ser Ser Tyr Ser Ser Phe Ser
```

225 230 235 240

Ala Thr Ser Glu Glu Lys Glu His Ala Gln Ala Ser Thr Leu Thr Ala
245 250 255

Ser Gln Gln Ala Ile Tyr Leu Asn Ser Arg Asp Glu Leu Phe Asp Arg
260 265 270

Lys Pro Pro Ala Thr Thr Tyr Glu Gly Ser Pro Arg Phe Ala Lys Ala
275 280 285

Thr Ala Ala Val Ala Ala Pro Leu Glu Ala Glu Val Ala Pro Gly Phe
290 295 300

Gly Arg Thr Met Ser Pro Tyr Pro Ala Glu Thr Phe Arg Phe Pro Ala
305 310 315 320

Ser Pro Gly Pro Gln Gln Ala Leu Met Pro Pro Asn Leu Trp Ser Leu
325 330 335

Arg Ala Lys Pro Gly Thr Ala Arg Leu Pro Gly Glu Asp Met Arg Gly
340 345 350

Gln Trp Arg Pro Leu Ser Val Glu Asp Ile Gly Ala Tyr Ser Tyr Pro
355 360 365

Val Ser Ala Ala Gly Arg Ala Ser Pro Cys Ser Phe Ser Glu Arg Tyr
370 375 380

Tyr Gly Gly Ala Gly Gly Ser Pro Gly Lys Lys Ala Asp Gly Arg Ala
385 390 395 400

Ser Pro Leu Tyr Ala Ser Tyr Lys Ala Asp Ser Phe Ser Glu Gly Asp
405 410 415

Asp Leu Ser Gln Gly His Leu Ala Glu Pro Cys Phe Leu Arg Ala Gly
420 425 430

Gly Asp Leu Ser Leu Ser Pro Gly Arg Ser Ala Asp Pro Leu Pro Gly
435 440 445

Tyr Ala Pro Ser Glu Gly Gly Asp Gly Asp Arg Leu Gly Val Gln Leu
450 455 460

```
Cys Gly Thr Ala Ser Ser Pro Glu Pro Glu Gln Gly Ser Arg Asp Ser
465                 470                 475                 480

Leu Glu Pro Ser Ser Met Glu Ala Ser Pro Glu Met His Pro Ala Ala
                485                 490                 495

Arg Leu Ser Pro Gln Gln Ala Phe Pro Arg Thr Gly Gly Ser Gly Leu
            500                 505                 510

Ser Arg Lys Asp Ser Leu Thr Lys Ala Gln Leu Tyr Gly Thr Leu Leu
        515                 520                 525

Asn
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<210> 9473
<211> 299
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

<220>
<221> source
<223> /note="Gene Name:
brain-enriched guanylate kinase-associated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451397"

<400> 9473

```
Met Pro Ser Pro Ser Asp Cys Ala Ser Ala Ala Asp Met Glu Lys Leu
1               5                   10                  15

Ser Ala Leu Gln Glu Gln Lys Gly Glu Leu Arg Lys Arg Leu Ser Tyr
            20                  25                  30

Thr Thr His Lys Leu Glu Lys Leu Glu Thr Glu Phe Asp Ser Thr Arg
        35                  40                  45
```

```
His Tyr Leu Glu Ile Glu Leu Arg Arg Ala Gln Glu Glu Leu Glu Lys
    50                  55                  60

Val Thr Glu Lys Leu Arg Arg Ile Gln Ser Asn Tyr Met Ala Leu Gln
65                  70                  75                  80

Arg Ile Asn Gln Glu Leu Glu Asp Lys Leu Tyr Arg Met Gly Gln His
                85                  90                  95

Tyr Glu Glu Glu Lys Arg Ala Leu Ser His Glu Ile Val Ala Leu Asn
            100                 105                 110

Ser His Leu Leu Glu Ala Lys Val Thr Ile Asp Lys Leu Ser Glu Asp
        115                 120                 125

Asn Glu Leu Tyr Arg Lys Asp Cys Asn Leu Ala Ala Gln Leu Leu Gln
    130                 135                 140

Cys Ser Gln Thr Tyr Gly Arg Val His Lys Val Ser Glu Leu Pro Ser
145                 150                 155                 160

Asp Phe Gln Glu Arg Val Ser Leu His Met Glu Lys His Gly Cys Ser
                165                 170                 175

Leu Pro Ser Pro Leu Cys His Pro Ala Tyr Ala Asp Ser Val Pro Thr
            180                 185                 190

Cys Val Ile Ala Lys Val Leu Glu Lys Pro Asp Pro Ala Ser Leu Ser
        195                 200                 205

Ser Arg Leu Ser Asp Ala Ser Ala Arg Asp Leu Ala Phe Cys Asp Gly
    210                 215                 220

Val Glu Lys Pro Gly Pro Arg Pro Pro Tyr Lys Gly Asp Ile Tyr Cys
225                 230                 235                 240

Ser Asp Thr Ala Leu Tyr Cys Pro Glu Glu Arg Arg Arg Asp Arg Arg
                245                 250                 255

Pro Ser Val Asp Ala Pro Val Thr Asp Val Gly Phe Leu Arg Ala Gln
            260                 265                 270

Asn Ser Thr Asp Ser Ala Ala Glu Glu Glu Glu Glu Ala Glu Ala Ala
```

275 280 285

Ala Phe Pro Ala Gly Phe Gln His Glu Ala Phe
290 295

<210> 9474
<211> 287
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

<220>
<221> source
<223> /note="Gene Name:
brain-enriched guanylate kinase-associated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452157"

<400> 9474
Met Glu Lys Leu Ser Ala Leu Gln Glu Gln Lys Gly Glu Leu Arg Lys
1 5 10 15

Arg Leu Ser Tyr Thr Thr His Lys Leu Glu Lys Leu Glu Thr Glu Phe
20 25 30

Asp Ser Thr Arg His Tyr Leu Glu Ile Glu Leu Arg Arg Ala Gln Glu
35 40 45

Glu Leu Glu Lys Val Thr Glu Lys Leu Arg Arg Ile Gln Ser Asn Tyr
50 55 60

Met Ala Leu Gln Arg Ile Asn Gln Glu Leu Glu Asp Lys Leu Tyr Arg
65 70 75 80

Met Gly Gln His Tyr Glu Glu Glu Lys Arg Ala Leu Ser His Glu Ile
85 90 95

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

```
Leu Ser Glu Asp Asn Glu Leu Tyr Arg Lys Asp Cys Asn Leu Ala Ala
        115                 120                 125

Gln Leu Leu Gln Cys Ser Gln Thr Tyr Gly Arg Val His Lys Val Ser
    130                 135                 140

Glu Leu Pro Ser Asp Phe Gln Glu Arg Val Ser Leu His Met Glu Lys
145                 150                 155                 160

His Gly Cys Ser Leu Pro Ser Pro Leu Cys His Pro Ala Tyr Ala Asp
                165                 170                 175

Ser Val Pro Thr Cys Val Ile Ala Lys Val Leu Glu Lys Pro Asp Pro
            180                 185                 190

Ala Ser Leu Ser Ser Arg Leu Ser Asp Ala Ser Ala Arg Asp Leu Ala
        195                 200                 205

Phe Cys Asp Gly Val Glu Lys Pro Gly Pro Arg Pro Pro Tyr Lys Gly
    210                 215                 220

Asp Ile Tyr Cys Ser Asp Thr Ala Leu Tyr Cys Pro Glu Glu Arg Arg
225                 230                 235                 240

Arg Asp Arg Arg Pro Ser Val Asp Ala Pro Val Thr Asp Val Gly Phe
                245                 250                 255

Leu Arg Ala Gln Asn Ser Thr Asp Ser Ala Ala Glu Glu Glu Glu Glu
            260                 265                 270

Ala Glu Ala Ala Ala Phe Pro Ala Gly Phe Gln His Glu Ala Phe
        275                 280                 285
```

<210> 9475
<211> 174
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1935; "

<220>
<221> source
<223> /note="Gene Symbol: BEGAIN; "

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<223> /note="Gene Name:
brain-enriched guanylate kinase-associated; "

<220>
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<223> /note="ENSP ID: ENSP00000452607"

<400> 9475
Met Ala Leu Gln Arg Ile Asn Gln Glu Leu Glu Asp Lys Leu Tyr Arg
1 5 10 15

Met Gly Gln His Tyr Glu Glu Glu Lys Arg Ala Leu Ser His Glu Ile
20 25 30

Val Ala Leu Asn Ser His Leu Leu Glu Ala Lys Val Thr Ile Asp Lys
35 40 45

Leu Ser Glu Asp Asn Glu Leu Tyr Arg Lys Asp Cys Asn Leu Ala Ala
50 55 60

Gln Leu Leu Gln Cys Ser Gln Thr Tyr Gly Arg Val His Lys Val Ser
65 70 75 80

Glu Leu Pro Ser Asp Phe Gln Glu Arg Val Ser Leu His Met Glu Lys
85 90 95

His Gly Cys Ser Leu Pro Ser Pro Leu Cys His Pro Ala Tyr Ala Asp
100 105 110

Ser Val Pro Thr Cys Val Ile Ala Lys Val Leu Glu Lys Pro Asp Pro
115 120 125

Ala Ser Leu Ser Ser Arg Leu Ser Asp Ala Ser Ala Arg Asp Leu Ala
130 135 140

Phe Cys Asp Gly Val Glu Lys Pro Gly Pro Arg Pro Pro Tyr Lys Gly
145 150 155 160

Asp Ile Tyr Cys Ser Asp Thr Ala Leu Tyr Cys Pro Glu Glu
165 170

<210> 9476
<211> 233

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BSX; "

<220>
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<223> /note="Gene Name:
brain-specific homeobox; "

<220>
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<223> /note="Uniprot ID: Q3C1V8; "

<220>
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<223> /note="ENSP ID: ENSP00000344285"

<400> 9476

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Met Asn Leu Asn Phe Thr Ser Pro Leu His Pro Ala Ser Ser Gln Arg
1               5                  10                  15

Pro Thr Ser Phe Phe Ile Glu Asp Ile Leu Leu His Lys Pro Lys Pro
            20                  25                  30

Leu Arg Glu Val Ala Pro Asp His Phe Ala Ser Ser Leu Ala Ser Arg
        35                  40                  45

Val Pro Leu Leu Asp Tyr Gly Tyr Pro Leu Met Pro Thr Pro Thr Leu
    50                  55                  60

Leu Ala Pro His Ala His His Pro Leu His Lys Gly Asp His His His
65                  70                  75                  80

Pro Tyr Phe Leu Thr Thr Ser Gly Met Pro Val Pro Ala Leu Phe Pro
                85                  90                  95

His Pro Gln His Ala Glu Leu Pro Gly Lys His Cys Arg Arg Arg Lys
            100                 105                 110

Ala Arg Thr Val Phe Ser Asp Ser Gln Leu Ser Gly Leu Glu Lys Arg
        115                 120                 125
```

```
Phe Glu Ile Gln Arg Tyr Leu Ser Thr Pro Glu Arg Val Glu Leu Ala
    130                 135                 140

Thr Ala Leu Ser Leu Ser Glu Thr Gln Val Lys Thr Trp Phe Gln Asn
145                 150                 155                 160

Arg Arg Met Lys His Lys Lys Gln Leu Arg Lys Ser Gln Asp Glu Pro
                165                 170                 175

Lys Ala Pro Asp Gly Pro Glu Ser Pro Glu Gly Ser Pro Arg Gly Ser
            180                 185                 190

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

Phe Val Leu Thr Glu Pro Glu Asp Glu Val Asp Ile Gly Asp Glu Gly
    210                 215                 220

Glu Leu Gly Ser Gly Pro His Val Leu
225                 230
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<210> 9477
<211> 386
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BCAT1; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: P54687; "

<220>
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<400> 9477

```
Met Lys Asp Cys Ser Asn Gly Cys Ser Ala Glu Cys Thr Gly Glu Gly
1               5                   10                  15
```

```
Gly Ser Lys Glu Val Val Gly Thr Phe Lys Ala Lys Asp Leu Ile Val
            20                  25                  30

Thr Pro Ala Thr Ile Leu Lys Glu Lys Pro Asp Pro Asn Asn Leu Val
        35                  40                  45

Phe Gly Thr Val Phe Thr Asp His Met Leu Thr Val Glu Trp Ser Ser
    50                  55                  60

Glu Phe Gly Trp Glu Lys Pro His Ile Lys Pro Leu Gln Asn Leu Ser
65                  70                  75                  80

Leu His Pro Gly Ser Ser Ala Leu His Tyr Ala Val Glu Leu Phe Glu
                85                  90                  95

Gly Leu Lys Ala Phe Arg Gly Val Asp Asn Lys Ile Arg Leu Phe Gln
            100                 105                 110

Pro Asn Leu Asn Met Asp Arg Met Tyr Arg Ser Ala Val Arg Ala Thr
        115                 120                 125

Leu Pro Val Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu
    130                 135                 140

Val Lys Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu
145                 150                 155                 160

Tyr Ile Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys
                165                 170                 175

Lys Pro Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro
            180                 185                 190

Tyr Phe Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro
        195                 200                 205

Lys Tyr Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly
    210                 215                 220

Gly Asn Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn
225                 230                 235                 240
```

```
Gly Cys Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr
                245                 250                 255

Glu Val Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly
            260                 265                 270

Glu Glu Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly
        275                 280                 285

Val Thr Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe
    290                 295                 300

Lys Val Ser Glu Arg Tyr Leu Thr Met Asp Asp Leu Thr Thr Ala Leu
305                 310                 315                 320

Glu Gly Asn Arg Val Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val
                325                 330                 335

Val Cys Pro Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile
            340                 345                 350

Pro Thr Met Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys
        355                 360                 365

Leu Thr Asp Ile Gln Tyr Gly Arg Glu Glu Ser Asp Trp Thr Ile Val
    370                 375                 380

Leu Ser
385
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<210> 9478
<211> 325
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1937; "

<220>
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<220>
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<223> /note="Gene Name:

branched chain amino-acid transaminase 1, cytosolic; "

<220>
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<223> /note="Uniprot ID: P54687; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000339805"

<400> 9478

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Met Lys Ala Lys Asp Leu Ile Val Thr Pro Ala Thr Ile Leu Lys Glu
1               5                  10                  15

Lys Pro Asp Pro Asn Asn Leu Val Phe Gly Thr Val Phe Thr Asp His
            20                  25                  30

Met Leu Thr Val Glu Trp Ser Ser Glu Phe Gly Trp Glu Lys Pro His
        35                  40                  45

Ile Lys Pro Leu Gln Asn Leu Ser Leu His Pro Gly Ser Ser Ala Leu
    50                  55                  60

His Tyr Ala Val Glu Val Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile
65                  70                  75                  80

Gln Gln Leu Val Lys Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser
                85                  90                  95

Ala Ser Leu Tyr Ile Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu
            100                 105                 110

Gly Val Lys Lys Pro Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro
        115                 120                 125

Val Gly Pro Tyr Phe Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp
    130                 135                 140

Ala Asn Pro Lys Tyr Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys
145                 150                 155                 160

Lys Met Gly Gly Asn Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala
                165                 170                 175

Val Asp Asn Gly Cys Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His
            180                 185                 190
```

```
Gln Ile Thr Glu Val Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn
        195                 200                 205

Glu Asp Gly Glu Glu Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile
    210                 215                 220

Leu Pro Gly Val Thr Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp
225                 230                 235                 240

Gly Glu Phe Lys Val Ser Glu Arg Tyr Leu Thr Met Asp Asp Leu Thr
                245                 250                 255

Thr Ala Leu Glu Gly Asn Arg Val Arg Glu Met Phe Gly Ser Gly Thr
            260                 265                 270

Ala Cys Val Val Cys Pro Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr
        275                 280                 285

Ile His Ile Pro Thr Met Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile
    290                 295                 300

Leu Ser Lys Leu Thr Asp Ile Gln Tyr Gly Arg Glu Glu Ser Asp Trp
305                 310                 315                 320

Thr Ile Val Leu Ser
                325


<210> 9479
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1937; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT1; "

<220>
<221> source
<223> /note="Gene Name:
      branched chain amino-acid transaminase 1, cytosolic; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000438593"

<400> 9479
Met Lys Ala Lys Asp Leu Ile Val Thr Pro Ala Thr Ile Leu Lys Glu
1 5 10 15

Lys Pro Asp Pro Asn Asn Leu Val Phe Gly Thr Val Phe Thr Asp His
20 25 30

Met Leu Thr Val Glu Trp Ser Ser Glu Phe Gly Trp Glu Lys Pro His
35 40 45

Ile Lys Pro Leu Gln Asn Leu Ser Leu His Pro Gly Ser Ser Ala Leu
50 55 60

His Tyr Ala Val Glu Leu Phe Glu Gly Leu Lys Ala Phe Arg Gly Val
65 70 75 80

Asp Asn Lys Ile Arg Leu Phe Gln Pro Asn Leu Asn Met Asp Arg Met
85 90 95

Tyr Arg Ser Ala Val Arg Ala Thr Leu Pro Val Phe Asp Lys Glu Glu
100 105 110

Leu Leu Glu Cys Ile Gln Gln Leu Val Lys Leu Asp Gln Glu Trp Val
115 120 125

Pro Tyr Ser Thr Ser Ala Ser Leu Tyr Ile Arg Pro Thr Phe Ile Gly
130 135 140

<210> 9480
<211> 385
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1937; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 1, cytosolic; "

<220>
<221> source
<223> /note="Uniprot ID: P54687; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440817"

<400> 9480
Met Asp Cys Ser Asn Gly Cys Ser Ala Glu Cys Thr Gly Glu Gly Gly
1   5   10   15

Ser Lys Glu Val Val Gly Thr Phe Lys Ala Lys Asp Leu Ile Val Thr
            20   25   30

Pro Ala Thr Ile Leu Lys Glu Lys Pro Asp Pro Asn Asn Leu Val Phe
        35   40   45

Gly Thr Val Phe Thr Asp His Met Leu Thr Val Glu Trp Ser Ser Glu
    50   55   60

Phe Gly Trp Glu Lys Pro His Ile Lys Pro Leu Gln Asn Leu Ser Leu
65   70   75   80

His Pro Gly Ser Ser Ala Leu His Tyr Ala Val Glu Leu Phe Glu Gly
                85   90   95

Leu Lys Ala Phe Arg Gly Val Asp Asn Lys Ile Arg Leu Phe Gln Pro
            100   105   110

Asn Leu Asn Met Asp Arg Met Tyr Arg Ser Ala Val Arg Ala Thr Leu
        115   120   125

Pro Val Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu Val
    130   135   140

Lys Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu Tyr
145   150   155   160

Ile Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys Lys
                165   170   175

Pro Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro Tyr
            180   185   190

```
Phe Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro Lys
        195                 200                 205

Tyr Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly Gly
    210                 215                 220

Asn Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn Gly
225                 230                 235                 240

Cys Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr Glu
                245                 250                 255

Val Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly Glu
            260                 265                 270

Glu Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly Val
        275                 280                 285

Thr Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe Lys
    290                 295                 300

Val Ser Glu Arg Tyr Leu Thr Met Asp Asp Leu Thr Thr Ala Leu Glu
305                 310                 315                 320

Gly Asn Arg Val Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val Val
                325                 330                 335

Cys Pro Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile Pro
            340                 345                 350

Thr Met Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys Leu
        355                 360                 365

Thr Asp Ile Gln Tyr Gly Arg Glu Glu Ser Asp Trp Thr Ile Val Leu
    370                 375                 380

Ser
385
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<210> 9481
<211> 349
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1937; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT1; "

<220>
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<223> /note="Gene Name:
branched chain amino-acid transaminase 1, cytosolic; "

<220>
<221> source
<223> /note="Uniprot ID: P54687; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440827"

<400> 9481
Met Lys Asp Cys Ser Asn Gly Cys Ser Ala Glu Cys Thr Gly Glu Gly
1   5   10   15

Gly Ser Lys Glu Val Val Gly Thr Phe Lys Ala Lys Asp Leu Ile Val
            20   25   30

Thr Pro Ala Thr Ile Leu Lys Glu Lys Pro Asp Pro Asn Asn Leu Val
        35   40   45

Phe Gly Thr Val Phe Thr Asp His Met Leu Thr Val Glu Trp Ser Ser
    50   55   60

Glu Phe Gly Trp Glu Lys Pro His Ile Lys Pro Leu Gln Asn Leu Ser
65   70   75   80

Leu His Pro Gly Ser Ser Ala Leu His Tyr Ala Val Glu Val Phe Asp
                85   90   95

Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu Val Lys Leu Asp Gln
            100   105   110

Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu Tyr Ile Arg Pro Thr
        115   120   125

Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys Lys Pro Thr Lys Ala
    130   135   140

```
Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro Tyr Phe Ser Ser Gly
145                 150                 155                 160

Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro Lys Tyr Val Arg Ala
                165                 170                 175

Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly Gly Asn Tyr Gly Ser
            180                 185                 190

Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn Gly Cys Gln Gln Val
        195                 200                 205

Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr Glu Val Gly Thr Met
    210                 215                 220

Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly Glu Glu Glu Leu Ala
225                 230                 235                 240

Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly Val Thr Arg Arg Cys
                245                 250                 255

Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe Lys Val Ser Glu Arg
            260                 265                 270

Tyr Leu Thr Met Asp Asp Leu Thr Thr Ala Leu Glu Gly Asn Arg Val
        275                 280                 285

Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val Val Cys Pro Val Ser
    290                 295                 300

Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile Pro Thr Met Glu Asn
305                 310                 315                 320

Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys Leu Thr Asp Ile Gln
                325                 330                 335

Tyr Gly Arg Glu Glu Ser Asp Trp Thr Ile Val Leu Ser
            340                 345
```

<210> 9482
<211> 398
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1937; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT1; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: P54687; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443459"

<400> 9482

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

Ser	Asn	Gly	Cys	Ser	Ala	Glu	Cys	Thr	Gly	Glu	Gly	Gly	Ser	Lys	Glu
			20					25					30		

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

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

Phe	Thr	Asp	His	Met	Leu	Thr	Val	Glu	Trp	Ser	Ser	Glu	Phe	Gly	Trp
65					70					75					80

Glu	Lys	Pro	His	Ile	Lys	Pro	Leu	Gln	Asn	Leu	Ser	Leu	His	Pro	Gly
				85					90					95	

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

Phe	Arg	Gly	Val	Asp	Asn	Lys	Ile	Arg	Leu	Phe	Gln	Pro	Asn	Leu	Asn
		115					120					125			

Met	Asp	Arg	Met	Tyr	Arg	Ser	Ala	Val	Arg	Ala	Thr	Leu	Pro	Val	Phe

```
    130                 135                 140

Asp Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu Val Lys Leu Asp
145                 150                 155                 160

Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu Tyr Ile Arg Pro
                165                 170                 175

Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys Lys Pro Thr Lys
            180                 185                 190

Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro Tyr Phe Ser Ser
        195                 200                 205

Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro Lys Tyr Val Arg
    210                 215                 220

Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly Gly Asn Tyr Gly
225                 230                 235                 240

Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn Gly Cys Gln Gln
                245                 250                 255

Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr Glu Val Gly Thr
            260                 265                 270

Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly Glu Glu Glu Leu
        275                 280                 285

Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly Val Thr Arg Arg
    290                 295                 300

Cys Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe Lys Val Ser Glu
305                 310                 315                 320

Arg Tyr Leu Thr Met Asp Asp Leu Thr Thr Ala Leu Glu Gly Asn Arg
                325                 330                 335

Val Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val Val Cys Pro Val
            340                 345                 350

Ser Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile Pro Thr Met Glu
        355                 360                 365
```

Asn Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys Leu Thr Asp Ile
370 375 380

Gln Tyr Gly Arg Glu Glu Ser Asp Trp Thr Ile Val Leu Ser
385 390 395

<210> 9483
<211> 225
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1937; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT1; "

<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 1, cytosolic; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481749"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9483
Xaa Lys Ala Phe Arg Gly Val Asp Asn Lys Ile Arg Leu Phe Gln Pro
1 5 10 15

Asn Leu Asn Met Asp Arg Met Tyr Arg Ser Ala Val Arg Ala Thr Leu
20 25 30

Pro Val Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu Val
35 40 45

Lys Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu Tyr
50 55 60

Ile Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys Lys
65 70 75 80

```
Pro Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro Tyr
                85                  90                  95

Phe Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro Lys
            100                 105                 110

Tyr Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly Gly
        115                 120                 125

Asn Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn Gly
    130                 135                 140

Cys Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr Glu
145                 150                 155                 160

Val Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly Glu
                165                 170                 175

Glu Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly Val
            180                 185                 190

Thr Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp Val Gly Ala Phe
        195                 200                 205

Asp Met Asn Asn Phe Cys Lys Pro Glu Ile Lys Asn Asn Gln Asn Lys
    210                 215                 220

Pro
225
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<210> 9484
<211> 392
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "

<220>
<221> source

<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
<221> source
<223> /note="Uniprot ID: O15382; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000322991"

<400> 9484

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Met Ala Ala Ala Ala Leu Gly Gln Ile Trp Ala Arg Lys Leu Leu Ser
1               5                  10                  15

Val Pro Trp Leu Leu Cys Gly Pro Arg Arg Tyr Ala Ser Ser Ser Phe
            20                  25                  30

Lys Ala Ala Asp Leu Gln Leu Glu Met Thr Gln Lys Pro His Lys Lys
        35                  40                  45

Pro Gly Pro Gly Glu Pro Leu Val Phe Gly Lys Thr Phe Thr Asp His
    50                  55                  60

Met Leu Met Val Glu Trp Asn Asp Lys Gly Trp Gly Gln Pro Arg Ile
65                  70                  75                  80

Gln Pro Phe Gln Asn Leu Thr Leu His Pro Ala Ser Ser Ser Leu His
                85                  90                  95

Tyr Ser Leu Gln Leu Phe Glu Gly Met Lys Ala Phe Lys Gly Lys Asp
            100                 105                 110

Gln Gln Val Arg Leu Phe Arg Pro Trp Leu Asn Met Asp Arg Met Leu
        115                 120                 125

Arg Ser Ala Met Arg Leu Cys Leu Pro Ser Phe Asp Lys Leu Glu Leu
    130                 135                 140

Leu Glu Cys Ile Arg Arg Leu Ile Glu Val Asp Lys Asp Trp Val Pro
145                 150                 155                 160

Asp Ala Ala Gly Thr Ser Leu Tyr Val Arg Pro Val Leu Ile Gly Asn
                165                 170                 175
```

```
Glu Pro Ser Leu Gly Val Ser Gln Pro Thr Arg Ala Leu Leu Phe Val
            180                 185                 190

Ile Leu Cys Pro Val Gly Ala Tyr Phe Pro Gly Gly Ser Val Thr Pro
        195                 200                 205

Val Ser Leu Leu Ala Asp Pro Ala Phe Ile Arg Ala Trp Val Gly Gly
    210                 215                 220

Val Gly Asn Tyr Lys Leu Gly Gly Asn Tyr Gly Pro Thr Val Leu Val
225                 230                 235                 240

Gln Gln Glu Ala Leu Lys Arg Gly Cys Glu Gln Val Leu Trp Leu Tyr
                245                 250                 255

Gly Pro Asp His Gln Leu Thr Glu Val Gly Thr Met Asn Ile Phe Val
            260                 265                 270

Tyr Trp Thr His Glu Asp Gly Val Leu Glu Leu Val Thr Pro Pro Leu
        275                 280                 285

Asn Gly Val Ile Leu Pro Gly Val Val Arg Gln Ser Leu Leu Asp Met
    290                 295                 300

Ala Gln Thr Trp Gly Glu Phe Arg Val Val Glu Arg Thr Ile Thr Met
305                 310                 315                 320

Lys Gln Leu Leu Arg Ala Leu Glu Glu Gly Arg Val Arg Glu Val Phe
                325                 330                 335

Gly Ser Gly Thr Ala Cys Gln Val Cys Pro Val His Arg Ile Leu Tyr
            340                 345                 350

Lys Asp Arg Asn Leu His Ile Pro Thr Met Glu Asn Gly Pro Glu Leu
        355                 360                 365

Ile Leu Arg Phe Gln Lys Glu Leu Lys Glu Ile Gln Tyr Gly Ile Arg
    370                 375                 380

Ala His Glu Trp Met Phe Pro Val
385                 390
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<210> 9485

<211> 352
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "

<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000385161"

<400> 9485

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Met Thr Gln Lys Pro His Lys Lys Pro Gly Pro Gly Glu Pro Leu Val
1               5                  10                  15

Phe Gly Lys Thr Phe Thr Asp His Met Leu Met Val Glu Trp Asn Asp
            20                  25                  30

Lys Gly Trp Gly Gln Pro Arg Ile Gln Pro Phe Gln Asn Leu Thr Leu
        35                  40                  45

His Pro Ala Ser Ser Ser Leu His Tyr Ser Leu Gln Leu Phe Glu Gly
    50                  55                  60

Met Lys Ala Phe Lys Gly Lys Asp Gln Gln Val Arg Leu Phe Arg Pro
65                  70                  75                  80

Trp Leu Asn Met Asp Arg Met Leu Arg Ser Ala Met Arg Leu Cys Leu
                85                  90                  95

Pro Ser Phe Asp Lys Leu Glu Leu Leu Glu Cys Ile Arg Arg Leu Ile
            100                 105                 110

Glu Val Asp Lys Asp Trp Val Pro Asp Ala Ala Gly Thr Ser Leu Tyr
        115                 120                 125

Val Arg Pro Val Leu Ile Gly Asn Glu Pro Ser Leu Gly Val Ser Gln
    130                 135                 140
```

```
Pro Thr Arg Ala Leu Leu Phe Val Ile Leu Cys Pro Val Gly Ala Tyr
145                 150                 155                 160

Phe Pro Gly Gly Ser Val Thr Pro Val Ser Leu Leu Ala Asp Pro Ala
                165                 170                 175

Phe Ile Arg Ala Trp Val Gly Gly Val Gly Asn Tyr Lys Leu Gly Gly
            180                 185                 190

Asn Tyr Gly Pro Thr Val Leu Val Gln Gln Glu Ala Leu Lys Arg Gly
        195                 200                 205

Cys Glu Gln Val Leu Trp Leu Tyr Gly Pro Asp His Gln Leu Thr Glu
    210                 215                 220

Val Gly Thr Met Asn Ile Phe Val Tyr Trp Thr His Glu Asp Gly Val
225                 230                 235                 240

Leu Glu Leu Val Thr Pro Pro Leu Asn Gly Val Ile Leu Pro Gly Val
                245                 250                 255

Val Arg Gln Ser Leu Leu Asp Met Ala Gln Thr Trp Gly Glu Phe Arg
            260                 265                 270

Val Val Glu Arg Thr Ile Thr Met Lys Gln Leu Leu Arg Ala Leu Glu
        275                 280                 285

Glu Gly Arg Val Arg Glu Val Phe Gly Ser Gly Thr Ala Cys Gln Val
    290                 295                 300

Cys Pro Val His Arg Ile Leu Tyr Lys Asp Arg Asn Leu His Ile Pro
305                 310                 315                 320

Thr Met Glu Asn Gly Pro Glu Leu Ile Leu Arg Phe Gln Lys Glu Leu
                325                 330                 335

Lys Glu Ile Gln Tyr Gly Ile Arg Ala His Glu Trp Met Phe Pro Val
            340                 345                 350
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<210> 9486
<211> 300
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "

<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
<221> source
<223> /note="Uniprot ID: O15382; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440973"

<400> 9486

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

```
Trp Val Gly Gly Val Gly Asn Tyr Lys Leu Gly Gly Asn Tyr Gly Pro
    130                 135                 140

Thr Val Leu Val Gln Gln Glu Ala Leu Lys Arg Gly Cys Glu Gln Val
145                 150                 155                 160

Leu Trp Leu Tyr Gly Pro Asp His Gln Leu Thr Glu Val Gly Thr Met
                165                 170                 175

Asn Ile Phe Val Tyr Trp Thr His Glu Asp Gly Val Leu Glu Leu Val
            180                 185                 190

Thr Pro Pro Leu Asn Gly Val Ile Leu Pro Gly Val Val Arg Gln Ser
        195                 200                 205

Leu Leu Asp Met Ala Gln Thr Trp Gly Glu Phe Arg Val Val Glu Arg
    210                 215                 220

Thr Ile Thr Met Lys Gln Leu Leu Arg Ala Leu Glu Glu Gly Arg Val
225                 230                 235                 240

Arg Glu Val Phe Gly Ser Gly Thr Ala Cys Gln Val Cys Pro Val His
                245                 250                 255

Arg Ile Leu Tyr Lys Asp Arg Asn Leu His Ile Pro Thr Met Glu Asn
            260                 265                 270

Gly Pro Glu Leu Ile Leu Arg Phe Gln Lys Glu Leu Lys Glu Ile Gln
        275                 280                 285

Tyr Gly Ile Arg Ala His Glu Trp Met Phe Pro Val
    290                 295                 300


<210> 9487
<211> 445
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "
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<220>
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<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
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<223> /note="ENSP ID: ENSP00000469139"

<400> 9487
Ile Trp Ala Arg Lys Leu Leu Ser Val Pro Trp Leu Leu Cys Gly Pro
1 5 10 15

Arg Arg Tyr Ala Ser Ser Ser Phe Lys Ala Ala Asp Leu Gln Leu Glu
20 25 30

Met Thr Gln Lys Pro His Lys Lys Pro Gly Pro Gly Glu Pro Leu Val
35 40 45

Phe Gly Lys Thr Phe Thr Asp His Met Leu Met Val Glu Trp Asn Asp
50 55 60

Lys Gly Trp Gly Gln Pro Arg Ile Gln Pro Phe Gln Asn Leu Thr Leu
65 70 75 80

His Pro Ala Ser Ser Ser Leu His Tyr Ser Leu Gln Leu Phe Glu Gly
85 90 95

Met Lys Ala Phe Lys Gly Lys Asp Gln Gln Val Arg Leu Phe Arg Pro
100 105 110

Trp Leu Asn Met Asp Arg Met Leu Arg Ser Ala Met Arg Leu Cys Leu
115 120 125

Pro Ser Phe Asp Lys Leu Glu Leu Leu Glu Cys Ile Arg Arg Leu Ile
130 135 140

Glu Val Asp Lys Asp Trp Val Pro Asp Ala Ala Gly Thr Ser Leu Tyr
145 150 155 160

Val Arg Pro Val Leu Ile Gly Asn Glu Pro Ser Leu Gly Val Ser Gln
165 170 175

Pro Thr Arg Ala Leu Leu Phe Val Ile Leu Cys Pro Val Gly Ala Tyr
180 185 190

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

Phe Ile Arg Ala Trp Val Gly Gly Val Gly Asn Tyr Lys Leu Gly Gly
    210                 215                 220

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

Cys Glu Gln Val Leu Trp Leu Tyr Gly Pro Asp His Gln Leu Thr Glu
                245                 250                 255

Val Gly Thr Met Asn Ile Phe Val Tyr Trp Thr His Glu Asp Gly Val
            260                 265                 270

Leu Glu Leu Val Thr Pro Pro Leu Asn Gly Val Ile Leu Pro Gly Val
        275                 280                 285

Val Arg Gln Ser Leu Leu Asp Met Ala Gln Thr Trp Gly Glu Phe Arg
    290                 295                 300

Val Val Glu Arg Thr Ile Thr Met Lys Gln Leu Leu Arg Ala Leu Glu
305                 310                 315                 320

Glu Gly Arg Val Arg Glu Val Phe Gly Ser Gly Thr Ala Cys Gln Val
                325                 330                 335

Cys Pro Val His Arg Ile Leu Tyr Lys Asp Arg Asn Leu His Ile Pro
            340                 345                 350

Thr Met Glu Asn Gly Pro Glu Leu Ile Leu Arg Phe Gln Lys Glu Leu
        355                 360                 365

Lys Glu Ile Gln Tyr Gln Glu Gln Ile Met Ala Phe Leu Ile Glu Ala
    370                 375                 380

Leu Glu Ser Gly Leu Ser Val Leu Leu Cys Gly Leu Glu Asn Pro Leu
385                 390                 395                 400

Gly Leu Asn His Pro Phe Leu Gly Ala Pro Gly Ala Leu Asp Met Ser
                405                 410                 415
```

Ser Ala Leu Glu Thr Pro Ser Cys Asp Pro Leu Arg Leu Leu Gly Ala
420 425 430

Leu Tyr Gly Ile Arg Ala His Glu Trp Met Phe Pro Val
435 440 445

<210> 9488
<211> 352
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "

<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000469651"

<400> 9488
Met Thr Gln Lys Pro His Lys Lys Pro Gly Pro Gly Glu Pro Leu Val
1 5 10 15

Phe Gly Lys Thr Phe Thr Asp His Met Leu Met Val Glu Trp Asn Asp
20 25 30

Lys Gly Trp Gly Gln Pro Arg Ile Gln Pro Phe Gln Asn Leu Thr Leu
35 40 45

His Pro Ala Ser Ser Ser Leu His Tyr Ser Leu Gln Leu Phe Glu Gly
50 55 60

Met Lys Ala Phe Lys Gly Lys Asp Gln Gln Val Arg Leu Phe Arg Pro
65 70 75 80

Trp Leu Asn Met Asp Arg Met Leu Arg Ser Ala Met Arg Leu Cys Leu
85 90 95

```
Pro Ser Phe Asp Lys Leu Glu Leu Leu Glu Cys Ile Arg Arg Leu Ile
            100                 105                 110

Glu Val Asp Lys Asp Trp Val Pro Asp Ala Ala Gly Thr Ser Leu Tyr
        115                 120                 125

Val Arg Pro Val Leu Ile Gly Asn Glu Pro Ser Leu Gly Val Ser Gln
    130                 135                 140

Pro Thr Arg Ala Leu Leu Phe Val Ile Leu Cys Pro Val Gly Ala Tyr
145                 150                 155                 160

Phe Pro Gly Gly Ser Val Thr Pro Val Ser Leu Leu Ala Asp Pro Ala
                165                 170                 175

Phe Ile Arg Ala Trp Val Gly Gly Val Gly Asn Tyr Lys Leu Gly Gly
            180                 185                 190

Asn Tyr Gly Pro Thr Val Leu Val Gln Gln Glu Ala Leu Lys Arg Gly
        195                 200                 205

Cys Glu Gln Val Leu Trp Leu Tyr Gly Pro Asp His Gln Leu Thr Glu
    210                 215                 220

Val Gly Thr Met Asn Ile Phe Val Tyr Trp Thr His Glu Asp Gly Val
225                 230                 235                 240

Leu Glu Leu Val Thr Pro Pro Leu Asn Gly Val Ile Leu Pro Gly Val
                245                 250                 255

Val Arg Gln Ser Leu Leu Asp Met Ala Gln Thr Trp Gly Glu Phe Arg
            260                 265                 270

Val Val Glu Arg Thr Ile Thr Met Lys Gln Leu Leu Arg Ala Leu Glu
        275                 280                 285

Glu Gly Arg Val Arg Glu Val Phe Gly Ser Gly Thr Ala Cys Gln Val
    290                 295                 300

Cys Pro Val His Arg Ile Leu Tyr Lys Asp Arg Asn Leu His Ile Pro
305                 310                 315                 320

Thr Met Glu Asn Gly Pro Glu Leu Ile Leu Arg Phe Gln Lys Glu Leu
```

325 330 335

Lys Glu Ile Gln Tyr Gly Ile Arg Ala His Glu Trp Met Phe Pro Val
340 345 350

<210> 9489
<211> 405
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "

<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470216"

<400> 9489
Met Ala Ala Ala Ala Leu Gly Gln Ile Trp Ala Arg Lys Leu Leu Ser
1 5 10 15

Val Pro Trp Leu Leu Cys Gly Pro Arg Arg Tyr Ala Ser Ser Ser Phe
20 25 30

Lys Ala Ala Asp Leu Gln Leu Glu Met Thr Gln Lys Pro His Lys Lys
35 40 45

Pro Gly Pro Gly Glu Pro Leu Val Phe Gly Lys Thr Phe Thr Asp His
50 55 60

Met Leu Met Val Glu Trp Asn Asp Lys Gly Trp Gly Gln Pro Arg Ile
65 70 75 80

Gln Pro Phe Gln Asn Leu Thr Leu His Pro Ala Ser Ser Ser Leu His
85 90 95

Tyr Ser Leu Gln Leu Phe Glu Gly Met Lys Ala Phe Lys Gly Lys Asp
100 105 110

```
Gln Gln Val Arg Leu Phe Arg Pro Trp Leu Asn Met Asp Arg Met Leu
        115                 120                 125

Arg Ser Ala Met Arg Leu Cys Leu Pro Ser Phe Asp Lys Leu Glu Leu
    130                 135                 140

Leu Glu Cys Ile Arg Arg Leu Ile Glu Val Asp Lys Asp Trp Val Pro
145                 150                 155                 160

Asp Ala Ala Gly Thr Ser Leu Tyr Val Arg Pro Val Leu Ile Gly Asn
                165                 170                 175

Glu Pro Ser Leu Gly Val Ser Gln Pro Thr Arg Ala Leu Leu Phe Val
            180                 185                 190

Ile Leu Cys Pro Val Gly Ala Tyr Phe Pro Gly Gly Ser Val Thr Pro
        195                 200                 205

Val Ser Leu Leu Ala Asp Pro Ala Phe Ile Arg Ala Trp Val Gly Gly
    210                 215                 220

Val Gly Asn Tyr Lys Leu Gly Gly Asn Tyr Gly Pro Thr Val Leu Val
225                 230                 235                 240

Gln Gln Glu Ala Leu Lys Arg Gly Cys Glu Gln Val Leu Trp Leu Tyr
                245                 250                 255

Gly Pro Asp His Gln Leu Thr Glu Val Gly Thr Met Asn Ile Phe Val
            260                 265                 270

Tyr Trp Thr His Glu Asp Gly Val Leu Glu Leu Val Thr Pro Pro Leu
        275                 280                 285

Asn Gly Val Ile Leu Pro Gly Val Val Arg Gln Ser Leu Leu Asp Met
    290                 295                 300

Ala Gln Thr Trp Gly Glu Phe Arg Val Val Glu Arg Thr Ile Thr Met
305                 310                 315                 320

Lys Gln Leu Leu Arg Ala Leu Glu Glu Gly Arg Val Arg Glu Val Phe
                325                 330                 335
```

```
Gly Ser Gly Thr Ala Cys Gln Val Cys Pro Val His Arg Ile Leu Tyr
            340                 345                 350

Lys Asp Arg Asn Leu His Ile Pro Thr Met Glu Asn Gly Pro Glu Leu
        355                 360                 365

Ile Leu Arg Phe Gln Lys Glu Leu Lys Glu Ile Gln Val Ser Cys Arg
    370                 375                 380

Glu Leu Gly Asn Gly Leu Gly Ala Cys Ser Leu Glu Lys Leu Val Ser
385                 390                 395                 400

His Glu Pro Leu Asp
                405
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<210> 9490
<211> 313
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "

<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470680"

<400> 9490

```
Met Ala Ala Ala Ala Leu Gly Gln Leu Phe Glu Gly Met Lys Ala Phe
1               5                   10                  15

Lys Gly Lys Asp Gln Gln Val Arg Leu Phe Arg Pro Trp Leu Asn Met
            20                  25                  30

Asp Arg Met Leu Arg Ser Ala Met Arg Leu Cys Leu Pro Ser Phe Asp
        35                  40                  45
```

```
Lys Leu Glu Leu Leu Glu Cys Ile Arg Arg Leu Ile Glu Val Asp Lys
    50                  55                  60

Asp Trp Val Pro Asp Ala Ala Gly Thr Ser Leu Tyr Val Arg Pro Val
65                  70                  75                  80

Leu Ile Gly Asn Glu Pro Ser Leu Gly Val Ser Gln Pro Thr Arg Ala
                85                  90                  95

Leu Leu Phe Val Ile Leu Cys Pro Val Gly Ala Tyr Phe Pro Gly Gly
            100                 105                 110

Ser Val Thr Pro Val Ser Leu Leu Ala Asp Pro Ala Phe Ile Arg Ala
        115                 120                 125

Trp Val Gly Gly Val Gly Asn Tyr Lys Leu Gly Gly Asn Tyr Gly Pro
    130                 135                 140

Thr Val Leu Val Gln Gln Glu Ala Leu Lys Arg Gly Cys Glu Gln Val
145                 150                 155                 160

Leu Trp Leu Tyr Gly Pro Asp His Gln Leu Thr Glu Val Gly Thr Met
                165                 170                 175

Asn Ile Phe Val Tyr Trp Thr His Glu Asp Gly Val Leu Glu Leu Val
            180                 185                 190

Thr Pro Pro Leu Asn Gly Val Ile Leu Pro Gly Val Val Arg Gln Ser
        195                 200                 205

Leu Leu Asp Met Ala Gln Thr Trp Gly Glu Phe Arg Val Val Glu Arg
    210                 215                 220

Thr Ile Thr Met Lys Gln Leu Leu Arg Ala Leu Glu Glu Gly Arg Val
225                 230                 235                 240

Arg Glu Val Phe Gly Ser Gly Thr Ala Cys Gln Val Cys Pro Val His
                245                 250                 255

Arg Ile Leu Tyr Lys Asp Arg Asn Leu His Ile Pro Thr Met Glu Asn
            260                 265                 270

Gly Pro Glu Leu Ile Leu Arg Phe Gln Lys Glu Leu Lys Glu Ile Gln
```

275 280 285

Val Ser Cys Arg Glu Leu Gly Asn Gly Leu Gly Ala Cys Ser Leu Glu
290 295 300

Lys Leu Val Ser His Glu Pro Leu Asp
305 310

<210> 9491
<211> 108
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1938; "

<220>
<221> source
<223> /note="Gene Symbol: BCAT2; "

<220>
<221> source
<223> /note="Gene Name:
branched chain amino-acid transaminase 2,
mitochondrial; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472641"

<400> 9491
Met Thr Gln Lys Pro His Lys Lys Pro Gly Pro Gly Glu Pro Leu Val
1 5 10 15

Phe Gly Lys Thr Phe Thr Asp His Met Leu Met Val Glu Trp Asn Asp
20 25 30

Lys Gly Trp Gly Gln Pro Arg Ile Gln Pro Phe Gln Asn Leu Thr Leu
35 40 45

His Pro Ala Ser Ser Ser Leu His Tyr Ser Leu Gln Leu Phe Glu Gly
50 55 60

Met Lys Ala Phe Lys Gly Lys Asp Gln Gln Val Arg Leu Phe Arg Pro
65 70 75 80

Trp Leu Asn Met Asp Arg Met Leu Arg Ser Ala Met Arg Leu Cys Leu
85 90 95

```
Pro Ser Phe Asp Lys Leu Glu Leu Leu Glu Cys Ile
            100                 105


<210> 9492
<211> 445
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1939; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHA; "

<220>
<221> source
<223> /note="Gene Name:
      branched chain keto acid dehydrogenase E1, alpha
      polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID:  P12694; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000269980"

<400> 9492
Met Ala Val Ala Ile Ala Ala Ala Arg Val Trp Arg Leu Asn Arg Gly
1               5                  10                  15


Leu Ser Gln Ala Ala Leu Leu Leu Leu Arg Gln Pro Gly Ala Arg Gly
            20                  25                  30


Leu Ala Arg Ser His Pro Pro Arg Gln Gln Gln Phe Ser Ser Leu
        35                  40                  45


Asp Asp Lys Pro Gln Phe Pro Gly Ala Ser Ala Glu Phe Ile Asp Lys
    50                  55                  60


Leu Glu Phe Ile Gln Pro Asn Val Ile Ser Gly Ile Pro Ile Tyr Arg
65                  70                  75                  80


Val Met Asp Arg Gln Gly Gln Ile Ile Asn Pro Ser Glu Asp Pro His
                85                  90                  95
```

```
Leu Pro Lys Glu Lys Val Leu Lys Leu Tyr Lys Ser Met Thr Leu Leu
            100                 105                 110

Asn Thr Met Asp Arg Ile Leu Tyr Glu Ser Gln Arg Gln Gly Arg Ile
        115                 120                 125

Ser Phe Tyr Met Thr Asn Tyr Gly Glu Glu Gly Thr His Val Gly Ser
    130                 135                 140

Ala Ala Ala Leu Asp Asn Thr Asp Leu Val Phe Gly Gln Tyr Arg Glu
145                 150                 155                 160

Ala Gly Val Leu Met Tyr Arg Asp Tyr Pro Leu Glu Leu Phe Met Ala
                165                 170                 175

Gln Cys Tyr Gly Asn Ile Ser Asp Leu Gly Lys Gly Arg Gln Met Pro
            180                 185                 190

Val His Tyr Gly Cys Lys Glu Arg His Phe Val Thr Ile Ser Ser Pro
        195                 200                 205

Leu Ala Thr Gln Ile Pro Gln Ala Val Gly Ala Ala Tyr Ala Ala Lys
    210                 215                 220

Arg Ala Asn Ala Asn Arg Val Val Ile Cys Tyr Phe Gly Glu Gly Ala
225                 230                 235                 240

Ala Ser Glu Gly Asp Ala His Ala Gly Phe Asn Phe Ala Ala Thr Leu
                245                 250                 255

Glu Cys Pro Ile Ile Phe Phe Cys Arg Asn Asn Gly Tyr Ala Ile Ser
            260                 265                 270

Thr Pro Thr Ser Glu Gln Tyr Arg Gly Asp Gly Ile Ala Ala Arg Gly
        275                 280                 285

Pro Gly Tyr Gly Ile Met Ser Ile Arg Val Asp Gly Asn Asp Val Phe
    290                 295                 300

Ala Val Tyr Asn Ala Thr Lys Glu Ala Arg Arg Arg Ala Val Ala Glu
305                 310                 315                 320
```

```
Asn Gln Pro Phe Leu Ile Glu Ala Met Thr Tyr Arg Ile Gly His His
                325                 330                 335

Ser Thr Ser Asp Asp Ser Ser Ala Tyr Arg Ser Val Asp Glu Val Asn
            340                 345                 350

Tyr Trp Asp Lys Gln Asp His Pro Ile Ser Arg Leu Arg His Tyr Leu
        355                 360                 365

Leu Ser Gln Gly Trp Trp Asp Glu Glu Gln Glu Lys Ala Trp Arg Lys
    370                 375                 380

Gln Ser Arg Arg Lys Val Met Glu Ala Phe Glu Gln Ala Glu Arg Lys
385                 390                 395                 400

Pro Lys Pro Asn Pro Asn Leu Leu Phe Ser Asp Val Tyr Gln Glu Met
                405                 410                 415

Pro Ala Gln Leu Arg Lys Gln Gln Glu Ser Leu Ala Arg His Leu Gln
            420                 425                 430

Thr Tyr Gly Glu His Tyr Pro Leu Asp His Phe Asp Lys
        435                 440                 445


<210> 9493
<211> 448
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1939; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHA; "

<220>
<221> source
<223> /note="Gene Name:
      branched chain keto acid dehydrogenase E1, alpha
      polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID:  P12694; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000416000"

<400> 9493

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Met Ala Val Ala Ile Ala Ala Ala Arg Val Trp Arg Leu Asn Arg Gly
1               5                  10                  15

Leu Ser Gln Gln Gln Gln Phe Ser Ser Leu Asp Asp Lys Pro Gln Phe
            20                  25                  30

Pro Gly Ala Ser Ala Glu Phe Ile Asp Lys Leu Glu Phe Ile Gln Pro
        35                  40                  45

Asn Val Ile Ser Gly Ile Pro Ile Tyr Arg Val Met Asp Arg Gln Gly
    50                  55                  60

Gln Ile Ile Asn Pro Ser Glu Asp Pro His Leu Pro Lys Glu Lys Val
65                  70                  75                  80

Leu Lys Leu Tyr Lys Ser Met Thr Leu Leu Asn Thr Met Asp Arg Ile
                85                  90                  95

Leu Tyr Glu Ser Gln Arg Gln Gly Arg Ile Ser Phe Tyr Met Thr Asn
            100                 105                 110

Tyr Gly Glu Glu Gly Thr His Val Gly Ser Ala Ala Ala Leu Asp Asn
        115                 120                 125

Thr Asp Leu Val Phe Gly Gln Tyr Arg Glu Ala Gly Val Leu Met Tyr
    130                 135                 140

Arg Asp Tyr Pro Leu Glu Leu Phe Met Ala Gln Cys Tyr Gly Asn Ile
145                 150                 155                 160

Ser Asp Leu Gly Lys Gly Arg Gln Met Pro Val His Tyr Gly Cys Lys
                165                 170                 175

Glu Arg His Phe Val Thr Ile Ser Ser Pro Leu Ala Thr Gln Ile Pro
            180                 185                 190

Gln Ala Val Gly Ala Ala Tyr Ala Ala Lys Arg Ala Asn Ala Asn Arg
        195                 200                 205

Val Val Ile Cys Tyr Phe Gly Glu Gly Ala Ala Ser Glu Gly Asp Ala
    210                 215                 220
```

```
His Ala Gly Phe Asn Phe Ala Ala Thr Leu Glu Cys Pro Ile Ile Phe
225                 230                 235                 240

Phe Cys Arg Asn Asn Gly Tyr Ala Ile Ser Thr Pro Thr Ser Glu Gln
                245                 250                 255

Tyr Arg Gly Asp Gly Ile Ala Ala Arg Gly Pro Gly Tyr Gly Ile Met
            260                 265                 270

Ser Ile Arg Val Asp Gly Asn Asp Val Phe Ala Val Tyr Asn Ala Thr
        275                 280                 285

Lys Glu Ala Arg Arg Arg Ala Val Ala Glu Asn Gln Pro Phe Leu Ile
    290                 295                 300

Glu Ala Met Thr Tyr Ser Ser Ser Pro Ile Leu Pro Pro Asp Pro His
305                 310                 315                 320

Ser Arg Glu Pro Thr Leu Thr Trp Gly Pro Leu Pro Leu Cys Arg Ile
                325                 330                 335

Gly His His Ser Thr Ser Asp Asp Ser Ser Ala Tyr Arg Ser Val Asp
            340                 345                 350

Glu Val Asn Tyr Trp Asp Lys Gln Asp His Pro Ile Ser Arg Leu Arg
        355                 360                 365

His Tyr Leu Leu Ser Gln Gly Trp Trp Asp Glu Glu Gln Glu Lys Ala
    370                 375                 380

Trp Arg Lys Gln Ser Arg Arg Lys Val Met Glu Ala Phe Glu Gln Ala
385                 390                 395                 400

Glu Arg Lys Pro Lys Pro Asn Pro Asn Leu Leu Phe Ser Asp Val Tyr
                405                 410                 415

Gln Glu Met Pro Ala Gln Leu Arg Lys Gln Gln Glu Ser Leu Ala Arg
            420                 425                 430

His Leu Gln Thr Tyr Gly Glu His Tyr Pro Leu Asp His Phe Asp Lys
        435                 440                 445
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<210> 9494
<211> 328
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1939; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHA; "

<220>
<221> source
<223> /note="Gene Name:
branched chain keto acid dehydrogenase E1, alpha
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440345"

<400> 9494

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Met Ala Val Ala Ile Ala Ala Ala Arg Val Trp Arg Leu Asn Arg Gly
1               5                   10                  15

Leu Ser Gln Ala Ala Leu Leu Leu Leu Arg Gln Pro Gly Ala Arg Gly
            20                  25                  30

Leu Ala Arg Ser His Pro Pro Arg Gln Gln Gln Gln Phe Ser Ser Leu
        35                  40                  45

Asp Asp Lys Pro Gln Phe Pro Gly Ala Ser Ala Glu Phe Ile Asp Lys
    50                  55                  60

Leu Glu Phe Ile Gln Pro Asn Val Ile Ser Gly Ile Pro Ile Tyr Arg
65                  70                  75                  80

Val Met Asp Arg Gln Gly Gln Ile Ile Asn Pro Ser Glu Asp Pro His
                85                  90                  95

Gly Arg Ile Ser Phe Tyr Met Thr Asn Tyr Gly Glu Glu Gly Thr His
            100                 105                 110

Val Gly Ser Ala Ala Ala Leu Asp Asn Thr Asp Leu Val Phe Gly Gln
        115                 120                 125
```

```
Tyr Arg Glu Ala Gly Val Leu Met Tyr Arg Asp Tyr Pro Leu Glu Leu
    130                 135                 140

Phe Met Ala Gln Cys Tyr Gly Asn Ile Ser Asp Leu Gly Lys Gly Arg
145                 150                 155                 160

Gln Met Pro Val His Tyr Gly Cys Lys Glu Arg His Phe Val Thr Ile
                165                 170                 175

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

Ala Ala Lys Arg Ala Asn Ala Asn Arg Val Val Ile Cys Tyr Phe Gly
        195                 200                 205

Glu Gly Ala Ala Ser Glu Gly Asp Ala His Ala Gly Phe Asn Phe Ala
    210                 215                 220

Ala Thr Leu Glu Cys Pro Ile Ile Phe Phe Cys Arg Asn Asn Gly Tyr
225                 230                 235                 240

Ala Ile Ser Thr Pro Thr Ser Glu Gln Tyr Arg Gly Asp Gly Ile Ala
                245                 250                 255

Ala Arg Gly Pro Gly Tyr Gly Ile Met Ser Ile Arg Val Asp Gly Asn
            260                 265                 270

Asp Val Phe Ala Val Tyr Asn Ala Thr Lys Glu Ala Arg Arg Arg Ala
        275                 280                 285

Val Ala Glu Asn Gln Pro Phe Leu Ile Glu Ala Met Thr Tyr Arg Ile
    290                 295                 300

Gly His His Ser Thr Ser Asp Asp Ser Ser Ala Tyr Arg Ser Val Asp
305                 310                 315                 320

Glu Val Asn Tyr Trp Asp Lys Gln
                325
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<210> 9495
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1939; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHA; "

<220>
<221> source
<223> /note="Gene Name:
branched chain keto acid dehydrogenase E1, alpha
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445727"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9495
Xaa Ser Gln Gly Trp Trp Asp Glu Glu Gln Glu Lys Ala Trp Arg Lys
1 5 10 15

Gln Ser Arg Arg Lys Thr Cys Ile Arg Arg Cys Pro Pro Ser Ser Ala
20 25 30

Ser Ser Arg Ser Leu Trp Pro Ala Thr Cys Arg Pro Thr Gly Ser Thr
35 40 45

Thr His Trp Ile Thr Ser Ile Ser Glu Thr Cys Ser Ala His Pro His
50 55 60

Pro Ser Ser Ala Thr Pro Arg Gly Ser Pro Thr Leu Arg Gly Ala Gly
65 70 75 80

Gly Pro Asp Ser Thr Pro Leu Ser Ser Pro Val Ser Ser Leu
85 90

<210> 9496
<211> 211
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1939; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHA; "

<220>
<221> source
<223> /note="Gene Name:
branched chain keto acid dehydrogenase E1, alpha
polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445809"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9496

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Xaa Glu Phe Ile Gln Pro Asn Val Ile Ser Gly Ile Pro Ile Tyr Arg
1               5                  10                  15

Val Met Asp Arg Gln Gly Gln Ile Ile Asn Pro Ser Glu Asp Pro His
            20                  25                  30

Leu Pro Lys Glu Lys Val Leu Lys Leu Tyr Lys Ser Met Thr Leu Leu
        35                  40                  45

Asn Thr Met Asp Arg Ile Leu Tyr Glu Ser Gln Arg Gln Gly Arg Ile
    50                  55                  60

Ser Phe Tyr Met Thr Asn Tyr Gly Glu Glu Gly Thr His Val Gly Ser
65                  70                  75                  80

Ala Ala Ala Leu Asp Asn Thr Asp Leu Val Phe Gly Gln Tyr Arg Glu
                85                  90                  95

Ala Glu Ala Arg Pro His His Val Ala Gln Ala Gly Leu Gln Leu Leu
            100                 105                 110

Gly Ser Ser Asp Pro Pro Thr Ser Ala Ser Gln Ser Ala Gly Ile Thr
        115                 120                 125

Gly Val Leu Met Tyr Arg Asp Tyr Pro Leu Glu Leu Phe Met Ala Gln
    130                 135                 140
```

```
Cys Tyr Gly Asn Ile Ser Asp Leu Gly Lys Gly Arg Gln Met Pro Val
145                 150                 155                 160


His Tyr Gly Cys Lys Glu Arg His Phe Val Thr Ile Ser Ser Pro Leu
                165                 170                 175


Ala Thr Gln Ile Pro Gln Ala Val Gly Ala Ala Tyr Ala Ala Lys Arg
            180                 185                 190


Ala Asn Ala Asn Arg Val Val Ile Cys Tyr Phe Gly Glu Gly Ala Ala
        195                 200                 205


Ser Glu Gly
    210


<210> 9497
<211> 403
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1939; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHA; "

<220>
<221> source
<223> /note="Gene Name:
      branched chain keto acid dehydrogenase E1, alpha
      polypeptide; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000471150"

<400> 9497
Met Ala Val Ala Ile Ala Ala Ala Arg Val Trp Arg Leu Asn Arg Gly
1               5                   10                  15


Leu Ser Gln Ala Ala Leu Leu Leu Leu Arg Gln Pro Gly Ala Arg Gly
            20                  25                  30


Leu Ala Arg Ser His Pro Pro Arg Gln Gln Gln Gln Phe Ser Ser Leu
        35                  40                  45
```

```
Asp Asp Lys Pro Gln Phe Pro Gly Ala Ser Ala Glu Phe Ile Asp Lys
    50                  55                  60

Leu Glu Phe Ile Gln Pro Asn Val Ile Ser Gly Ile Pro Ile Tyr Arg
65                  70                  75                  80

Val Met Asp Arg Gln Gly Gln Ile Ile Asn Pro Ser Glu Asp Pro His
                85                  90                  95

Leu Pro Lys Glu Lys Val Leu Lys Leu Tyr Lys Ser Met Thr Leu Leu
            100                 105                 110

Asn Thr Met Asp Arg Ile Leu Tyr Glu Ser Gln Arg Gln Gly Arg Ile
        115                 120                 125

Ser Phe Tyr Met Thr Asn Tyr Gly Glu Glu Gly Thr His Val Gly Ser
    130                 135                 140

Ala Ala Ala Leu Asp Asn Thr Asp Leu Val Phe Gly Gln Tyr Arg Glu
145                 150                 155                 160

Ala Gly Val Leu Met Tyr Arg Asp Tyr Pro Leu Glu Leu Phe Met Ala
                165                 170                 175

Gln Cys Tyr Gly Asn Ile Ser Asp Leu Gly Lys Gly Arg Gln Met Pro
            180                 185                 190

Val His Tyr Gly Cys Lys Glu Arg His Phe Val Thr Ile Ser Ser Pro
        195                 200                 205

Leu Ala Thr Gln Ile Pro Gln Ala Val Gly Ala Ala Tyr Ala Ala Lys
    210                 215                 220

Arg Ala Asn Ala Asn Arg Val Val Ile Cys Tyr Phe Gly Glu Gly Ala
225                 230                 235                 240

Ala Ser Glu Gly Asp Ala His Ala Gly Phe Asn Phe Ala Ala Thr Leu
                245                 250                 255

Glu Cys Pro Ile Ile Phe Phe Cys Arg Asn Asn Gly Tyr Ala Ile Ser
            260                 265                 270

Thr Pro Thr Ser Glu Gln Tyr Arg Gly Asp Gly Ile Ala Ala Arg Gly
```

```
        275                 280                 285

Pro Gly Tyr Gly Ile Met Ser Ile Arg Val Asp Gly Asn Asp Val Phe
    290                 295                 300

Ala Val Tyr Thr Ala Thr Gly Gly Pro Lys Ala Arg Ala Ser Val Gly
305                 310                 315                 320

Pro Ser Ser Pro Ser Thr Thr Gly Thr Cys Gly Ile Met Met Pro Leu
                325                 330                 335

His Ala Met Gly Leu Trp His Pro Val Ser His Gln Gln Glu Leu Ser
            340                 345                 350

Ala Ala Pro Lys Pro Lys Gly Thr Thr Lys Pro Ile Leu Glu Ser Tyr
        355                 360                 365

Leu Lys Ser His Leu Leu Gly His Ser Arg Tyr Gln Leu Tyr Ile His
    370                 375                 380

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

Ser Leu Ile
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<210> 9498
<211> 392
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1940; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHB; "

<220>
<221> source
<223> /note="Gene Name:
branched chain keto acid dehydrogenase E1, beta
polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID: P21953; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000318351"

<400> 9498
Met Ala Val Val Ala Ala Ala Ala Gly Trp Leu Leu Arg Leu Arg Ala
1   5   10   15

Ala Gly Ala Glu Gly His Trp Arg Arg Leu Pro Gly Ala Gly Leu Ala
            20   25   30

Arg Gly Phe Leu His Pro Ala Ala Thr Val Glu Asp Ala Ala Gln Arg
        35   40   45

Arg Gln Val Ala His Phe Thr Phe Gln Pro Asp Pro Glu Pro Arg Glu
    50   55   60

Tyr Gly Gln Thr Gln Lys Met Asn Leu Phe Gln Ser Val Thr Ser Ala
65   70   75   80

Leu Asp Asn Ser Leu Ala Lys Asp Pro Thr Ala Val Ile Phe Gly Glu
                85   90   95

Asp Val Ala Phe Gly Gly Val Phe Arg Cys Thr Val Gly Leu Arg Asp
            100   105   110

Lys Tyr Gly Lys Asp Arg Val Phe Asn Thr Pro Leu Cys Glu Gln Gly
        115   120   125

Ile Val Gly Phe Gly Ile Gly Ile Ala Val Thr Gly Ala Thr Ala Ile
    130   135   140

Ala Glu Ile Gln Phe Ala Asp Tyr Ile Phe Pro Ala Phe Asp Gln Ile
145   150   155   160

Val Asn Glu Ala Ala Lys Tyr Arg Tyr Arg Ser Gly Asp Leu Phe Asn
                165   170   175

Cys Gly Ser Leu Thr Ile Arg Ser Pro Trp Gly Cys Val Gly His Gly
            180   185   190

Ala Leu Tyr His Ser Gln Ser Pro Glu Ala Phe Phe Ala His Cys Pro
        195   200   205

```
Gly Ile Lys Val Val Ile Pro Arg Ser Pro Phe Gln Ala Lys Gly Leu
    210                 215                 220

Leu Leu Ser Cys Ile Glu Asp Lys Asn Pro Cys Ile Phe Phe Glu Pro
225                 230                 235                 240

Lys Ile Leu Tyr Arg Ala Ala Ala Glu Glu Val Pro Ile Glu Pro Tyr
                245                 250                 255

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

Thr Leu Val Ala Trp Gly Thr Gln Val His Val Ile Arg Glu Val Ala
        275                 280                 285

Ser Met Ala Lys Glu Lys Leu Gly Val Ser Cys Glu Val Ile Asp Leu
    290                 295                 300

Arg Thr Ile Ile Pro Trp Asp Val Asp Thr Ile Cys Lys Ser Val Ile
305                 310                 315                 320

Lys Thr Gly Arg Leu Leu Ile Ser His Glu Ala Pro Leu Thr Gly Gly
                325                 330                 335

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

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

His Ile Phe Glu Pro Phe Tyr Ile Pro Asp Lys Trp Lys Cys Tyr Asp
    370                 375                 380

Ala Leu Arg Lys Met Ile Asn Tyr
385                 390


<210> 9499
<211> 392
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1940; "
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<220>
<221> source
<223> /note="Gene Symbol: BCKDHB; "

<220>
<221> source
<223> /note="Gene Name:
branched chain keto acid dehydrogenase E1, beta
polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID: P21953; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348880"

<400> 9499
Met Ala Val Val Ala Ala Ala Ala Gly Trp Leu Leu Arg Leu Arg Ala
1   5   10   15

Ala Gly Ala Glu Gly His Trp Arg Arg Leu Pro Gly Ala Gly Leu Ala
            20   25   30

Arg Gly Phe Leu His Pro Ala Ala Thr Val Glu Asp Ala Ala Gln Arg
        35   40   45

Arg Gln Val Ala His Phe Thr Phe Gln Pro Asp Pro Glu Pro Arg Glu
    50   55   60

Tyr Gly Gln Thr Gln Lys Met Asn Leu Phe Gln Ser Val Thr Ser Ala
65   70   75   80

Leu Asp Asn Ser Leu Ala Lys Asp Pro Thr Ala Val Ile Phe Gly Glu
                85   90   95

Asp Val Ala Phe Gly Gly Val Phe Arg Cys Thr Val Gly Leu Arg Asp
            100   105   110

Lys Tyr Gly Lys Asp Arg Val Phe Asn Thr Pro Leu Cys Glu Gln Gly
        115   120   125

Ile Val Gly Phe Gly Ile Gly Ile Ala Val Thr Gly Ala Thr Ala Ile
    130   135   140

Ala Glu Ile Gln Phe Ala Asp Tyr Ile Phe Pro Ala Phe Asp Gln Ile

145 150 155 160

Val Asn Glu Ala Ala Lys Tyr Arg Tyr Arg Ser Gly Asp Leu Phe Asn
165 170 175

Cys Gly Ser Leu Thr Ile Arg Ser Pro Trp Gly Cys Val Gly His Gly
180 185 190

Ala Leu Tyr His Ser Gln Ser Pro Glu Ala Phe Phe Ala His Cys Pro
195 200 205

Gly Ile Lys Val Val Ile Pro Arg Ser Pro Phe Gln Ala Lys Gly Leu
210 215 220

Leu Leu Ser Cys Ile Glu Asp Lys Asn Pro Cys Ile Phe Phe Glu Pro
225 230 235 240

Lys Ile Leu Tyr Arg Ala Ala Ala Glu Glu Val Pro Ile Glu Pro Tyr
245 250 255

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

Thr Leu Val Ala Trp Gly Thr Gln Val His Val Ile Arg Glu Val Ala
275 280 285

Ser Met Ala Lys Glu Lys Leu Gly Val Ser Cys Glu Val Ile Asp Leu
290 295 300

Arg Thr Ile Ile Pro Trp Asp Val Asp Thr Ile Cys Lys Ser Val Ile
305 310 315 320

Lys Thr Gly Arg Leu Leu Ile Ser His Glu Ala Pro Leu Thr Gly Gly
325 330 335

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

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

His Ile Phe Glu Pro Phe Tyr Ile Pro Asp Lys Trp Lys Cys Tyr Asp
370 375 380

```
Ala Leu Arg Lys Met Ile Asn Tyr
385                 390


<210> 9500
<211> 218
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1940; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDHB; "

<220>
<221> source
<223> /note="Gene Name:
      branched chain keto acid dehydrogenase E1, beta
      polypeptide; "

<220>
<221> source
<223> /note="Uniprot ID:  P21953; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358775"

<400> 9500
Met Ala Val Val Ala Ala Ala Ala Gly Trp Leu Leu Arg Leu Arg Ala
1               5                   10                  15


Ala Gly Ala Glu Gly His Trp Arg Arg Leu Pro Gly Ala Gly Leu Ala
            20                  25                  30


Arg Gly Phe Leu His Pro Ala Ala Thr Val Glu Asp Ala Ala Gln Arg
        35                  40                  45


Arg Gln Val Ala His Phe Thr Phe Gln Pro Asp Pro Glu Pro Arg Glu
    50                  55                  60


Tyr Gly Gln Thr Gln Lys Met Asn Leu Phe Gln Ser Val Thr Ser Ala
65                  70                  75                  80


Leu Asp Asn Ser Leu Ala Lys Asp Pro Thr Ala Val Ile Phe Gly Glu
                85                  90                  95
```

```
Asp Val Ala Phe Gly Gly Val Phe Arg Cys Thr Val Gly Leu Arg Asp
            100                 105                 110

Lys Tyr Gly Lys Asp Arg Val Phe Asn Thr Pro Leu Cys Glu Gln Gly
        115                 120                 125

Ile Val Gly Phe Gly Ile Gly Ile Ala Val Thr Gly Ala Thr Ala Ile
    130                 135                 140

Ala Glu Ile Gln Phe Ala Asp Tyr Ile Phe Pro Ala Phe Asp Gln Ile
145                 150                 155                 160

Val Asn Glu Ala Ala Lys Tyr Arg Tyr Arg Ser Gly Asp Leu Phe Asn
                165                 170                 175

Cys Gly Ser Leu Thr Ile Arg Ser Pro Trp Gly Cys Val Gly His Gly
            180                 185                 190

Ala Leu Tyr His Ser Gln Ser Pro Glu Ala Phe Phe Ala His Cys Pro
        195                 200                 205

Gly Ile Lys Ile Lys Val Ile Ser Leu Ser
    210                 215


<210> 9501
<211> 412
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:
      branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="Uniprot ID:  O14874; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000219794"

<400> 9501

```
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1               5                  10                  15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
            20                  25                  30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
        35                  40                  45

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

Lys Pro Ser Val Arg Leu Thr Pro Thr Met Met Leu Tyr Ala Gly Arg
65                  70                  75                  80

Ser Gln Asp Gly Ser His Leu Leu Lys Ser Ala Arg Tyr Leu Gln Gln
                85                  90                  95

Glu Leu Pro Val Arg Ile Ala His Arg Ile Lys Gly Phe Arg Cys Leu
            100                 105                 110

Pro Phe Ile Ile Gly Cys Asn Pro Thr Ile Leu His Val His Glu Leu
        115                 120                 125

Tyr Ile Arg Ala Phe Gln Lys Leu Thr Asp Phe Pro Pro Ile Lys Asp
    130                 135                 140

Gln Ala Asp Glu Ala Gln Tyr Cys Gln Leu Val Arg Gln Leu Leu Asp
145                 150                 155                 160

Asp His Lys Asp Val Val Thr Leu Leu Ala Glu Gly Leu Arg Glu Ser
                165                 170                 175

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

Thr Leu Thr Ser Arg Leu Gly Ile Arg Met Leu Ala Thr His His Leu
        195                 200                 205

Ala Leu His Glu Asp Lys Pro Asp Phe Val Gly Ile Ile Cys Thr Arg
    210                 215                 220
```

Leu Ser Pro Lys Lys Ile Ile Glu Lys Trp Val Asp Phe Ala Arg Arg
225 230 235 240

Leu Cys Glu His Lys Tyr Gly Asn Ala Pro Arg Val Arg Ile Asn Gly
245 250 255

His Val Ala Ala Arg Phe Pro Phe Ile Pro Met Pro Leu Asp Tyr Ile
260 265 270

Leu Pro Glu Leu Leu Lys Asn Ala Met Arg Ala Thr Met Glu Ser His
275 280 285

Leu Asp Thr Pro Tyr Asn Val Pro Asp Val Val Ile Thr Ile Ala Asn
290 295 300

Asn Asp Val Asp Leu Ile Ile Arg Ile Ser Asp Arg Gly Gly Gly Ile
305 310 315 320

Ala His Lys Asp Leu Asp Arg Val Met Asp Tyr His Phe Thr Thr Ala
325 330 335

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

Asp Met His Ser Gly Ala Gln Ser Gly Pro Met His Gly Phe Gly Phe
355 360 365

Gly Leu Pro Thr Ser Arg Ala Tyr Ala Glu Tyr Leu Gly Gly Ser Leu
370 375 380

Gln Leu Gln Ser Leu Gln Gly Ile Gly Thr Asp Val Tyr Leu Arg Leu
385 390 395 400

Arg His Ile Asp Gly Arg Glu Glu Ser Phe Arg Ile
405 410

<210> 9502
<211> 335
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:
branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="Uniprot ID: O14874; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000287507"

<400> 9502

```
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1               5                  10                  15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
            20                  25                  30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
        35                  40                  45

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

Lys Pro Ser Val Arg Leu Thr Pro Thr Met Met Leu Tyr Ala Gly Arg
65                  70                  75                  80

Ser Gln Asp Gly Ser His Leu Leu Lys Ser Ala Arg Tyr Leu Gln Gln
                85                  90                  95

Glu Leu Pro Val Arg Ile Ala His Arg Ile Lys Gly Phe Arg Cys Leu
            100                 105                 110

Pro Phe Ile Ile Gly Cys Asn Pro Thr Ile Leu His Val His Glu Leu
        115                 120                 125

Tyr Ile Arg Ala Phe Gln Lys Leu Thr Asp Phe Pro Pro Ile Lys Asp
    130                 135                 140

Gln Ala Asp Glu Ala Gln Tyr Cys Gln Leu Val Arg Gln Leu Leu Asp
```

```
145                 150                 155                 160

Asp His Lys Asp Val Val Thr Leu Leu Ala Glu Gly Leu Arg Glu Ser
                165                 170                 175

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

Thr Leu Thr Ser Arg Leu Gly Ile Arg Met Leu Ala Thr His His Leu
        195                 200                 205

Ala Leu His Glu Asp Lys Pro Asp Phe Val Gly Ile Ile Cys Thr Arg
    210                 215                 220

Leu Ser Pro Lys Lys Ile Ile Glu Lys Trp Val Asp Phe Ala Arg Arg
225                 230                 235                 240

Leu Cys Glu His Lys Tyr Gly Asn Ala Pro Arg Val Arg Ile Asn Gly
                245                 250                 255

His Val Ala Ala Arg Phe Pro Phe Ile Pro Met Pro Leu Asp Tyr Ile
            260                 265                 270

Leu Pro Glu Leu Leu Lys Asn Ala Met Arg Ile Ser Asp Arg Gly Gly
        275                 280                 285

Gly Ile Ala His Lys Asp Leu Asp Arg Val Met Asp Tyr His Phe Thr
    290                 295                 300

Thr Ala Glu Ala Ser Thr Gln Asp Pro Arg Ile Ser Pro Leu Phe Gly
305                 310                 315                 320

His Leu Asp Met His Ser Gly Ala Gln Ser Gly Pro Met His Gly
                325                 330                 335


<210> 9503
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
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<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
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<223> /note="Gene Name:
branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="Uniprot ID: O14874; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378404"

<400> 9503

```
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1               5                  10                  15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
            20                  25                  30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
        35                  40                  45

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

Lys Pro Ser Val Arg Leu Thr Pro Thr Met Met Leu Tyr Ala Gly Arg
65                  70                  75                  80

Ser Gln Asp Gly Ser His Leu Leu Lys Ser Ala Arg Tyr Leu Gln Gln
                85                  90                  95

Glu Leu Pro Val Arg Ile Ala His Arg Ile Lys Gly Phe Arg Cys Leu
            100                 105                 110

Pro Phe Ile Ile Gly Cys Asn Pro Thr Ile Leu His Val His Glu Leu
        115                 120                 125

Tyr Ile Arg Ala Phe Gln Lys Leu Thr Asp Phe Pro Pro Ile Lys Asp
    130                 135                 140

Gln Ala Asp Glu Ala Gln Tyr Cys Gln Leu Val Arg Gln Leu Leu Asp
145                 150                 155                 160
```

```
Asp His Lys Asp Val Val Thr Leu Leu Ala Glu Gly Leu Arg Glu Ser
                165                 170                 175

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

Thr Leu Thr Ser Arg Leu Gly Ile Arg Met Leu Ala Thr His His Leu
        195                 200                 205

Ala Leu His Glu Asp Lys Pro Asp Phe Val Gly Ile Ile Cys Thr Arg
    210                 215                 220

Leu Ser Pro Lys Lys Ile Ile Glu Lys Trp Val Asp Phe Ala Arg Arg
225                 230                 235                 240

Leu Cys Glu His Lys Tyr Gly Asn Ala Pro Arg Val Arg Ile Asn Gly
                245                 250                 255

His Val Ala Ala Arg Phe Pro Phe Ile Pro Met Pro Leu Asp Tyr Ile
            260                 265                 270

Leu Pro Glu Leu Leu Lys Asn Ala Met Arg Ala Thr Met Glu Ser His
        275                 280                 285

Leu Asp Thr Pro Tyr Asn Val Pro Asp Val Val Ile Thr Ile Ala Asn
    290                 295                 300

Asn Asp Val Asp Leu Ile Ile Arg Ile Ser Asp Arg Gly Gly Gly Ile
305                 310                 315                 320

Ala His Lys Asp Leu Asp Arg Val Met Asp Tyr His Phe Thr Thr Ala
                325                 330                 335

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

Asp Met His Ser Gly Ala Gln Ser Gly Pro Met His Gly
        355                 360                 365
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<210> 9504
<211> 412
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:
branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="Uniprot ID: O14874; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378405"

<400> 9504
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1   5   10   15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
            20   25   30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
        35   40   45

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

Lys Pro Ser Val Arg Leu Thr Pro Thr Met Met Leu Tyr Ala Gly Arg
65   70   75   80

Ser Gln Asp Gly Ser His Leu Leu Lys Ser Ala Arg Tyr Leu Gln Gln
                85   90   95

Glu Leu Pro Val Arg Ile Ala His Arg Ile Lys Gly Phe Arg Cys Leu
            100   105   110

Pro Phe Ile Ile Gly Cys Asn Pro Thr Ile Leu His Val His Glu Leu
        115   120   125

Tyr Ile Arg Ala Phe Gln Lys Leu Thr Asp Phe Pro Pro Ile Lys Asp
    130   135   140

```
Gln Ala Asp Glu Ala Gln Tyr Cys Gln Leu Val Arg Gln Leu Leu Asp
145                 150                 155                 160

Asp His Lys Asp Val Val Thr Leu Leu Ala Glu Gly Leu Arg Glu Ser
                165                 170                 175

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

Thr Leu Thr Ser Arg Leu Gly Ile Arg Met Leu Ala Thr His His Leu
        195                 200                 205

Ala Leu His Glu Asp Lys Pro Asp Phe Val Gly Ile Ile Cys Thr Arg
    210                 215                 220

Leu Ser Pro Lys Lys Ile Ile Glu Lys Trp Val Asp Phe Ala Arg Arg
225                 230                 235                 240

Leu Cys Glu His Lys Tyr Gly Asn Ala Pro Arg Val Arg Ile Asn Gly
                245                 250                 255

His Val Ala Ala Arg Phe Pro Phe Ile Pro Met Pro Leu Asp Tyr Ile
            260                 265                 270

Leu Pro Glu Leu Leu Lys Asn Ala Met Arg Ala Thr Met Glu Ser His
        275                 280                 285

Leu Asp Thr Pro Tyr Asn Val Pro Asp Val Val Ile Thr Ile Ala Asn
    290                 295                 300

Asn Asp Val Asp Leu Ile Ile Arg Ile Ser Asp Arg Gly Gly Gly Ile
305                 310                 315                 320

Ala His Lys Asp Leu Asp Arg Val Met Asp Tyr His Phe Thr Thr Ala
                325                 330                 335

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

Asp Met His Ser Gly Ala Gln Ser Gly Pro Met His Gly Phe Gly Phe
        355                 360                 365
```

```
Gly Leu Pro Thr Ser Arg Ala Tyr Ala Glu Tyr Leu Gly Gly Ser Leu
    370                 375                 380

Gln Leu Gln Ser Leu Gln Gly Ile Gly Thr Asp Val Tyr Leu Arg Leu
385                 390                 395                 400

Arg His Ile Asp Gly Arg Glu Glu Ser Phe Arg Ile
                405                 410
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<210> 9505
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:
branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454947"

<400> 9505

```
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1               5                   10                  15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
            20                  25                  30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
        35                  40                  45

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

Lys Pro Ser Val Arg Leu Thr Pro Thr Met Met Leu Tyr Ala Gly Arg
65                  70                  75                  80

Ser Gln Asp Gly Ser His Leu Leu
                85
```

<210> 9506
<211> 60
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:
branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455866"

<400> 9506
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1 5 10 15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
20 25 30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
35 40 45

Thr Val Thr Ser Phe Tyr Asn Gln Ser Ala Ile Asp
50 55 60

<210> 9507
<211> 217
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:

branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456479"

<400> 9507

```
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1               5                  10                  15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
            20                  25                  30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
        35                  40                  45

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

Lys Pro Ser Val Arg Leu Thr Pro Thr Met Met Leu Tyr Ala Gly Arg
65                  70                  75                  80

Ser Gln Asp Gly Ser His Leu Leu Lys Ser Ala Arg Tyr Leu Gln Gln
                85                  90                  95

Glu Leu Pro Val Arg Ile Ala His Arg Ile Lys Gly Phe Arg Cys Leu
            100                 105                 110

Pro Phe Ile Ile Gly Cys Asn Pro Thr Ile Leu His Val His Glu Leu
        115                 120                 125

Tyr Ile Arg Ala Phe Gln Lys Leu Thr Asp Phe Pro Pro Ile Lys Asp
    130                 135                 140

Gln Ala Asp Glu Ala Gln Tyr Cys Gln Leu Val Arg Gln Leu Leu Asp
145                 150                 155                 160

Asp His Lys Asp Val Val Thr Leu Leu Ala Glu Gly Leu Arg Glu Ser
                165                 170                 175

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

Thr Leu Thr Ser Arg Leu Gly Ile Arg Met Leu Ala Thr His His Leu
        195                 200                 205
```

Ala Leu His Glu Asp Lys Thr Pro Val
210 215

<210> 9508
<211> 216
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:
branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457226"

<400> 9508
Met Ile Leu Ala Ser Val Leu Arg Ser Gly Pro Gly Gly Gly Leu Pro
1 5 10 15

Leu Arg Pro Leu Leu Gly Pro Ala Leu Ala Leu Arg Ala Arg Ser Thr
20 25 30

Ser Ala Thr Asp Thr His His Val Glu Met Ala Arg Glu Arg Ser Lys
35 40 45

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

Lys Pro Ser Val Arg Leu Thr Pro Thr Met Met Leu Tyr Ala Gly Arg
65 70 75 80

Ser Gln Asp Gly Ser His Leu Leu Lys Ser Ala Arg Tyr Leu Gln Gln
85 90 95

Glu Leu Pro Val Arg Ile Ala His Arg Ile Lys Gly Phe Arg Cys Leu
100 105 110

```
Pro Phe Ile Ile Gly Cys Asn Pro Thr Ile Leu His Val Lys Leu Thr
        115                 120                 125

Asp Phe Pro Pro Ile Lys Asp Gln Ala Asp Glu Ala Gln Tyr Cys Gln
    130                 135                 140

Leu Val Arg Gln Leu Leu Asp Asp His Lys Asp Val Val Thr Leu Leu
145                 150                 155                 160

Ala Glu Gly Leu Arg Glu Ser Arg Lys His Ile Glu Asp Glu Lys Leu
                165                 170                 175

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

Met Leu Ala Thr His His Leu Ala Leu His Glu Asp Lys Pro Asp Phe
        195                 200                 205

Val Gly Ile Ile Cys Thr Arg Leu
    210                 215


<210> 9509
<211> 146
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1941; "

<220>
<221> source
<223> /note="Gene Symbol: BCKDK; "

<220>
<221> source
<223> /note="Gene Name:
      branched chain ketoacid dehydrogenase kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457821"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9509
```

```
Xaa Asp Val Asp Leu Ile Ile Arg Ile Ser Asp Arg Gly Gly Gly Ile
1               5                   10                  15

Ala His Lys Asp Leu Asp Arg Val Met Asp Tyr His Phe Thr Thr Ala
            20                  25                  30

Glu Ala Ser Thr Gln Asp Pro Arg Ile Ser Pro Leu Phe Gly His Leu
        35                  40                  45

Asp Met His Ser Gly Ala Gln Ser Gly Pro Met His Gly Ala Leu Ala
    50                  55                  60

Arg Thr Ser Thr Cys Gly Ser Ala Thr Ser Met Ala Gly Arg Lys Ala
65                  70                  75                  80

Ser Gly Ser Asp Pro Thr Ala Phe Gly Leu Leu Thr Arg Pro Ala Trp
                85                  90                  95

Ala Ala Phe Pro Ala Gly Pro Pro Gly Ser Gly Arg Ala Ala Pro Cys
            100                 105                 110

Ser Thr His Cys Cys Ile Leu Gly Leu Arg Asp Pro Asp Arg Trp Thr
        115                 120                 125

Tyr Met Glu Leu Gly Thr Ala Leu Pro Gln Gln Gly Pro Leu Pro Pro
    130                 135                 140

Arg Leu
145
```

<210> 9510
<211> 562
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1942; "

<220>
<221> source
<223> /note="Gene Symbol: BRAP; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1

associated prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000330813"

<400> 9510

```
Met Ser Asp Glu Glu Ile Lys Lys Thr Thr Leu Ala Ser Ala Val Ala
1               5                  10                  15

Cys Leu Glu Gly Lys Ser Pro Gly Glu Lys Val Ala Ile Ile His Gln
            20                  25                  30

His Leu Gly Arg Arg Glu Met Thr Asp Val Ile Ile Glu Thr Met Lys
        35                  40                  45

Ser Asn Pro Asp Glu Leu Lys Thr Thr Val Glu Glu Arg Lys Ser Ser
    50                  55                  60

Glu Ala Ser Pro Thr Ala Gln Arg Ser Lys Asp His Ser Lys Glu Cys
65                  70                  75                  80

Ile Asn Ala Ala Pro Asp Ser Pro Ser Lys Gln Leu Pro Asp Gln Ile
                85                  90                  95

Ser Phe Phe Ser Gly Asn Pro Ser Val Glu Ile Val His Gly Ile Met
            100                 105                 110

His Leu Tyr Lys Thr Asn Lys Met Thr Ser Leu Lys Glu Asp Val Arg
        115                 120                 125

Arg Ser Ala Met Leu Cys Ile Leu Thr Val Pro Ala Ala Met Thr Ser
    130                 135                 140

His Asp Leu Met Lys Phe Val Ala Pro Phe Asn Glu Val Ile Glu Gln
145                 150                 155                 160

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

Lys Phe Arg Ala Gln Ala Asp Ala Asp Ser Phe Tyr Met Thr Cys Asn
            180                 185                 190

Gly Arg Gln Phe Asn Ser Ile Glu Asp Asp Val Cys Gln Leu Val Tyr
        195                 200                 205
```

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

Val Met Asp Leu Thr Glu Leu Pro Lys Cys Thr Val Cys Leu Glu Arg
225                 230                 235                 240

Met Asp Glu Ser Val Asn Gly Ile Leu Thr Thr Leu Cys Asn His Ser
                245                 250                 255

Phe His Ser Gln Cys Leu Gln Arg Trp Asp Asp Thr Thr Cys Pro Val
            260                 265                 270

Cys Arg Tyr Cys Gln Thr Pro Glu Pro Val Glu Glu Asn Lys Cys Phe
        275                 280                 285

Glu Cys Gly Val Gln Glu Asn Leu Trp Ile Cys Leu Ile Cys Gly His
    290                 295                 300

Ile Gly Cys Gly Arg Tyr Val Ser Arg His Ala Tyr Lys His Phe Glu
305                 310                 315                 320

Glu Thr Gln His Thr Tyr Ala Met Gln Leu Thr Asn His Arg Val Trp
                325                 330                 335

Asp Tyr Ala Gly Asp Asn Tyr Val His Arg Leu Val Ala Ser Lys Thr
            340                 345                 350

Asp Gly Lys Ile Val Gln Tyr Glu Cys Glu Gly Asp Thr Cys Gln Glu
        355                 360                 365

Glu Lys Ile Asp Ala Leu Gln Leu Glu Tyr Ser Tyr Leu Leu Thr Ser
    370                 375                 380

Gln Leu Glu Ser Gln Arg Ile Tyr Trp Glu Asn Lys Ile Val Arg Ile
385                 390                 395                 400

Glu Lys Asp Thr Ala Glu Glu Ile Asn Asn Met Lys Thr Lys Phe Lys
                405                 410                 415

Glu Thr Ile Glu Lys Cys Asp Asn Leu Glu His Lys Leu Asn Asp Leu
            420                 425                 430
```

```
Leu Lys Glu Lys Gln Ser Val Glu Arg Lys Cys Thr Gln Leu Asn Thr
        435                 440                 445

Lys Val Ala Lys Leu Thr Asn Glu Leu Lys Glu Glu Gln Glu Met Asn
    450                 455                 460

Lys Cys Leu Arg Ala Asn Gln Val Leu Leu Gln Asn Lys Leu Lys Glu
465                 470                 475                 480

Glu Glu Arg Val Leu Lys Glu Thr Cys Asp Gln Lys Asp Leu Gln Ile
                485                 490                 495

Thr Glu Ile Gln Glu Gln Leu Arg Asp Val Met Phe Tyr Leu Glu Thr
            500                 505                 510

Gln Gln Lys Ile Asn His Leu Pro Ala Glu Thr Arg Gln Glu Ile Gln
        515                 520                 525

Glu Gly Gln Ile Asn Ile Ala Met Ala Ser Ala Ser Ser Pro Ala Ser
    530                 535                 540

Ser Gly Gly Ser Gly Lys Leu Pro Ser Arg Lys Gly Arg Ser Lys Arg
545                 550                 555                 560

Gly Lys
```

<210> 9511
<211> 592
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1942; "

<220>
<221> source
<223> /note="Gene Symbol: BRAP; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1
associated prt; "

<220>

<221> source
<223> /note="Uniprot ID: Q7Z569; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403524"

<400> 9511
Met Ser Val Ser Leu Val Val Ile Arg Leu Glu Leu Ala Glu His Ser
1   5   10   15

Pro Val Pro Ala Gly Phe Gly Phe Ser Ala Ala Ala Gly Glu Met Ser
            20   25   30

Asp Glu Glu Ile Lys Lys Thr Thr Leu Ala Ser Ala Val Ala Cys Leu
        35   40   45

Glu Gly Lys Ser Pro Gly Glu Lys Val Ala Ile Ile His Gln His Leu
    50   55   60

Gly Arg Arg Glu Met Thr Asp Val Ile Ile Glu Thr Met Lys Ser Asn
65   70   75   80

Pro Asp Glu Leu Lys Thr Thr Val Glu Glu Arg Lys Ser Ser Glu Ala
                85   90   95

Ser Pro Thr Ala Gln Arg Ser Lys Asp His Ser Lys Glu Cys Ile Asn
            100   105   110

Ala Ala Pro Asp Ser Pro Ser Lys Gln Leu Pro Asp Gln Ile Ser Phe
        115   120   125

Phe Ser Gly Asn Pro Ser Val Glu Ile Val His Gly Ile Met His Leu
    130   135   140

Tyr Lys Thr Asn Lys Met Thr Ser Leu Lys Glu Asp Val Arg Arg Ser
145   150   155   160

Ala Met Leu Cys Ile Leu Thr Val Pro Ala Ala Met Thr Ser His Asp
                165   170   175

Leu Met Lys Phe Val Ala Pro Phe Asn Glu Val Ile Glu Gln Met Lys
            180   185   190

Ile Ile Arg Asp Ser Thr Pro Asn Gln Tyr Met Val Leu Ile Lys Phe

```
        195                 200                 205

Arg Ala Gln Ala Asp Ala Asp Ser Phe Tyr Met Thr Cys Asn Gly Arg
    210                 215                 220

Gln Phe Asn Ser Ile Glu Asp Asp Val Cys Gln Leu Val Tyr Val Glu
225                 230                 235                 240

Arg Ala Glu Val Leu Lys Ser Glu Asp Gly Ala Ser Leu Pro Val Met
                245                 250                 255

Asp Leu Thr Glu Leu Pro Lys Cys Thr Val Cys Leu Glu Arg Met Asp
            260                 265                 270

Glu Ser Val Asn Gly Ile Leu Thr Thr Leu Cys Asn His Ser Phe His
        275                 280                 285

Ser Gln Cys Leu Gln Arg Trp Asp Asp Thr Thr Cys Pro Val Cys Arg
    290                 295                 300

Tyr Cys Gln Thr Pro Glu Pro Val Glu Glu Asn Lys Cys Phe Glu Cys
305                 310                 315                 320

Gly Val Gln Glu Asn Leu Trp Ile Cys Leu Ile Cys Gly His Ile Gly
                325                 330                 335

Cys Gly Arg Tyr Val Ser Arg His Ala Tyr Lys His Phe Glu Glu Thr
            340                 345                 350

Gln His Thr Tyr Ala Met Gln Leu Thr Asn His Arg Val Trp Asp Tyr
        355                 360                 365

Ala Gly Asp Asn Tyr Val His Arg Leu Val Ala Ser Lys Thr Asp Gly
    370                 375                 380

Lys Ile Val Gln Tyr Glu Cys Glu Gly Asp Thr Cys Gln Glu Glu Lys
385                 390                 395                 400

Ile Asp Ala Leu Gln Leu Glu Tyr Ser Tyr Leu Leu Thr Ser Gln Leu
                405                 410                 415

Glu Ser Gln Arg Ile Tyr Trp Glu Asn Lys Ile Val Arg Ile Glu Lys
            420                 425                 430
```

```
Asp Thr Ala Glu Glu Ile Asn Asn Met Lys Thr Lys Phe Lys Glu Thr
        435                 440                 445

Ile Glu Lys Cys Asp Asn Leu Glu His Lys Leu Asn Asp Leu Leu Lys
    450                 455                 460

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

Ala Lys Leu Thr Asn Glu Leu Lys Glu Glu Gln Glu Met Asn Lys Cys
                485                 490                 495

Leu Arg Ala Asn Gln Val Leu Leu Gln Asn Lys Leu Lys Glu Glu Glu
            500                 505                 510

Arg Val Leu Lys Glu Thr Cys Asp Gln Lys Asp Leu Gln Ile Thr Glu
        515                 520                 525

Ile Gln Glu Gln Leu Arg Asp Val Met Phe Tyr Leu Glu Thr Gln Gln
    530                 535                 540

Lys Ile Asn His Leu Pro Ala Glu Thr Arg Gln Glu Ile Gln Glu Gly
545                 550                 555                 560

Gln Ile Asn Ile Ala Met Ala Ser Ala Ser Ser Pro Ala Ser Ser Gly
                565                 570                 575

Gly Ser Gly Lys Leu Pro Ser Arg Lys Gly Arg Ser Lys Arg Gly Lys
            580                 585                 590
```

<210> 9512
<211> 711
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1943; "

<220>
<221> source
<223> /note="Gene Symbol: BAP1; "

<220>
<221> source

<223> /note="Gene Name:
BRCA1 associated prt-1 (ubiquitin carboxy-terminal
hydrolase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000296288"

<400> 9512

```
Met Asn Lys Gly Trp Leu Glu Leu Glu Ser Asp Pro Gly Leu Phe Thr
1               5                  10                  15

Leu Leu Val Glu Asp Phe Gly Val Lys Gly Val Gln Val Glu Glu Ile
            20                  25                  30

Tyr Asp Leu Gln Ser Lys Cys Gln Gly Pro Val Tyr Gly Phe Ile Phe
        35                  40                  45

Leu Phe Lys Trp Ile Glu Glu Arg Arg Ser Arg Arg Lys Val Ser Thr
    50                  55                  60

Leu Val Asp Asp Thr Ser Val Ile Asp Asp Asp Ile Val Asn Asn Met
65                  70                  75                  80

Phe Phe Ala His Gln Leu Ile Pro Asn Ser Cys Ala Thr His Ala Leu
                85                  90                  95

Leu Ser Val Leu Leu Asn Cys Ser Ser Val Asp Leu Gly Pro Thr Leu
            100                 105                 110

Ser Arg Met Lys Asp Phe Thr Lys Gly Phe Ser Pro Glu Ser Lys Gly
        115                 120                 125

Tyr Ala Ile Gly Asn Ala Pro Glu Leu Ala Lys Ala His Asn Ser His
    130                 135                 140

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

Ala Val Arg Thr Met Glu Ala Phe His Phe Val Ser Tyr Val Pro Ile
                165                 170                 175

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

```
His Gly Pro Trp Gly Glu Asp Glu Glu Trp Thr Asp Lys Ala Arg Arg
        195                 200                 205

Val Ile Met Glu Arg Ile Gly Leu Ala Thr Ala Gly Ile Lys Tyr Glu
    210                 215                 220

Ala Arg Leu His Val Leu Lys Val Asn Arg Gln Thr Val Leu Glu Ala
225                 230                 235                 240

Leu Gln Gln Leu Ile Arg Val Thr Gln Pro Glu Leu Ile Gln Thr His
                245                 250                 255

Lys Ser Gln Glu Ser Gln Leu Pro Glu Glu Ser Lys Ser Ala Ser Asn
            260                 265                 270

Lys Ser Pro Leu Val Leu Glu Ala Asn Arg Ala Pro Ala Ala Ser Glu
        275                 280                 285

Gly Asn His Thr Asp Gly Ala Glu Glu Ala Ala Gly Ser Cys Ala Gln
    290                 295                 300

Ala Pro Ser His Ser Pro Pro Asn Lys Pro Lys Leu Val Val Lys Pro
305                 310                 315                 320

Pro Gly Ser Ser Leu Asn Gly Val His Pro Asn Pro Thr Pro Ile Val
                325                 330                 335

Gln Arg Leu Pro Ala Phe Leu Asp Asn His Asn Tyr Ala Lys Ser Pro
            340                 345                 350

Met Gln Glu Glu Glu Asp Leu Ala Ala Gly Val Gly Arg Ser Arg Val
        355                 360                 365

Pro Val Arg Pro Pro Gln Gln Tyr Ser Asp Asp Glu Asp Asp Tyr Glu
    370                 375                 380

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

Lys Gly Lys Gly Thr Gly Lys Pro Gly Ala Leu Ser Gly Ser Ala Asp
                405                 410                 415

Gly Gln Leu Ser Val Leu Gln Pro Asn Thr Ile Asn Val Leu Ala Glu
```

```
            420                 425                 430

Lys Leu Lys Glu Ser Gln Lys Asp Leu Ser Ile Pro Leu Ser Ile Lys
        435                 440                 445

Thr Ser Ser Gly Ala Gly Ser Pro Ala Val Ala Val Pro Thr His Ser
    450                 455                 460

Gln Pro Ser Pro Thr Pro Ser Asn Glu Ser Thr Asp Thr Ala Ser Glu
465                 470                 475                 480

Ile Gly Ser Ala Phe Asn Ser Pro Leu Arg Ser Pro Ile Arg Ser Ala
                485                 490                 495

Asn Pro Thr Arg Pro Ser Ser Pro Val Thr Ser His Ile Ser Lys Val
            500                 505                 510

Leu Phe Gly Glu Asp Asp Ser Leu Leu Arg Val Asp Cys Ile Arg Tyr
        515                 520                 525

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

His Leu Ala Glu Asp Gly Val Leu Ser Pro Leu Ala Leu Thr Glu Gly
545                 550                 555                 560

Gly Lys Gly Ser Ser Pro Ser Ile Arg Pro Ile Gln Gly Ser Gln Gly
                565                 570                 575

Ser Ser Ser Pro Val Glu Lys Glu Val Val Glu Ala Thr Asp Ser Arg
            580                 585                 590

Glu Lys Thr Gly Met Val Arg Pro Gly Glu Pro Leu Ser Gly Glu Lys
        595                 600                 605

Tyr Ser Pro Lys Glu Leu Leu Ala Leu Leu Lys Cys Val Glu Ala Glu
    610                 615                 620

Ile Ala Asn Tyr Glu Ala Cys Leu Lys Glu Glu Val Glu Lys Arg Lys
625                 630                 635                 640

Lys Phe Lys Ile Asp Asp Gln Arg Arg Thr His Asn Tyr Asp Glu Phe
                645                 650                 655
```

```
Ile Cys Thr Phe Ile Ser Met Leu Ala Gln Glu Gly Met Leu Ala Asn
            660                 665                 670

Leu Val Glu Gln Asn Ile Ser Val Arg Arg Arg Gln Gly Val Ser Ile
        675                 680                 685

Gly Arg Leu His Lys Gln Arg Lys Pro Asp Arg Arg Lys Arg Ser Arg
    690                 695                 700

Pro Tyr Lys Ala Lys Arg Gln
705                 710
```

<210> 9513
<211> 729
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1943; "

<220>
<221> source
<223> /note="Gene Symbol: BAP1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1 associated prt-1 (ubiquitin carboxy-terminal
hydrolase); "

<220>
<221> source
<223> /note="Uniprot ID: Q92560; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417132"

<400> 9513

```
Met Asn Lys Gly Trp Leu Glu Leu Glu Ser Asp Pro Gly Leu Phe Thr
1               5                  10                  15

Leu Leu Val Glu Asp Phe Gly Val Lys Gly Val Gln Val Glu Glu Ile
            20                  25                  30

Tyr Asp Leu Gln Ser Lys Cys Gln Gly Pro Val Tyr Gly Phe Ile Phe
        35                  40                  45
```

```
Leu Phe Lys Trp Ile Glu Glu Arg Arg Ser Arg Arg Lys Val Ser Thr
    50                  55                  60

Leu Val Asp Asp Thr Ser Val Ile Asp Asp Asp Ile Val Asn Asn Met
65                  70                  75                  80

Phe Phe Ala His Gln Leu Ile Pro Asn Ser Cys Ala Thr His Ala Leu
                85                  90                  95

Leu Ser Val Leu Leu Asn Cys Ser Ser Val Asp Leu Gly Pro Thr Leu
            100                 105                 110

Ser Arg Met Lys Asp Phe Thr Lys Gly Phe Ser Pro Glu Ser Lys Gly
        115                 120                 125

Tyr Ala Ile Gly Asn Ala Pro Glu Leu Ala Lys Ala His Asn Ser His
    130                 135                 140

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

Ala Val Arg Thr Met Glu Ala Phe His Phe Val Ser Tyr Val Pro Ile
                165                 170                 175

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

His Gly Pro Trp Gly Glu Asp Glu Glu Trp Thr Asp Lys Ala Arg Arg
        195                 200                 205

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

Asp Ile Arg Phe Asn Leu Met Ala Val Val Pro Asp Arg Arg Ile Lys
225                 230                 235                 240

Tyr Glu Ala Arg Leu His Val Leu Lys Val Asn Arg Gln Thr Val Leu
                245                 250                 255

Glu Ala Leu Gln Gln Leu Ile Arg Val Thr Gln Pro Glu Leu Ile Gln
            260                 265                 270
```

```
Thr His Lys Ser Gln Glu Ser Gln Leu Pro Glu Glu Ser Lys Ser Ala
        275                 280                 285

Ser Asn Lys Ser Pro Leu Val Leu Glu Ala Asn Arg Ala Pro Ala Ala
    290                 295                 300

Ser Glu Gly Asn His Thr Asp Gly Ala Glu Glu Ala Ala Gly Ser Cys
305                 310                 315                 320

Ala Gln Ala Pro Ser His Ser Pro Pro Asn Lys Pro Lys Leu Val Val
                325                 330                 335

Lys Pro Pro Gly Ser Ser Leu Asn Gly Val His Pro Asn Pro Thr Pro
            340                 345                 350

Ile Val Gln Arg Leu Pro Ala Phe Leu Asp Asn His Asn Tyr Ala Lys
        355                 360                 365

Ser Pro Met Gln Glu Glu Glu Asp Leu Ala Ala Gly Val Gly Arg Ser
    370                 375                 380

Arg Val Pro Val Arg Pro Pro Gln Gln Tyr Ser Asp Asp Glu Asp Asp
385                 390                 395                 400

Tyr Glu Asp Asp Glu Glu Asp Asp Val Gln Asn Thr Asn Ser Ala Leu
                405                 410                 415

Arg Tyr Lys Gly Lys Gly Thr Gly Lys Pro Gly Ala Leu Ser Gly Ser
            420                 425                 430

Ala Asp Gly Gln Leu Ser Val Leu Gln Pro Asn Thr Ile Asn Val Leu
        435                 440                 445

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

Ile Lys Thr Ser Ser Gly Ala Gly Ser Pro Ala Val Ala Val Pro Thr
465                 470                 475                 480

His Ser Gln Pro Ser Pro Thr Pro Ser Asn Glu Ser Thr Asp Thr Ala
                485                 490                 495

Ser Glu Ile Gly Ser Ala Phe Asn Ser Pro Leu Arg Ser Pro Ile Arg
```

```
            500                 505                 510

Ser Ala Asn Pro Thr Arg Pro Ser Ser Pro Val Thr Ser His Ile Ser
        515                 520                 525

Lys Val Leu Phe Gly Glu Asp Asp Ser Leu Leu Arg Val Asp Cys Ile
    530                 535                 540

Arg Tyr Asn Arg Ala Val Arg Asp Leu Gly Pro Val Ile Ser Thr Gly
545                 550                 555                 560

Leu Leu His Leu Ala Glu Asp Gly Val Leu Ser Pro Leu Ala Leu Thr
                565                 570                 575

Glu Gly Gly Lys Gly Ser Ser Pro Ser Ile Arg Pro Ile Gln Gly Ser
            580                 585                 590

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

Ser Arg Glu Lys Thr Gly Met Val Arg Pro Gly Glu Pro Leu Ser Gly
    610                 615                 620

Glu Lys Tyr Ser Pro Lys Glu Leu Leu Ala Leu Leu Lys Cys Val Glu
625                 630                 635                 640

Ala Glu Ile Ala Asn Tyr Glu Ala Cys Leu Lys Glu Glu Val Glu Lys
                645                 650                 655

Arg Lys Lys Phe Lys Ile Asp Asp Gln Arg Arg Thr His Asn Tyr Asp
            660                 665                 670

Glu Phe Ile Cys Thr Phe Ile Ser Met Leu Ala Gln Glu Gly Met Leu
        675                 680                 685

Ala Asn Leu Val Glu Gln Asn Ile Ser Val Arg Arg Arg Gln Gly Val
    690                 695                 700

Ser Ile Gly Arg Leu His Lys Gln Arg Lys Pro Asp Arg Arg Lys Arg
705                 710                 715                 720

Ser Arg Pro Tyr Lys Ala Lys Arg Gln
                725
```

<210> 9514
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1943; "

<220>
<221> source
<223> /note="Gene Symbol: BAP1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1 associated prt-1 (ubiquitin carboxy-terminal
hydrolase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417776"

<400> 9514
Met Phe Phe Ala His Gln Leu Ile Pro Asn Ser Cys Ala Thr His Ala
1 5 10 15

Leu Leu Ser Val Leu Leu Asn Cys Ser Ser Val Asp Leu Gly Pro Thr
20 25 30

Leu Ser Arg Met Lys Asp Phe Thr Lys Gly Phe Ser Pro Glu Ser Lys
35 40 45

Gly Tyr Ala Ile Gly Asn Ala Pro Glu Leu Ala Lys Ala His Asn Ser
50 55 60

His Ala Arg Pro Glu Pro Arg His Leu Pro Glu Lys Gln Asn Gly Leu
65 70 75 80

Ser Ala Val Arg Thr Met Glu Ala Phe His Phe Val Ser Tyr Val Pro
85 90 95

Ile Thr Gly Arg Leu Phe Glu Leu Asp Gly Leu Lys Val Tyr Pro Ile
100 105 110

<210> 9515
<211> 129
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1943; "

<220>
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<223> /note="Gene Symbol: BAP1; "

<220>
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<223> /note="Gene Name:
BRCA1 associated prt-1 (ubiquitin carboxy-terminal
hydrolase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418320"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9515

```
Xaa Gln Asn Thr Asn Ser Ala Leu Arg Tyr Lys Gly Lys Gly Thr Gly
1               5                  10                  15

Lys Pro Gly Ala Leu Ser Gly Ser Ala Asp Gly Gln Leu Ser Val Leu
            20                  25                  30

Gln Pro Asn Thr Ile Asn Val Leu Ala Glu Ile Ala Asn Tyr Glu Ala
        35                  40                  45

Cys Leu Lys Glu Glu Val Glu Lys Arg Lys Lys Phe Lys Ile Asp Asp
    50                  55                  60

Gln Arg Arg Thr His Asn Tyr Asp Glu Phe Ile Cys Thr Phe Ile Ser
65                  70                  75                  80

Met Leu Ala Gln Glu Gly Met Leu Ala Asn Leu Val Glu Gln Asn Ile
                85                  90                  95

Ser Val Arg Arg Arg Gln Gly Val Ser Ile Gly Arg Leu His Lys Gln
            100                 105                 110

Arg Lys Pro Asp Arg Arg Lys Arg Ser Arg Pro Tyr Lys Ala Lys Arg
        115                 120                 125
```

Gln

<210> 9516
<211> 41
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BAP1; "

<220>
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<223> /note="Gene Name:
BRCA1 associated prt-1 (ubiquitin carboxy-terminal
hydrolase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419709"

<400> 9516
Met Asn Lys Gly Trp Leu Glu Leu Glu Ser Asp Pro Gly Leu Phe Thr
1 5 10 15

Leu Leu Val Glu Asp Phe Gly Val Lys Gly Val Gln Val Glu Glu Ile
20 25 30

Tyr Asp Leu Gln Ser Lys Cys Gln Gly
35 40

<210> 9517
<211> 253
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: BAP1; "

<220>
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<223> /note="Gene Name:
BRCA1 associated prt-1 (ubiquitin carboxy-terminal
hydrolase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420647"

<400> 9517

```
Gly Ser Ala Phe Asn Ser Pro Leu Arg Ser Pro Ile Arg Ser Ala Asn
1               5                  10                  15

Pro Thr Arg Pro Ser Ser Pro Val Thr Ser His Ile Ser Lys Val Leu
            20                  25                  30

Phe Gly Glu Asp Asp Ser Leu Leu Arg Val Asp Cys Ile Arg Tyr Asn
        35                  40                  45

Arg Ala Val Arg Asp Leu Gly Pro Val Ile Ser Thr Gly Leu Leu His
    50                  55                  60

Leu Ala Glu Asp Gly Val Leu Ser Pro Leu Ala Leu Thr Glu Gly Gly
65                  70                  75                  80

Lys Gly Ser Ser Pro Ser Ile Arg Pro Ile Gln Gly Ser Gln Gly Ser
                85                  90                  95

Ser Ser Pro Val Glu Lys Glu Val Val Glu Ala Thr Asp Ser Arg Glu
            100                 105                 110

Lys Thr Gly Met Val Arg Pro Gly Glu Pro Leu Ser Gly Glu Lys Tyr
        115                 120                 125

Ser Pro Lys Leu Pro Ile Ala Arg Gly Ala Leu Leu Leu Ala Arg Pro
    130                 135                 140

Asp Gln Arg Cys Asn Ala Gly Phe Trp Gln Glu Leu Leu Ala Leu Leu
145                 150                 155                 160

Lys Cys Val Glu Ala Glu Ile Ala Asn Tyr Glu Ala Cys Leu Lys Glu
                165                 170                 175

Glu Val Glu Lys Arg Lys Lys Phe Lys Ile Asp Asp Gln Arg Arg Thr
            180                 185                 190
```

```
His Asn Tyr Asp Glu Phe Ile Cys Thr Phe Ile Ser Met Leu Ala Gln
        195                 200                 205

Glu Gly Met Leu Ala Asn Leu Val Glu Gln Asn Ile Ser Val Arg Arg
    210                 215                 220

Arg Gln Gly Val Ser Ile Gly Arg Leu His Lys Gln Arg Lys Pro Asp
225                 230                 235                 240

Arg Arg Lys Arg Ser Arg Pro Tyr Lys Ala Lys Arg Gln
                245                 250
```

<210> 9518
<211> 162
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: BAP1; "

<220>
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<223> /note="Gene Name:
BRCA1 associated prt-1 (ubiquitin carboxy-terminal
hydrolase); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482839"

<400> 9518

```
Met Gly Gly Thr Arg Pro His Ser Phe His Arg Ala Leu Arg Pro Asp
1               5                   10                  15

Thr Ala Asp Gln Pro His Ser Ala Gln Glu Ala Ala Ser Gly Val Gly
            20                  25                  30

Ala Gln Arg Gly Thr Ala Ala Ser Ser Thr Ala Gly Cys Gly Ala Ala
        35                  40                  45

Gly Pro Gly Pro Ser Ala Trp Ala Ala Glu Tyr Ile Phe Tyr Leu Ser
    50                  55                  60

Glu Thr Ser Ile Phe Leu Gly Ser Asn Pro Thr Cys His His Val Asp
```

65 70 75 80

Ile Ser Ser Tyr Leu Thr Met Leu Ser Leu Leu Gly Ala Val Leu Val
85 90 95

Gly Pro Gly Pro Cys Ile Met Pro Arg Ser Gln Leu Gln Gly Pro Ser
100 105 110

Trp Gly Pro Gly Trp Ala Leu Gly Ser Gly Pro Cys Cys Ser Ser Pro
115 120 125

Ser His Gln Pro Val Pro Val Val Arg Lys Pro Gly Leu Leu Ser Ser
130 135 140

Phe Leu Leu Gly Glu Cys Gln Thr Gln Gly Pro Ser Thr Gly Leu Gly
145 150 155 160

Trp Glu

<210> 9519
<211> 777
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
<221> source
<223> /note="Gene Symbol: BARD1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1 associated RING domain 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q99728; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260947"

<400> 9519
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1 5 10 15

```
Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
            20                  25                  30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
        35                  40                  45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly
    50                  55                  60

Gly Cys Glu His Ile Phe Cys Ser Asn Cys Val Ser Asp Cys Ile Gly
65                  70                  75                  80

Thr Gly Cys Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys
                85                  90                  95

Ile Asn Arg Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Leu Arg
            100                 105                 110

Asn Leu Leu His Asp Asn Glu Leu Ser Asp Leu Lys Glu Asp Lys Pro
        115                 120                 125

Arg Lys Ser Leu Phe Asn Asp Ala Gly Asn Lys Lys Asn Ser Ile Lys
    130                 135                 140

Met Trp Phe Ser Pro Arg Ser Lys Lys Val Arg Tyr Val Val Ser Lys
145                 150                 155                 160

Ala Ser Val Gln Thr Gln Pro Ala Ile Lys Lys Asp Ala Ser Ala Gln
                165                 170                 175

Gln Asp Ser Tyr Glu Phe Val Ser Pro Ser Pro Pro Ala Asp Val Ser
            180                 185                 190

Glu Arg Ala Lys Lys Ala Ser Ala Arg Ser Gly Lys Lys Gln Lys Lys
        195                 200                 205

Lys Thr Leu Ala Glu Ile Asn Gln Lys Trp Asn Leu Glu Ala Glu Lys
    210                 215                 220

Glu Asp Gly Glu Phe Asp Ser Lys Glu Glu Ser Lys Gln Lys Leu Val
225                 230                 235                 240
```

```
Ser Phe Cys Ser Gln Pro Ser Val Ile Ser Ser Pro Gln Ile Asn Gly
                245                 250                 255

Glu Ile Asp Leu Leu Ala Ser Gly Ser Leu Thr Glu Ser Glu Cys Phe
            260                 265                 270

Gly Ser Leu Thr Glu Val Ser Leu Pro Leu Ala Glu Gln Ile Glu Ser
        275                 280                 285

Pro Asp Thr Lys Ser Arg Asn Glu Val Val Thr Pro Glu Lys Val Cys
    290                 295                 300

Lys Asn Tyr Leu Thr Ser Lys Lys Ser Leu Pro Leu Glu Asn Asn Gly
305                 310                 315                 320

Lys Arg Gly His His Asn Arg Leu Ser Ser Pro Ile Ser Lys Arg Cys
                325                 330                 335

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

Pro Ser Glu Asn Ile Pro Leu Pro Glu Cys Ser Ser Pro Pro Ser Cys
        355                 360                 365

Lys Arg Lys Val Gly Gly Thr Ser Gly Arg Lys Asn Ser Asn Met Ser
    370                 375                 380

Asp Glu Phe Ile Ser Leu Ser Pro Gly Thr Pro Pro Ser Thr Leu Ser
385                 390                 395                 400

Ser Ser Ser Tyr Arg Arg Val Met Ser Ser Pro Ser Ala Met Lys Leu
                405                 410                 415

Leu Pro Asn Met Ala Val Lys Arg Asn His Arg Gly Glu Thr Leu Leu
            420                 425                 430

His Ile Ala Ser Ile Lys Gly Asp Ile Pro Ser Val Glu Tyr Leu Leu
        435                 440                 445

Gln Asn Gly Ser Asp Pro Asn Val Lys Asp His Ala Gly Trp Thr Pro
    450                 455                 460

Leu His Glu Ala Cys Asn His Gly His Leu Lys Val Val Glu Leu Leu
```

```
465                 470                 475                 480

Leu Gln His Lys Ala Leu Val Asn Thr Thr Gly Tyr Gln Asn Asp Ser
                485                 490                 495

Pro Leu His Asp Ala Ala Lys Asn Gly His Val Asp Ile Val Lys Leu
            500                 505                 510

Leu Leu Ser Tyr Gly Ala Ser Arg Asn Ala Val Asn Ile Phe Gly Leu
        515                 520                 525

Arg Pro Val Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu Leu Leu
    530                 535                 540

Leu Pro Glu Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser Val Met
545                 550                 555                 560

Asn Thr Gly Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly Ser Gly
                565                 570                 575

Leu Ser Ser Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu
            580                 585                 590

Lys Ala Lys Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val
        595                 600                 605

Val Pro Gly Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile
    610                 615                 620

Leu Asn Gly Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu
625                 630                 635                 640

Arg Arg Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly
                645                 650                 655

Pro Arg Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe
            660                 665                 670

Asp Gly Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys
        675                 680                 685

Asp Asn Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser
    690                 695                 700
```

```
Arg Lys Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val
705                 710                 715                 720


Ala Tyr His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr
                725                 730                 735


Ile Ile Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln
            740                 745                 750


Gly Lys Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met
        755                 760                 765


Ser Phe Glu Leu Leu Pro Leu Asp Ser
    770                 775


<210> 9520
<211> 216
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
<221> source
<223> /note="Gene Symbol: BARD1; "

<220>
<221> source
<223> /note="Gene Name:
      BRCA1 associated RING domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392245"

<400> 9520
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1               5                   10                  15


Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
            20                  25                  30


Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
        35                  40                  45
```

```
Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly
    50                  55                  60

Gly Cys Glu His Ile Phe Cys Ser Asn Ile Phe Gly Leu Arg Pro Val
65                  70                  75                  80

Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu Leu Leu Leu Pro Glu
                85                  90                  95

Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser Val Met Asn Thr Gly
            100                 105                 110

Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly Ser Gly Leu Ser Ser
        115                 120                 125

Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu Lys Ala Lys
    130                 135                 140

Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val Val Pro Gly
145                 150                 155                 160

Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile Leu Asn Gly
                165                 170                 175

Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu Arg Arg Lys
            180                 185                 190

Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg
        195                 200                 205

Ser Arg Leu Asn Arg Glu Gln Leu
    210                 215
```

<210> 9521
<211> 44
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1944; "

<220>
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<223> /note="Gene Symbol: BARD1; "

<220>
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<223> /note="Gene Name:
BRCA1 associated RING domain 1; "

<220>
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<223> /note="ENSP ID: ENSP00000405020"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9521
Xaa Val Lys Ala Cys Leu Arg Arg Lys Val Cys Glu Gln Glu Glu Lys
1 5 10 15

Tyr Glu Ile Pro Glu Gly Pro Arg Arg Ser Arg Leu Asn Arg Glu Gln
20 25 30

Leu His Leu Ile Leu Lys Asp Asp His Asp Glu Gln
35 40

<210> 9522
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
BRCA1 associated RING domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412186"

<400> 9522
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
20 25 30

```
Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
        35                  40                  45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly
    50                  55                  60

Gly Cys Glu His Ile Phe Cys Arg Phe Glu Arg Arg
65                  70                  75


<210> 9523
<211> 758
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
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<223> /note="Gene Symbol: BARD1; "

<220>
<221> source
<223> /note="Gene Name:
      BRCA1 associated RING domain 1; "

<220>
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<223> /note="Uniprot ID:  Q99728; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480470"

<400> 9523
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1               5                   10                  15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
            20                  25                  30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
        35                  40                  45

Arg Cys Ser Arg Cys Asn Cys Val Ser Asp Cys Ile Gly Thr Gly Cys
    50                  55                  60
```

```
Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys Ile Asn Arg
65                  70                  75                  80

Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Leu Arg Asn Leu Leu
                85                  90                  95

His Asp Asn Glu Leu Ser Asp Leu Lys Glu Asp Lys Pro Arg Lys Ser
            100                 105                 110

Leu Phe Asn Asp Ala Gly Asn Lys Lys Asn Ser Ile Lys Met Trp Phe
        115                 120                 125

Ser Pro Arg Ser Lys Lys Val Arg Tyr Val Val Ser Lys Ala Ser Val
    130                 135                 140

Gln Thr Gln Pro Ala Ile Lys Lys Asp Ala Ser Ala Gln Gln Asp Ser
145                 150                 155                 160

Tyr Glu Phe Val Ser Pro Ser Pro Pro Ala Asp Val Ser Glu Arg Ala
                165                 170                 175

Lys Lys Ala Ser Ala Arg Ser Gly Lys Lys Gln Lys Lys Lys Thr Leu
            180                 185                 190

Ala Glu Ile Asn Gln Lys Trp Asn Leu Glu Ala Glu Lys Glu Asp Gly
        195                 200                 205

Glu Phe Asp Ser Lys Glu Glu Ser Lys Gln Lys Leu Val Ser Phe Cys
    210                 215                 220

Ser Gln Pro Ser Val Ile Ser Ser Pro Gln Ile Asn Gly Glu Ile Asp
225                 230                 235                 240

Leu Leu Ala Ser Gly Ser Leu Thr Glu Ser Glu Cys Phe Gly Ser Leu
                245                 250                 255

Thr Glu Val Ser Leu Pro Leu Ala Glu Gln Ile Glu Ser Pro Asp Thr
            260                 265                 270

Lys Ser Arg Asn Glu Val Val Thr Pro Glu Lys Val Cys Lys Asn Tyr
        275                 280                 285

Leu Thr Ser Lys Lys Ser Leu Pro Leu Glu Asn Asn Gly Lys Arg Gly
```

```
    290                 295                 300

His His Asn Arg Leu Ser Ser Pro Ile Ser Lys Arg Cys Arg Thr Ser
305                 310                 315                 320

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

Asn Ile Pro Leu Pro Glu Cys Ser Ser Pro Pro Ser Cys Lys Arg Lys
            340                 345                 350

Val Gly Gly Thr Ser Gly Arg Lys Asn Ser Asn Met Ser Asp Glu Phe
        355                 360                 365

Ile Ser Leu Ser Pro Gly Thr Pro Pro Ser Thr Leu Ser Ser Ser Ser
    370                 375                 380

Tyr Arg Arg Val Met Ser Ser Pro Ser Ala Met Lys Leu Leu Pro Asn
385                 390                 395                 400

Met Ala Val Lys Arg Asn His Arg Gly Glu Thr Leu Leu His Ile Ala
                405                 410                 415

Ser Ile Lys Gly Asp Ile Pro Ser Val Glu Tyr Leu Leu Gln Asn Gly
            420                 425                 430

Ser Asp Pro Asn Val Lys Asp His Ala Gly Trp Thr Pro Leu His Glu
        435                 440                 445

Ala Cys Asn His Gly His Leu Lys Val Val Glu Leu Leu Leu Gln His
    450                 455                 460

Lys Ala Leu Val Asn Thr Thr Gly Tyr Gln Asn Asp Ser Pro Leu His
465                 470                 475                 480

Asp Ala Ala Lys Asn Gly His Val Asp Ile Val Lys Leu Leu Leu Ser
                485                 490                 495

Tyr Gly Ala Ser Arg Asn Ala Val Asn Ile Phe Gly Leu Arg Pro Val
            500                 505                 510

Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu Leu Leu Leu Pro Glu
        515                 520                 525
```

```
Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser Val Met Asn Thr Gly
    530                 535                 540

Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly Ser Gly Leu Ser Ser
545                 550                 555                 560

Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu Lys Ala Lys
                565                 570                 575

Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val Val Pro Gly
            580                 585                 590

Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile Leu Asn Gly
        595                 600                 605

Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu Arg Arg Lys
    610                 615                 620

Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg
625                 630                 635                 640

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

Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp Asn Leu
            660                 665                 670

Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys Pro
        675                 680                 685

Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr His
    690                 695                 700

Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile Tyr
705                 710                 715                 720

Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys Val
                725                 730                 735

Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe Glu
            740                 745                 750
```

Leu Leu Pro Leu Asp Ser
755

<210> 9524
<211> 127
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
<221> source
<223> /note="Gene Symbol: BARD1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1 associated RING domain 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q99728; "

<220>
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<223> /note="ENSP ID: ENSP00000481988"

<400> 9524
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
20 25 30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
35 40 45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly
50 55 60

Gly Cys Glu His Ile Phe Cys Ser Asn Cys Val Ser Asp Cys Ile Gly
65 70 75 80

Thr Gly Cys Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys
85 90 95

Ile Asn Arg Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Leu Arg

100 105 110

Asn Leu Leu His Asp Asn Glu Leu Ser Gly Arg His Thr Phe Cys
115 120 125

<210> 9525
<211> 264
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
<221> source
<223> /note="Gene Symbol: BARD1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1 associated RING domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482293"

<400> 9525
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1 5 10 15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
20 25 30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
35 40 45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly
50 55 60

Gly Cys Glu His Ile Phe Cys Ser Asn Cys Val Ser Asp Cys Ile Gly
65 70 75 80

Thr Gly Cys Pro Val Cys Tyr Thr Pro Ala Trp Ile Gln Asp Leu Lys
85 90 95

Ile Asn Arg Gln Leu Asp Ser Met Ile Gln Leu Cys Ser Lys Leu Arg
100 105 110

```
Asn Leu Leu His Asp Asn Glu Leu Ser Gly Val Lys Ala Cys Leu Arg
        115                 120                 125

Arg Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro
    130                 135                 140

Arg Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp
145                 150                 155                 160

Gly Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp
                165                 170                 175

Asn Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg
            180                 185                 190

Lys Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala
        195                 200                 205

Tyr His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile
    210                 215                 220

Ile Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly
225                 230                 235                 240

Lys Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser
                245                 250                 255

Phe Glu Leu Leu Pro Leu Asp Ser
            260


<210> 9526
<211> 167
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
<221> source
<223> /note="Gene Symbol: BARD1; "

<220>
<221> source
<223> /note="Gene Name:
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BRCA1 associated RING domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483275"

<400> 9526

```
Met Val Ala Val Pro Gly Pro Thr Val Ala Pro Arg Ser Thr Ala Trp
1               5                  10                  15

Arg Ser Cys Cys Ala Ala Arg Val Gly Val Lys Ala Cys Leu Arg Arg
            20                  25                  30

Lys Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg
        35                  40                  45

Arg Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly
    50                  55                  60

Cys Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp Asn
65                  70                  75                  80

Leu Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys
                85                  90                  95

Pro Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr
            100                 105                 110

His Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile
        115                 120                 125

Tyr Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys
    130                 135                 140

Val Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe
145                 150                 155                 160

Glu Leu Leu Pro Leu Asp Ser
                165
```

<210> 9527
<211> 307
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 1944; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
BRCA1 associated RING domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484464"

<400> 9527

```
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1               5                   10                  15


Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
            20                  25                  30


Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
        35                  40                  45


Arg Cys Ser Arg Cys Asn Ile Phe Gly Leu Arg Pro Val Asp Tyr Thr
    50                  55                  60


Asp Asp Glu Ser Met Lys Ser Leu Leu Leu Leu Pro Glu Lys Asn Glu
65                  70                  75                  80


Ser Ser Ser Ala Ser His Cys Ser Val Met Asn Thr Gly Gln Arg Arg
                85                  90                  95


Asp Gly Pro Leu Val Leu Ile Gly Ser Gly Leu Ser Ser Glu Gln Gln
            100                 105                 110


Lys Met Leu Ser Glu Leu Ala Val Ile Leu Lys Ala Lys Lys Tyr Thr
        115                 120                 125


Glu Phe Asp Ser Thr Val Thr His Val Val Val Pro Gly Asp Ala Val
    130                 135                 140


Gln Ser Thr Leu Lys Cys Met Leu Gly Ile Leu Asn Gly Cys Trp Ile
145                 150                 155                 160
```

```
Leu Lys Phe Glu Trp Val Lys Ala Cys Leu Arg Arg Lys Val Cys Glu
                165                 170                 175

Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg Ser Arg Leu
            180                 185                 190

Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly Cys Tyr Phe Tyr
        195                 200                 205

Leu Trp Gly Thr Phe Lys His His Pro Lys Asp Asn Leu Ile Lys Leu
    210                 215                 220

Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys Pro Lys Pro Asp
225                 230                 235                 240

Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr His Ala Arg Pro
                245                 250                 255

Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile Tyr Glu Asp Leu
            260                 265                 270

Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys Val Trp Lys Ala
        275                 280                 285

Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe Glu Leu Leu Pro
    290                 295                 300

Leu Asp Ser
305


<210> 9528
<211> 326
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1944; "

<220>
<221> source
<223> /note="Gene Symbol: BARD1; "

<220>
<221> source
<223> /note="Gene Name:
      BRCA1 associated RING domain 1; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000484976"

<400> 9528
Met Pro Asp Asn Arg Gln Pro Arg Asn Arg Gln Pro Arg Ile Arg Ser
1   5   10   15

Gly Asn Glu Pro Arg Ser Ala Pro Ala Met Glu Pro Asp Gly Arg Gly
            20   25   30

Ala Trp Ala His Ser Arg Ala Ala Leu Asp Arg Leu Glu Lys Leu Leu
        35   40   45

Arg Cys Ser Arg Cys Thr Asn Ile Leu Arg Glu Pro Val Cys Leu Gly
    50   55   60

Gly Cys Glu His Ile Phe Cys Ser Asn Ile Phe Gly Leu Arg Pro Val
65   70   75   80

Asp Tyr Thr Asp Asp Glu Ser Met Lys Ser Leu Leu Leu Leu Pro Glu
                85   90   95

Lys Asn Glu Ser Ser Ser Ala Ser His Cys Ser Val Met Asn Thr Gly
            100   105   110

Gln Arg Arg Asp Gly Pro Leu Val Leu Ile Gly Ser Gly Leu Ser Ser
        115   120   125

Glu Gln Gln Lys Met Leu Ser Glu Leu Ala Val Ile Leu Lys Ala Lys
    130   135   140

Lys Tyr Thr Glu Phe Asp Ser Thr Val Thr His Val Val Val Pro Gly
145   150   155   160

Asp Ala Val Gln Ser Thr Leu Lys Cys Met Leu Gly Ile Leu Asn Gly
                165   170   175

Cys Trp Ile Leu Lys Phe Glu Trp Val Lys Ala Cys Leu Arg Arg Lys
            180   185   190

Val Cys Glu Gln Glu Glu Lys Tyr Glu Ile Pro Glu Gly Pro Arg Arg
        195   200   205

```
Ser Arg Leu Asn Arg Glu Gln Leu Leu Pro Lys Leu Phe Asp Gly Cys
    210                 215                 220

Tyr Phe Tyr Leu Trp Gly Thr Phe Lys His His Pro Lys Asp Asn Leu
225                 230                 235                 240

Ile Lys Leu Val Thr Ala Gly Gly Gly Gln Ile Leu Ser Arg Lys Pro
                245                 250                 255

Lys Pro Asp Ser Asp Val Thr Gln Thr Ile Asn Thr Val Ala Tyr His
            260                 265                 270

Ala Arg Pro Asp Ser Asp Gln Arg Phe Cys Thr Gln Tyr Ile Ile Tyr
        275                 280                 285

Glu Asp Leu Cys Asn Tyr His Pro Glu Arg Val Arg Gln Gly Lys Val
    290                 295                 300

Trp Lys Ala Pro Ser Ser Trp Phe Ile Asp Cys Val Met Ser Phe Glu
305                 310                 315                 320

Leu Leu Pro Leu Asp Ser
                325
```

<210> 9529
<211> 1249
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1945; "

<220>
<221> source
<223> /note="Gene Symbol: BRIP1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1
interacting
prt C-terminal helicase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BX63; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000259008"

<400> 9529
Met Ser Ser Met Trp Ser Glu Tyr Thr Ile Gly Gly Val Lys Ile Tyr
1 5 10 15

Phe Pro Tyr Lys Ala Tyr Pro Ser Gln Leu Ala Met Met Asn Ser Ile
20 25 30

Leu Arg Gly Leu Asn Ser Lys Gln His Cys Leu Leu Glu Ser Pro Thr
35 40 45

Gly Ser Gly Lys Ser Leu Ala Leu Leu Cys Ser Ala Leu Ala Trp Gln
50 55 60

Gln Ser Leu Ser Gly Lys Pro Ala Asp Glu Gly Val Ser Glu Lys Ala
65 70 75 80

Glu Val Gln Leu Ser Cys Cys Cys Ala Cys His Ser Lys Asp Phe Thr
85 90 95

Asn Asn Asp Met Asn Gln Gly Thr Ser Arg His Phe Asn Tyr Pro Ser
100 105 110

Thr Pro Pro Ser Glu Arg Asn Gly Thr Ser Ser Thr Cys Gln Asp Ser
115 120 125

Pro Glu Lys Thr Thr Leu Ala Ala Lys Leu Ser Ala Lys Lys Gln Ala
130 135 140

Ser Ile Tyr Arg Asp Glu Asn Asp Asp Phe Gln Val Glu Lys Lys Arg
145 150 155 160

Ile Arg Pro Leu Glu Thr Thr Gln Gln Ile Arg Lys Arg His Cys Phe
165 170 175

Gly Thr Glu Val His Asn Leu Asp Ala Lys Val Asp Ser Gly Lys Thr
180 185 190

Val Lys Leu Asn Ser Pro Leu Glu Lys Ile Asn Ser Phe Ser Pro Gln
195 200 205

```
Lys Pro Pro Gly His Cys Ser Arg Cys Cys Cys Ser Thr Lys Gln Gly
    210                 215                 220

Asn Ser Gln Glu Ser Ser Asn Thr Ile Lys Lys Asp His Thr Gly Lys
225                 230                 235                 240

Ser Lys Ile Pro Lys Ile Tyr Phe Gly Thr Arg Thr His Lys Gln Ile
                245                 250                 255

Ala Gln Ile Thr Arg Glu Leu Arg Arg Thr Ala Tyr Ser Gly Val Pro
            260                 265                 270

Met Thr Ile Leu Ser Ser Arg Asp His Thr Cys Val His Pro Glu Val
        275                 280                 285

Val Gly Asn Phe Asn Arg Asn Glu Lys Cys Met Glu Leu Leu Asp Gly
    290                 295                 300

Lys Asn Gly Lys Ser Cys Tyr Phe Tyr His Gly Val His Lys Ile Ser
305                 310                 315                 320

Asp Gln His Thr Leu Gln Thr Phe Gln Gly Met Cys Lys Ala Trp Asp
                325                 330                 335

Ile Glu Glu Leu Val Ser Leu Gly Lys Lys Leu Lys Ala Cys Pro Tyr
            340                 345                 350

Tyr Thr Ala Arg Glu Leu Ile Gln Asp Ala Asp Ile Ile Phe Cys Pro
        355                 360                 365

Tyr Asn Tyr Leu Leu Asp Ala Gln Ile Arg Glu Ser Met Asp Leu Asn
    370                 375                 380

Leu Lys Glu Gln Val Val Ile Leu Asp Glu Ala His Asn Ile Glu Asp
385                 390                 395                 400

Cys Ala Arg Glu Ser Ala Ser Tyr Ser Val Thr Glu Val Gln Leu Arg
                405                 410                 415

Phe Ala Arg Asp Glu Leu Asp Ser Met Val Asn Asn Asn Ile Arg Lys
            420                 425                 430

Lys Asp His Glu Pro Leu Arg Ala Val Cys Cys Ser Leu Ile Asn Trp
```

435 440 445

Leu Glu Ala Asn Ala Glu Tyr Leu Val Glu Arg Asp Tyr Glu Ser Ala
450 455 460

Cys Lys Ile Trp Ser Gly Asn Glu Met Leu Leu Thr Leu His Lys Met
465 470 475 480

Gly Ile Thr Thr Ala Thr Phe Pro Ile Leu Gln Gly His Phe Ser Ala
485 490 495

Val Leu Gln Lys Glu Glu Lys Ile Ser Pro Ile Tyr Gly Lys Glu Glu
500 505 510

Ala Arg Glu Val Pro Val Ile Ser Ala Ser Thr Gln Ile Met Leu Lys
515 520 525

Gly Leu Phe Met Val Leu Asp Tyr Leu Phe Arg Gln Asn Ser Arg Phe
530 535 540

Ala Asp Asp Tyr Lys Ile Ala Ile Gln Gln Thr Tyr Ser Trp Thr Asn
545 550 555 560

Gln Ile Asp Ile Ser Asp Lys Asn Gly Leu Leu Val Leu Pro Lys Asn
565 570 575

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

Cys Leu Asn Pro Ala Val Ala Phe Ser Asp Ile Asn Gly Lys Val Gln
595 600 605

Thr Ile Val Leu Thr Ser Gly Thr Leu Ser Pro Met Lys Ser Phe Ser
610 615 620

Ser Glu Leu Gly Val Thr Phe Thr Ile Gln Leu Glu Ala Asn His Ile
625 630 635 640

Ile Lys Asn Ser Gln Val Trp Val Gly Thr Ile Gly Ser Gly Pro Lys
645 650 655

Gly Arg Asn Leu Cys Ala Thr Phe Gln Asn Thr Glu Thr Phe Glu Phe
660 665 670

```
Gln Asp Glu Val Gly Ala Leu Leu Leu Ser Val Cys Gln Thr Val Ser
        675                 680                 685

Gln Gly Ile Leu Cys Phe Leu Pro Ser Tyr Lys Leu Leu Glu Lys Leu
    690                 695                 700

Lys Glu Arg Trp Leu Ser Thr Gly Leu Trp His Asn Leu Glu Leu Val
705                 710                 715                 720

Lys Thr Val Ile Val Glu Pro Gln Gly Gly Glu Lys Thr Asn Phe Asp
                725                 730                 735

Glu Leu Leu Gln Val Tyr Tyr Asp Ala Ile Lys Tyr Lys Gly Glu Lys
            740                 745                 750

Asp Gly Ala Leu Leu Val Ala Val Cys Arg Gly Lys Val Ser Glu Gly
        755                 760                 765

Leu Asp Phe Ser Asp Asp Asn Ala Arg Ala Val Ile Thr Ile Gly Ile
    770                 775                 780

Pro Phe Pro Asn Val Lys Asp Leu Gln Val Glu Leu Lys Arg Gln Tyr
785                 790                 795                 800

Asn Asp His His Ser Lys Leu Arg Gly Leu Leu Pro Gly Arg Gln Trp
                805                 810                 815

Tyr Glu Ile Gln Ala Tyr Arg Ala Leu Asn Gln Ala Leu Gly Arg Cys
            820                 825                 830

Ile Arg His Arg Asn Asp Trp Gly Ala Leu Ile Leu Val Asp Asp Arg
        835                 840                 845

Phe Arg Asn Asn Pro Ser Arg Tyr Ile Ser Gly Leu Ser Lys Trp Val
    850                 855                 860

Arg Gln Gln Ile Gln His His Ser Thr Phe Glu Ser Ala Leu Glu Ser
865                 870                 875                 880

Leu Ala Glu Phe Ser Lys Lys His Gln Lys Val Leu Asn Val Ser Ile
                885                 890                 895
```

```
Lys Asp Arg Thr Asn Ile Gln Asp Asn Glu Ser Thr Leu Glu Val Thr
            900                 905                 910

Ser Leu Lys Tyr Ser Thr Ser Pro Tyr Leu Leu Glu Ala Ala Ser His
        915                 920                 925

Leu Ser Pro Glu Asn Phe Val Glu Asp Glu Ala Lys Ile Cys Val Gln
    930                 935                 940

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

Ser Ile Ile Ser Arg Lys Glu Lys Asn Asp Pro Val Phe Leu Glu Glu
                965                 970                 975

Ala Gly Lys Ala Glu Lys Ile Val Ile Ser Arg Ser Thr Ser Pro Thr
            980                 985                 990

Phe Asn Lys Gln Thr Lys Arg Val  Ser Trp Ser Ser Phe  Asn Ser
Leu
        995                 1000                1005

Gly Gln  Tyr Phe Thr Gly Lys  Ile Pro Lys Ala Thr  Pro Glu Leu
    1010                1015                1020

Gly Ser  Ser Glu Asn Ser Ala  Ser Ser Pro Pro Arg  Phe Lys Thr
    1025                1030                1035

Glu Lys  Met Glu Ser Lys Thr  Val Leu Pro Phe Thr  Asp Lys Cys
    1040                1045                1050

Glu Ser  Ser Asn Leu Thr Val  Asn Thr Ser Phe Gly  Ser Cys Pro
    1055                1060                1065

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

Thr Arg  Lys Asn His Ser Glu  His Pro Leu Cys Ser  Glu Glu Ala
    1085                1090                1095

Leu Asp  Pro Asp Ile Glu Leu  Ser Leu Val Ser Glu  Glu Asp Lys
    1100                1105                1110
```

```
Gln Ser  Thr Ser Asn Arg Asp  Phe Glu Thr Glu Ala  Glu Asp Glu
    1115                1120                1125

Ser Ile  Tyr Phe Thr Pro Glu  Leu Tyr Asp Pro Glu  Asp Thr Asp
    1130                1135                1140

Glu Glu  Lys Asn Asp Leu Ala  Glu Thr Asp Arg Gly  Asn Arg Leu
    1145                1150                1155

Ala Asn  Asn Ser Asp Cys Ile  Leu Ala Lys Asp Leu  Phe Glu Ile
    1160                1165                1170

Arg Thr  Ile Lys Glu Val Asp  Ser Ala Arg Glu Val  Lys Ala Glu
    1175                1180                1185

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

Ser Lys  Ile Asp Asp Ile Asp  Gly Asn Val Lys Thr  Thr Trp Ile
    1205                1210                1215

Asn Glu  Leu Glu Leu Gly Lys  Thr His Glu Ile Glu  Ile Lys Asn
    1220                1225                1230

Phe Lys  Pro Ser Pro Ser Lys  Asn Lys Gly Met Phe  Pro Gly Phe
    1235                1240                1245

Lys
```

<210> 9530
<211> 69
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1945; "

<220>
<221> source
<223> /note="Gene Symbol: BRIP1; "

<220>
<221> source
<223> /note="Gene Name:

BRCA1
interacting
prt C-terminal helicase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462274"

<400> 9530
Met Ser Ser Met Trp Ser Glu Tyr Thr Ile Gly Gly Val Lys Ile Tyr
1   5   10   15

Phe Pro Tyr Lys Ala Tyr Pro Ser Gln Leu Ala Met Met Asn Ser Ile
            20   25   30

Leu Arg Gly Leu Asn Ser Lys Gln His Cys Leu Leu Glu Ser Pro Thr
        35   40   45

Gly Ser Gly Lys Ser Leu Ala Leu Leu Cys Ser Ala Leu Ala Trp Gln
    50   55   60

Gln Ser Leu Ser Gly
65

<210> 9531
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1945; "

<220>
<221> source
<223> /note="Gene Symbol: BRIP1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1
interacting
prt C-terminal helicase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463272"

<220>
<221> MOD_RES
<222> (1)..(1)

<223> Any amino acid

<400> 9531
Xaa Asp Glu Val Gly Ala Leu Leu Leu Ser Val Cys Gln Thr Val Ser
1 5 10 15

Gln Gly Ile Leu Cys Phe Leu Pro Ser Tyr Lys Leu Leu Glu Lys Leu
20 25 30

Lys Glu Arg Trp Leu Ser Thr Gly Leu Trp His Asn Leu Glu Leu Val
35 40 45

Lys Thr Val Ile Val Glu Pro Gln Gly Gly Glu Lys Thr Asn Phe Asp
50 55 60

Glu Leu Leu Gln Val Tyr Tyr Asp Ala Ile Lys Tyr Lys Gly Glu Lys
65 70 75 80

Asp Gly Ala Leu Leu Val Ala Val Cys Arg Gly Lys Val Ser Glu Gly
85 90 95

Leu Asp Phe Ser Asp Asp Asn Ala Arg Ala Val Ile Thr Ile Gly Ile
100 105 110

Pro Phe Pro Asn Val Lys Asp Leu Gln Leu Thr Ser Ala Thr Ala Glu
115 120 125

Gly Thr Asn Gly Tyr Ala Gln Ser Trp Val Ser Tyr Ser Lys Met Ala
130 135 140

Asp Ala Ala Leu Thr Thr Ala Thr Asp Glu Thr Val Asp Ile Tyr Pro
145 150 155 160

Arg Asn Leu Leu Ser Pro Ser Thr Ala Leu Val Leu His Ser Thr Glu
165 170 175

Val Glu Cys Tyr
180

<210> 9532
<211> 84
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 1945; "

<220>
<221> source
<223> /note="Gene Symbol: BRIP1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1
interacting
prt C-terminal helicase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463827"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9532
Xaa Ile Trp Ser Gly Asn Glu Met Leu Leu Thr Leu His Lys Met Gly
1 5 10 15

Ile Thr Thr Ala Thr Phe Pro Ile Leu Gln Gly His Phe Ser Ala Val
20 25 30

Leu Gln Lys Glu Glu Lys Ile Ser Pro Ile Tyr Gly Lys Glu Glu Ala
35 40 45

Arg Glu Val Pro Val Ile Ser Ala Ser Thr Gln Ile Met Leu Lys Gly
50 55 60

Leu Phe Met Val Leu Asp Tyr Leu Phe Arg Gln Asn Ser Arg Asp Glu
65 70 75 80

Ile Ser Leu Cys

<210> 9533
<211> 994
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1945; "

<220>
<221> source
<223> /note="Gene Symbol: BRIP1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1
interacting
prt C-terminal helicase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464654"

<400> 9533
Met Ser Ser Met Trp Ser Glu Tyr Thr Ile Gly Gly Val Lys Ile Tyr
1 5 10 15

Phe Pro Tyr Lys Ala Tyr Pro Ser Gln Leu Ala Met Met Asn Ser Ile
20 25 30

Leu Arg Gly Leu Asn Ser Lys Gln His Cys Leu Leu Glu Ser Pro Thr
35 40 45

Gly Ser Gly Lys Ser Leu Ala Leu Leu Cys Ser Ala Leu Ala Trp Gln
50 55 60

Gln Ser Leu Ser Gly Lys Pro Ala Asp Glu Gly Val Ser Glu Lys Ala
65 70 75 80

Glu Val Gln Leu Ser Cys Cys Cys Ala Cys His Ser Lys Asp Phe Thr
85 90 95

Asn Asn Asp Met Asn Gln Gly Thr Ser Arg His Phe Asn Tyr Pro Ser
100 105 110

Thr Pro Pro Ser Glu Arg Asn Gly Thr Ser Ser Thr Cys Gln Asp Ser
115 120 125

Pro Glu Lys Thr Thr Leu Ala Ala Lys Leu Ser Ala Lys Lys Gln Ala
130 135 140

Ser Ile Tyr Arg Asp Glu Asn Asp Asp Phe Gln Val Glu Lys Lys Arg
145 150 155 160

```
Ile Arg Pro Leu Glu Thr Thr Gln Gln Ile Arg Lys Arg His Cys Phe
                165                 170                 175

Gly Thr Glu Val His Asn Leu Asp Ala Lys Val Asp Ser Gly Lys Thr
            180                 185                 190

Val Lys Leu Asn Ser Pro Leu Glu Lys Ile Asn Ser Phe Ser Pro Gln
        195                 200                 205

Lys Pro Pro Gly His Cys Ser Arg Cys Cys Cys Ser Thr Lys Gln Gly
    210                 215                 220

Asn Ser Gln Glu Ser Ser Asn Thr Ile Lys Lys Asp His Thr Gly Lys
225                 230                 235                 240

Ser Lys Ile Pro Lys Ile Tyr Phe Gly Thr Arg Thr His Lys Gln Ile
                245                 250                 255

Ala Gln Ile Thr Arg Glu Leu Arg Arg Thr Ala Tyr Ser Gly Val Pro
            260                 265                 270

Met Thr Ile Leu Ser Ser Arg Asp His Thr Cys Val His Pro Glu Val
        275                 280                 285

Val Gly Asn Phe Asn Arg Asn Glu Lys Cys Met Glu Leu Leu Asp Gly
    290                 295                 300

Lys Asn Gly Lys Ser Cys Tyr Phe Tyr His Gly Val His Lys Ile Ser
305                 310                 315                 320

Asp Gln His Thr Leu Gln Thr Phe Gln Gly Met Cys Lys Ala Trp Asp
                325                 330                 335

Ile Glu Glu Leu Val Ser Leu Gly Lys Lys Leu Lys Ala Cys Pro Tyr
            340                 345                 350

Tyr Thr Ala Arg Glu Leu Ile Gln Asp Ala Asp Ile Ile Phe Cys Pro
        355                 360                 365

Tyr Asn Tyr Leu Leu Asp Ala Gln Ile Arg Glu Ser Met Asp Leu Asn
    370                 375                 380

Leu Lys Glu Gln Val Val Ile Leu Asp Glu Ala His Asn Ile Glu Asp
```

385 390 395 400

Cys Ala Arg Glu Ser Ala Ser Tyr Ser Val Thr Glu Val Gln Leu Arg
405 410 415

Phe Ala Arg Asp Glu Leu Asp Ser Met Val Asn Asn Asn Ile Arg Lys
420 425 430

Lys Asp His Glu Pro Leu Arg Ala Val Cys Cys Ser Leu Ile Asn Trp
435 440 445

Leu Glu Ala Asn Ala Glu Tyr Leu Val Glu Arg Asp Tyr Glu Ser Ala
450 455 460

Cys Lys Ile Trp Ser Gly Asn Glu Met Leu Leu Thr Leu His Lys Met
465 470 475 480

Gly Ile Thr Thr Ala Thr Phe Pro Ile Leu Gln Gly His Phe Ser Ala
485 490 495

Val Leu Gln Lys Glu Glu Lys Ile Ser Pro Ile Tyr Gly Lys Glu Glu
500 505 510

Ala Arg Glu Val Pro Val Ile Ser Ala Ser Thr Gln Ile Met Leu Lys
515 520 525

Gly Leu Phe Met Val Leu Asp Tyr Leu Phe Arg Gln Asn Ser Arg Phe
530 535 540

Ala Asp Asp Tyr Lys Ile Ala Ile Gln Gln Thr Tyr Ser Trp Thr Asn
545 550 555 560

Gln Ile Asp Ile Ser Asp Lys Asn Gly Leu Leu Val Leu Pro Lys Asn
565 570 575

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

Cys Leu Asn Pro Ala Val Ala Phe Ser Asp Ile Asn Gly Lys Val Gln
595 600 605

Thr Ile Val Leu Thr Ser Gly Thr Leu Ser Pro Met Lys Ser Phe Ser
610 615 620

```
Ser Glu Leu Gly Val Thr Phe Thr Ile Gln Leu Glu Ala Asn His Ile
625                 630                 635                 640

Ile Lys Asn Ser Gln Val Trp Val Gly Thr Ile Gly Ser Gly Pro Lys
                645                 650                 655

Gly Arg Asn Leu Cys Ala Thr Phe Gln Asn Thr Glu Thr Phe Glu Phe
            660                 665                 670

Gln Asp Glu Val Gly Ala Leu Leu Leu Ser Val Cys Gln Thr Val Ser
        675                 680                 685

Gln Gly Ile Leu Cys Phe Leu Pro Ser Tyr Lys Leu Leu Glu Lys Leu
    690                 695                 700

Lys Glu Arg Trp Leu Ser Thr Gly Leu Trp His Asn Leu Glu Leu Val
705                 710                 715                 720

Lys Thr Val Ile Val Glu Pro Gln Gly Gly Glu Lys Thr Asn Phe Asp
                725                 730                 735

Glu Leu Leu Gln Val Tyr Tyr Asp Ala Ile Lys Tyr Lys Gly Glu Lys
            740                 745                 750

Asp Gly Ala Leu Leu Val Ala Val Cys Arg Gly Lys Val Ser Glu Gly
        755                 760                 765

Leu Asp Phe Ser Asp Asp Asn Ala Arg Ala Val Ile Thr Ile Gly Ile
    770                 775                 780

Pro Phe Pro Asn Val Lys Asp Leu Gln Val Glu Leu Lys Arg Gln Tyr
785                 790                 795                 800

Asn Asp His His Ser Lys Leu Arg Gly Leu Leu Pro Gly Arg Gln Trp
                805                 810                 815

Tyr Glu Ile Gln Ala Tyr Arg Ala Leu Asn Gln Ala Leu Gly Arg Cys
            820                 825                 830

Ile Arg His Arg Asn Asp Trp Gly Ala Leu Ile Leu Val Asp Asp Arg
        835                 840                 845
```

```
Phe Arg Asn Asn Pro Ser Arg Tyr Ile Ser Gly Leu Ser Lys Trp Val
    850                 855                 860

Arg Gln Gln Ile Gln His His Ser Thr Phe Glu Ser Ala Leu Glu Ser
865                 870                 875                 880

Leu Ala Glu Phe Ser Lys Lys His Gln Lys Val Leu Asn Val Ser Ile
                885                 890                 895

Lys Asp Arg Thr Asn Ile Gln Asp Asn Glu Ser Thr Leu Glu Val Thr
            900                 905                 910

Ser Leu Lys Tyr Ser Thr Ser Pro Tyr Leu Leu Glu Ala Ala Ser His
        915                 920                 925

Leu Ser Pro Glu Asn Phe Val Glu Asp Glu Ala Lys Ile Cys Val Gln
    930                 935                 940

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

Ser Ile Ile Ser Arg Lys Glu Lys Ser Met Lys Ser Ser Ser His Leu
                965                 970                 975

Pro Leu Ile Glu Lys Ser Phe Ile Ile Phe Ser Glu Met Ile Phe Ile
            980                 985                 990

Trp Val
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<210> 9534
<211> 291
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:

BRCA1/BRCA2-containing
complex,
subunit 3; "

<220>
<221> source
<223> /note="Uniprot ID: P46736; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000328641"

<400> 9534
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1   5   10   15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
            20   25   30

Glu Val Met Gly Leu Cys Ile Gly Glu Leu Asn Asp Asp Thr Arg Ser
        35   40   45

Asp Ser Lys Phe Ala Tyr Thr Gly Thr Glu Met Arg Thr Val Ala Glu
    50   55   60

Lys Val Asp Ala Val Arg Ile Val His Ile His Ser Val Ile Ile Leu
65   70   75   80

Arg Arg Ser Asp Lys Arg Lys Asp Arg Val Glu Ile Ser Pro Glu Gln
                85   90   95

Leu Ser Ala Ala Ser Thr Glu Ala Glu Arg Leu Ala Glu Leu Thr Gly
            100   105   110

Arg Pro Met Arg Val Val Gly Trp Tyr His Ser His Pro His Ile Thr
        115   120   125

Val Trp Pro Ser His Val Asp Val Arg Thr Gln Ala Met Tyr Gln Met
    130   135   140

Met Asp Gln Gly Phe Val Gly Leu Ile Phe Ser Cys Phe Ile Glu Asp
145   150   155   160

Lys Asn Thr Lys Thr Gly Arg Val Leu Tyr Thr Cys Phe Gln Ser Ile
                165   170   175

```
Gln Ala Gln Lys Ser Ser Glu Tyr Glu Arg Ile Glu Ile Pro Ile His
            180                 185                 190

Ile Val Pro His Val Thr Ile Gly Lys Val Cys Leu Glu Ser Ala Val
        195                 200                 205

Glu Leu Pro Lys Ile Leu Cys Gln Glu Glu Gln Asp Ala Tyr Arg Arg
    210                 215                 220

Ile His Ser Leu Thr His Leu Asp Ser Val Thr Lys Ile His Asn Gly
225                 230                 235                 240

Ser Val Phe Thr Lys Asn Leu Cys Ser Gln Met Ser Ala Val Ser Gly
                245                 250                 255

Pro Leu Leu Gln Trp Leu Glu Asp Arg Leu Glu Gln Asn Gln Gln His
            260                 265                 270

Leu Gln Glu Leu Gln Gln Glu Lys Glu Glu Leu Met Gln Glu Leu Ser
        275                 280                 285

Ser Leu Glu
    290


<210> 9535
<211> 292
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
      BRCA1/BRCA2-containing
      complex,
      subunit 3; "

<220>
<221> source
<223> /note="Uniprot ID:  P46736; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000344103"

<400> 9535
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1 5 10 15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
20 25 30

Glu Val Met Gly Leu Cys Ile Gly Glu Leu Asn Asp Asp Thr Ser Arg
35 40 45

Ser Asp Ser Lys Phe Ala Tyr Thr Gly Thr Glu Met Arg Thr Val Ala
50 55 60

Glu Lys Val Asp Ala Val Arg Ile Val His Ile His Ser Val Ile Ile
65 70 75 80

Leu Arg Arg Ser Asp Lys Arg Lys Asp Arg Val Glu Ile Ser Pro Glu
85 90 95

Gln Leu Ser Ala Ala Ser Thr Glu Ala Glu Arg Leu Ala Glu Leu Thr
100 105 110

Gly Arg Pro Met Arg Val Val Gly Trp Tyr His Ser His Pro His Ile
115 120 125

Thr Val Trp Pro Ser His Val Asp Val Arg Thr Gln Ala Met Tyr Gln
130 135 140

Met Met Asp Gln Gly Phe Val Gly Leu Ile Phe Ser Cys Phe Ile Glu
145 150 155 160

Asp Lys Asn Thr Lys Thr Gly Arg Val Leu Tyr Thr Cys Phe Gln Ser
165 170 175

Ile Gln Ala Gln Lys Ser Ser Glu Tyr Glu Arg Ile Glu Ile Pro Ile
180 185 190

His Ile Val Pro His Val Thr Ile Gly Lys Val Cys Leu Glu Ser Ala
195 200 205

Val Glu Leu Pro Lys Ile Leu Cys Gln Glu Glu Gln Asp Ala Tyr Arg

```
    210                 215                 220

Arg Ile His Ser Leu Thr His Leu Asp Ser Val Thr Lys Ile His Asn
225                 230                 235                 240

Gly Ser Val Phe Thr Lys Asn Leu Cys Ser Gln Met Ser Ala Val Ser
                245                 250                 255

Gly Pro Leu Leu Gln Trp Leu Glu Asp Arg Leu Glu Gln Asn Gln Gln
            260                 265                 270

His Leu Gln Glu Leu Gln Gln Glu Lys Glu Glu Leu Met Gln Glu Leu
        275                 280                 285

Ser Ser Leu Glu
    290


<210> 9536
<211> 247
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
      BRCA1/BRCA2-containing
      complex,
      subunit 3; "

<220>
<221> source
<223> /note="Uniprot ID:  P46736; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358471"

<400> 9536
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1               5                   10                  15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
```

```
            20                  25                  30

Glu Val Met Gly Leu Cys Ile Gly Glu Leu Asn Asp Asp Thr Arg Ser
        35                  40                  45

Asp Ser Lys Phe Ala Tyr Thr Gly Thr Glu Met Arg Thr Val Ala Glu
    50                  55                  60

Lys Val Asp Ala Val Arg Ile Val His Ile His Ser Val Ile Ile Leu
65                  70                  75                  80

Arg Arg Ser Asp Lys Arg Lys Asp Arg Val Glu Ile Ser Pro Glu Gln
                85                  90                  95

Leu Ser Ala Ala Ser Thr Glu Ala Glu Arg Leu Ala Glu Leu Thr Gly
            100                 105                 110

Arg Pro Met Arg Val Val Gly Trp Tyr His Ser His Pro His Ile Thr
        115                 120                 125

Val Trp Pro Ser His Val Asp Val Arg Thr Gln Ala Met Tyr Gln Met
    130                 135                 140

Met Asp Gln Gly Phe Val Gly Leu Ile Phe Ser Cys Phe Ile Glu Asp
145                 150                 155                 160

Lys Asn Thr Lys Thr Gly Arg Val Leu Tyr Thr Cys Phe Gln Ser Ile
                165                 170                 175

Gln Ala Gln Lys Ser Ser Asp Leu Thr His Leu Asp Ser Val Thr Lys
            180                 185                 190

Ile His Asn Gly Ser Val Phe Thr Lys Asn Leu Cys Ser Gln Met Ser
        195                 200                 205

Ala Val Ser Gly Pro Leu Leu Gln Trp Leu Glu Asp Arg Leu Glu Gln
    210                 215                 220

Asn Gln Gln His Leu Gln Glu Leu Gln Gln Glu Lys Glu Glu Leu Met
225                 230                 235                 240

Gln Glu Leu Ser Ser Leu Glu
                245
```

<210> 9537
<211> 316
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1/BRCA2-containing
complex,
subunit 3; "

<220>
<221> source
<223> /note="Uniprot ID: P46736; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358474"

<400> 9537
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1   5   10   15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
            20   25   30

Glu Val Met Gly Leu Cys Ile Gly Glu Leu Asn Asp Asp Thr Arg Ser
        35   40   45

Asp Ser Lys Phe Ala Tyr Thr Gly Thr Glu Met Arg Thr Val Ala Glu
    50   55   60

Lys Val Asp Ala Val Arg Ile Val His Ile His Ser Val Ile Ile Leu
65   70   75   80

Arg Arg Ser Asp Lys Arg Lys Asp Arg Val Glu Ile Ser Pro Glu Gln
                85   90   95

Leu Ser Ala Ala Ser Thr Glu Ala Glu Arg Leu Ala Glu Leu Thr Gly
            100   105   110

```
Arg Pro Met Arg Val Val Gly Trp Tyr His Ser His Pro His Ile Thr
        115                 120                 125

Val Trp Pro Ser His Val Asp Val Arg Thr Gln Ala Met Tyr Gln Met
    130                 135                 140

Met Asp Gln Gly Phe Val Gly Leu Ile Phe Ser Cys Phe Ile Glu Asp
145                 150                 155                 160

Lys Asn Thr Lys Thr Gly Arg Val Leu Tyr Thr Cys Phe Gln Ser Ile
                165                 170                 175

Gln Ala Gln Lys Ser Ser Glu Ser Leu His Gly Pro Arg Asp Phe Trp
            180                 185                 190

Ser Ser Ser Gln His Ile Ser Ile Glu Gly Gln Lys Glu Glu Glu Arg
        195                 200                 205

Tyr Glu Arg Ile Glu Ile Pro Ile His Ile Val Pro His Val Thr Ile
    210                 215                 220

Gly Lys Val Cys Leu Glu Ser Ala Val Glu Leu Pro Lys Ile Leu Cys
225                 230                 235                 240

Gln Glu Glu Gln Asp Ala Tyr Arg Arg Ile His Ser Leu Thr His Leu
                245                 250                 255

Asp Ser Val Thr Lys Ile His Asn Gly Ser Val Phe Thr Lys Asn Leu
            260                 265                 270

Cys Ser Gln Met Ser Ala Val Ser Gly Pro Leu Leu Gln Trp Leu Glu
        275                 280                 285

Asp Arg Leu Glu Gln Asn Gln Gln His Leu Gln Glu Leu Gln Gln Glu
    290                 295                 300

Lys Glu Glu Leu Met Gln Glu Leu Ser Ser Leu Glu
305                 310                 315
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<210> 9538
<211> 90
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1/BRCA2-containing
complex,
subunit 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381988"

<400> 9538
Met Arg Thr Val Ala Glu Lys Val Asp Ala Val Arg Ile Val His Ile
1 5 10 15

His Ser Val Ile Ile Leu Arg Arg Ser Asp Lys Arg Lys Asp Arg Val
20 25 30

Glu Ile Ser Pro Glu Gln Leu Ser Ala Ala Ser Thr Glu Ala Glu Arg
35 40 45

Leu Ala Glu Leu Thr Gly Arg Pro Met Arg Val Val Gly Trp Tyr His
50 55 60

Ser His Pro His Ile Thr Val Trp Pro Ser His Val Gly Lys Tyr His
65 70 75 80

Gly Val Ala Met Phe Ile Val Phe Arg Asn
85 90

<210> 9539
<211> 317
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source

<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1/BRCA2-containing
complex,
subunit 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381998"

<400> 9539

```
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1               5                   10                  15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
            20                  25                  30

Glu Val Met Gly Leu Cys Ile Gly Glu Leu Asn Asp Asp Thr Arg Ser
        35                  40                  45

Asp Ser Lys Phe Ala Tyr Thr Gly Thr Glu Met Arg Thr Val Ala Glu
    50                  55                  60

Lys Val Asp Ala Val Arg Ile Val His Ile His Ser Val Ile Ile Leu
65                  70                  75                  80

Arg Arg Ser Asp Lys Arg Lys Asp Arg Val Glu Ile Ser Pro Glu Gln
                85                  90                  95

Leu Ser Ala Ala Ser Thr Glu Thr His Arg Leu Ala Glu Leu Thr Gly
            100                 105                 110

Arg Pro Met Arg Val Val Gly Trp Tyr His Ser His Pro His Ile Thr
        115                 120                 125

Val Trp Pro Ser His Val Asp Val Arg Thr Gln Ala Met Tyr Gln Met
    130                 135                 140

Met Asp Gln Gly Phe Val Gly Leu Ile Phe Ser Cys Phe Ile Glu Asp
145                 150                 155                 160

Lys Asn Thr Lys Thr Gly Arg Val Leu Tyr Thr Cys Phe Gln Ser Ile
                165                 170                 175
```

```
Gln Ala Gln Lys Ser Ser Glu Ser Leu His Gly Pro Arg Asp Phe Trp
            180                 185                 190

Ser Ser Ser Gln His Ile Ser Ile Glu Gly Gln Lys Glu Glu Glu Arg
        195                 200                 205

Tyr Glu Arg Ile Glu Ile Pro Ile His Ile Val Pro His Val Thr Ile
    210                 215                 220

Gly Lys Val Cys Leu Glu Ser Ala Val Glu Leu Pro Lys Ile Leu Cys
225                 230                 235                 240

Gln Glu Glu Gln Asp Ala Tyr Arg Arg Ile His Ser Leu Thr His Leu
                245                 250                 255

Asp Ser Val Thr Lys Ile His Asn Gly Ser Glu Val Phe Thr Lys Asn
            260                 265                 270

Leu Cys Ser Gln Met Ser Ala Val Ser Gly Pro Leu Leu Gln Trp Leu
        275                 280                 285

Glu Asp Arg Leu Glu Gln Asn Gln Gln His Leu Gln Glu Leu Gln Gln
    290                 295                 300

Glu Lys Glu Glu Leu Met Gln Glu Leu Ser Ser Leu Glu
305                 310                 315


<210> 9540
<211> 226
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
      BRCA1/BRCA2-containing
      complex,
      subunit 3; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000413170"

<400> 9540
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1   5   10   15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
            20   25   30

Glu Val Met Gly Leu Cys Ile Gly Glu Val Asp Ala Val Arg Ile Val
        35   40   45

His Ile His Ser Val Ile Ile Leu Arg Arg Ser Asp Lys Arg Lys Asp
    50   55   60

Arg Val Glu Ile Ser Pro Glu Gln Leu Ser Ala Ala Ser Thr Glu Ala
65   70   75   80

Glu Arg Leu Ala Glu Leu Thr Gly Arg Pro Met Arg Val Val Gly Trp
                85   90   95

Tyr His Ser His Pro His Ile Thr Val Trp Pro Ser His Val Asp Val
            100   105   110

Arg Thr Gln Ala Met Tyr Gln Met Met Asp Gln Gly Phe Val Gly Leu
        115   120   125

Ile Phe Ser Cys Phe Ile Glu Asp Lys Asn Thr Lys Thr Gly Arg Val
    130   135   140

Leu Tyr Thr Cys Phe Gln Ser Ile Gln Ala Gln Lys Ser Ser Glu Ser
145   150   155   160

Leu His Gly Pro Arg Asp Phe Trp Ser Ser Ser Gln His Ile Ser Ile
                165   170   175

Glu Gly Gln Lys Glu Glu Glu Arg Tyr Glu Arg Ile Glu Ile Pro Ile
            180   185   190

His Ile Val Pro His Val Thr Ile Gly Lys Val Cys Leu Glu Ser Ala
        195   200   205

Val Glu Leu Pro Lys Ile Leu Cys Gln Glu Glu Gln Asp Ala Tyr Arg
210 215 220

Arg Ile
225

<210> 9541
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1/BRCA2-containing
complex,
subunit 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415152"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9541
Xaa Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser Asp
1 5 10 15

Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu Glu
20 25 30

Val Met Gly Leu Cys Ile Gly Glu Val Ile Gly Val Thr Pro Asn Leu
35 40 45

His Ile Leu Glu Leu Lys Cys Ala Gln Leu Leu Lys Arg Leu Met Pro
50 55 60

Ser Glu Leu Phe Thr Phe Ile Leu Ser Ser Ser Tyr Asp Val Leu Ile
65 70 75 80

Arg Gly Arg Thr Glu
85

<210> 9542
<211> 293
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1/BRCA2-containing
complex,
subunit 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482836"

<400> 9542
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1 5 10 15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
20 25 30

Glu Val Met Gly Leu Cys Ile Gly Glu Leu Asn Asp Asp Thr Ser Arg
35 40 45

Ser Asp Ser Lys Phe Ala Tyr Thr Gly Thr Glu Met Arg Thr Val Ala
50 55 60

Glu Lys Val Asp Ala Val Arg Ile Val His Ile His Ser Val Ile Ile
65 70 75 80

Leu Arg Arg Ser Asp Lys Arg Lys Asp Arg Val Glu Ile Ser Pro Glu
85 90 95

Gln Leu Ser Ala Ala Ser Thr Glu Thr His Arg Leu Ala Glu Leu Thr
100 105 110

```
Gly Arg Pro Met Arg Val Val Gly Trp Tyr His Ser His Pro His Ile
        115                 120                 125

Thr Val Trp Pro Ser His Val Asp Val Arg Thr Gln Ala Met Tyr Gln
    130                 135                 140

Met Met Asp Gln Gly Phe Val Gly Leu Ile Phe Ser Cys Phe Ile Glu
145                 150                 155                 160

Asp Lys Asn Thr Lys Thr Gly Arg Val Leu Tyr Thr Cys Phe Gln Ser
                165                 170                 175

Ile Gln Ala Gln Lys Ser Ser Glu Tyr Glu Arg Ile Glu Ile Pro Ile
            180                 185                 190

His Ile Val Pro His Val Thr Ile Gly Lys Val Cys Leu Glu Ser Ala
        195                 200                 205

Val Glu Leu Pro Lys Ile Leu Cys Gln Glu Glu Gln Asp Ala Tyr Arg
    210                 215                 220

Arg Ile His Ser Leu Thr His Leu Asp Ser Val Thr Lys Ile His Asn
225                 230                 235                 240

Gly Ser Glu Val Phe Thr Lys Asn Leu Cys Ser Gln Met Ser Ala Val
                245                 250                 255

Ser Gly Pro Leu Leu Gln Trp Leu Glu Asp Arg Leu Glu Gln Asn Gln
            260                 265                 270

Gln His Leu Gln Glu Leu Gln Gln Glu Lys Glu Glu Leu Met Gln Glu
        275                 280                 285

Leu Ser Ser Leu Glu
    290
```

<210> 9543
<211> 317
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1946; "

<220>
<221> source
<223> /note="Gene Symbol: BRCC3; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1/BRCA2-containing
complex,
subunit 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486287"

<400> 9543

```
Met Ala Val Gln Val Val Gln Ala Val Gln Ala Val His Leu Glu Ser
1               5                  10                  15

Asp Ala Phe Leu Val Cys Leu Asn His Ala Leu Ser Thr Glu Lys Glu
            20                  25                  30

Glu Val Met Gly Leu Cys Ile Gly Glu Val Ser Ser Pro Ser Arg Ser
        35                  40                  45

Asp Ser Lys Phe Ala Tyr Thr Gly Thr Glu Met Arg Thr Val Ala Glu
    50                  55                  60

Lys Val Asp Ala Val Arg Ile Val His Ile His Ser Val Ile Ile Leu
65                  70                  75                  80

Arg Arg Ser Asp Lys Arg Lys Asp Arg Val Glu Ile Ser Pro Glu Gln
                85                  90                  95

Leu Ser Ala Ala Ser Thr Glu Thr His Arg Leu Ala Glu Leu Thr Gly
            100                 105                 110

Arg Pro Met Arg Val Val Gly Trp Tyr His Ser His Pro His Ile Thr
        115                 120                 125

Val Trp Pro Ser His Val Asp Val Arg Thr Gln Ala Met Tyr Gln Met
    130                 135                 140

Met Asp Gln Gly Phe Val Gly Leu Ile Phe Ser Cys Phe Ile Glu Asp
145                 150                 155                 160
```

```
Lys Asn Thr Lys Thr Gly Arg Val Leu Tyr Thr Cys Phe Gln Ser Ile
                165                 170                 175

Gln Ala Gln Lys Ser Ser Glu Ser Leu His Gly Pro Arg Asp Phe Trp
            180                 185                 190

Ser Ser Ser Gln His Ile Ser Ile Glu Gly Gln Lys Glu Glu Glu Arg
        195                 200                 205

Tyr Glu Arg Ile Glu Ile Pro Ile His Ile Val Pro His Val Thr Ile
    210                 215                 220

Gly Lys Val Cys Leu Glu Ser Ala Val Glu Leu Pro Lys Ile Leu Cys
225                 230                 235                 240

Gln Glu Glu Gln Asp Ala Tyr Arg Arg Ile His Ser Leu Thr His Leu
                245                 250                 255

Asp Ser Val Thr Lys Ile His Asn Gly Ser Glu Val Phe Thr Lys Asn
            260                 265                 270

Leu Cys Ser Gln Met Ser Ala Val Ser Gly Pro Leu Leu Gln Trp Leu
        275                 280                 285

Glu Asp Arg Leu Glu Gln Asn Gln Gln His Leu Gln Glu Leu Gln Gln
    290                 295                 300

Glu Lys Glu Glu Leu Met Gln Glu Leu Ser Ser Leu Glu
305                 310                 315


<210> 9544
<211> 821
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1947; "

<220>
<221> source
<223> /note="Gene Symbol: BRAT1; "

<220>
<221> source
<223> /note="Gene Name:
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BRCA1-associated ATM
activator 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q6PJG6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000339637"

<400> 9544

```
Met Asp Pro Glu Cys Ala Gln Leu Leu Pro Ala Leu Cys Ala Val Leu
1               5                  10                  15

Val Asp Pro Arg Gln Pro Val Ala Asp Asp Thr Cys Leu Glu Lys Leu
            20                  25                  30

Leu Asp Trp Phe Lys Thr Val Thr Glu Gly Glu Ser Ser Val Val Leu
        35                  40                  45

Leu Gln Glu His Pro Cys Leu Val Glu Leu Leu Ser His Val Leu Lys
    50                  55                  60

Val Gln Asp Leu Ser Ser Gly Val Leu Ser Phe Ser Leu Arg Leu Ala
65                  70                  75                  80

Gly Thr Phe Ala Ala Gln Glu Asn Cys Phe Gln Tyr Leu Gln Gln Gly
                85                  90                  95

Glu Leu Leu Pro Gly Leu Phe Gly Glu Pro Gly Pro Leu Gly Arg Ala
            100                 105                 110

Thr Trp Ala Val Pro Thr Val Arg Ser Gly Trp Ile Gln Gly Leu Arg
        115                 120                 125

Ser Leu Ala Gln His Pro Ser Ala Leu Arg Phe Leu Ala Asp His Gly
    130                 135                 140

Ala Val Asp Thr Ile Phe Ser Leu Gln Gly Asp Ser Ser Leu Phe Val
145                 150                 155                 160

Ala Ser Ala Ala Ser Gln Leu Leu Val His Val Leu Ala Leu Ser Met
                165                 170                 175

Arg Gly Gly Ala Glu Gly Gln Pro Cys Leu Pro Gly Gly Asp Trp Pro
```

```
            180                 185                 190

Ala Cys Ala Gln Lys Ile Met Asp His Val Glu Glu Ser Leu Cys Ser
        195                 200                 205

Ala Ala Thr Pro Lys Val Thr Gln Ala Leu Asn Val Leu Thr Thr Thr
    210                 215                 220

Phe Gly Arg Cys Gln Ser Pro Trp Thr Glu Ala Leu Trp Val Arg Leu
225                 230                 235                 240

Ser Pro Arg Val Ala Cys Leu Leu Glu Arg Asp Pro Ile Pro Ala Ala
                245                 250                 255

His Ser Phe Val Asp Leu Leu Leu Cys Val Ala Arg Ser Pro Val Phe
            260                 265                 270

Ser Ser Ser Asp Gly Ser Leu Trp Glu Thr Val Ala Arg Ala Leu Ser
        275                 280                 285

Cys Leu Gly Pro Thr His Met Gly Pro Leu Ala Leu Gly Ile Leu Lys
    290                 295                 300

Leu Glu His Cys Pro Gln Ala Leu Arg Thr Gln Ala Phe Gln Val Leu
305                 310                 315                 320

Leu Gln Pro Leu Ala Cys Val Leu Lys Ala Thr Val Gln Ala Pro Gly
                325                 330                 335

Pro Pro Gly Leu Leu Asp Gly Thr Ala Asp Asp Ala Thr Thr Val Asp
            340                 345                 350

Thr Leu Leu Ala Ser Lys Ser Ser Cys Ala Gly Leu Leu Cys Arg Thr
        355                 360                 365

Leu Ala His Leu Glu Glu Leu Gln Pro Leu Pro Gln Arg Pro Ser Pro
    370                 375                 380

Trp Pro Gln Ala Ser Leu Leu Gly Ala Thr Val Thr Val Leu Arg Leu
385                 390                 395                 400

Cys Asp Gly Ser Ala Ala Pro Ala Ser Ser Val Gly Gly His Leu Cys
                405                 410                 415
```

```
Gly Thr Leu Ala Gly Cys Val Arg Val Gln Arg Ala Ala Leu Asp Phe
            420                 425                 430

Leu Gly Thr Leu Ser Gln Gly Thr Gly Pro Gln Glu Leu Val Thr Gln
        435                 440                 445

Ala Leu Ala Val Leu Leu Glu Cys Leu Glu Ser Pro Gly Ser Ser Pro
    450                 455                 460

Thr Val Leu Lys Lys Ala Phe Gln Ala Thr Leu Arg Trp Leu Leu Ser
465                 470                 475                 480

Ser Pro Lys Thr Pro Gly Cys Ser Asp Leu Gly Pro Leu Ile Pro Gln
                485                 490                 495

Phe Leu Arg Glu Leu Phe Pro Val Leu Gln Lys Arg Leu Cys His Pro
            500                 505                 510

Cys Trp Glu Val Arg Asp Ser Ala Leu Glu Phe Leu Thr Gln Leu Ser
        515                 520                 525

Arg His Trp Gly Gly Gln Ala Asp Phe Arg Cys Ala Leu Leu Ala Ser
    530                 535                 540

Glu Val Pro Gln Leu Ala Leu Gln Leu Leu Gln Asp Pro Glu Ser Tyr
545                 550                 555                 560

Val Arg Ala Ser Ala Val Thr Ala Met Gly Gln Leu Ser Ser Gln Gly
                565                 570                 575

Leu His Ala Pro Thr Ser Pro Glu His Ala Glu Ala Arg Gln Ser Leu
            580                 585                 590

Phe Leu Glu Leu Leu His Ile Leu Ser Val Asp Ser Glu Gly Phe Pro
        595                 600                 605

Arg Arg Ala Val Met Gln Val Phe Thr Glu Trp Leu Arg Asp Gly His
    610                 615                 620

Ala Asp Ala Ala Gln Asp Thr Glu Gln Phe Val Ala Thr Val Leu Gln
625                 630                 635                 640
```

```
Ala Ala Ser Arg Asp Leu Asp Trp Glu Val Arg Ala Gln Gly Leu Glu
                645                 650                 655

Leu Ala Leu Val Phe Leu Gly Gln Thr Leu Gly Pro Pro Arg Thr His
            660                 665                 670

Cys Pro Tyr Ala Val Ala Leu Pro Glu Val Ala Pro Ala Gln Pro Leu
        675                 680                 685

Thr Glu Ala Leu Arg Ala Leu Cys His Val Gly Leu Phe Asp Phe Ala
    690                 695                 700

Phe Cys Ala Leu Phe Asp Cys Asp Arg Pro Val Ala Gln Lys Ser Cys
705                 710                 715                 720

Asp Leu Leu Leu Phe Leu Arg Asp Lys Ile Ala Ser Tyr Ser Ser Leu
                725                 730                 735

Arg Glu Ala Arg Gly Ser Pro Asn Thr Ala Ser Ala Glu Ala Thr Leu
            740                 745                 750

Pro Arg Trp Arg Ala Gly Glu Gln Ala Gln Pro Pro Gly Asp Gln Glu
        755                 760                 765

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

Arg Ser Thr Leu Ala Glu Ser Ser Asp His Val Glu Lys Ser Pro Gln
785                 790                 795                 800

Ser Leu Leu Gln Asp Met Leu Ala Thr Gly Gly Phe Leu Gln Gly Asp
                805                 810                 815

Glu Ala Asp Cys Tyr
            820
```

<210> 9545
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1947; "

<220>
<221> source
<223> /note="Gene Symbol: BRAT1; "

<220>
<221> source
<223> /note="Gene Name:
BRCA1-associated ATM
activator 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409209"

<400> 9545
Met Asp Pro Glu Cys Ala Gln Leu Leu Pro Ala Leu Cys Ala Val Leu
1 5 10 15

Val Asp Pro Arg Gln Pro Val Ala Asp Asp Thr Cys Leu Glu Lys Leu
20 25 30

Leu Asp Trp Phe Lys Thr Val Thr Glu Gly Glu Ser Ser Val Val Leu
35 40 45

Leu Gln Glu His Pro Cys Leu Val Glu Leu Leu Ser His Val Leu Lys
50 55 60

Val Gln Asp Leu Ser Ser Gly Val Leu Ser Phe Ser Leu Arg Leu Ala
65 70 75 80

Gly Thr Phe Ala Ala Gln Glu Asn Cys Phe Gln Tyr Leu Gln Val Arg
85 90 95

Ser Thr Pro Ser Ser Pro Cys Arg Glu Thr Pro Ala Cys Leu Trp Pro
100 105 110

Arg Arg Pro Val Ser Ser Trp Cys Thr Ser Trp Leu Cys Pro Cys Glu
115 120 125

Val Glu Pro Arg Gly Ser Pro Ala Cys Arg Gly Val Thr Gly Pro Arg
130 135 140

Val Pro Arg Arg Ser Trp Ile Thr Leu Lys Ser Pro Cys Ala Pro Arg
145 150 155 160

Pro Pro Pro Arg Ser Leu Arg Pro

<210> 9546
<211> 314
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1948; "

<220>
<221> source
<223> /note="Gene Symbol: BCCIP; "

<220>
<221> source
<223> /note="Gene Name:
BRCA2 and CDKN1A interacting prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P287; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000278100"

<400> 9546
Met Ala Ser Arg Ser Lys Arg Arg Ala Val Glu Ser Gly Val Pro Gln
1   5   10   15

Pro Pro Asp Pro Pro Val Gln Arg Asp Glu Glu Glu Glu Lys Glu Val
            20   25   30

Glu Asn Glu Asp Glu Asp Asp Asp Asp Ser Asp Lys Glu Lys Asp Glu
        35   40   45

Glu Asp Glu Val Ile Asp Glu Glu Val Asn Ile Glu Phe Glu Ala Tyr
    50   55   60

Ser Leu Ser Asp Asn Asp Tyr Asp Gly Ile Lys Lys Leu Leu Gln Gln
65   70   75   80

Leu Phe Leu Lys Ala Pro Val Asn Thr Ala Glu Leu Thr Asp Leu Leu
                85   90   95

Ile Gln Gln Asn His Ile Gly Ser Val Ile Lys Gln Thr Asp Val Ser
            100   105   110

```
Glu Asp Ser Asn Asp Asp Met Asp Glu Asp Glu Val Phe Gly Phe Ile
        115                 120                 125

Ser Leu Leu Asn Leu Thr Glu Arg Lys Gly Thr Gln Cys Val Glu Gln
    130                 135                 140

Ile Gln Glu Leu Val Leu Arg Phe Cys Glu Lys Asn Cys Glu Lys Ser
145                 150                 155                 160

Met Val Glu Gln Leu Asp Lys Phe Leu Asn Asp Thr Thr Lys Pro Val
                165                 170                 175

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

Leu Pro Met Tyr Gln Gln Leu Gln Lys Glu Leu Ala Gly Ala His Arg
        195                 200                 205

Thr Asn Lys Pro Cys Gly Lys Cys Tyr Phe Tyr Leu Leu Ile Ser Lys
    210                 215                 220

Thr Phe Val Glu Ala Gly Lys Asn Asn Ser Lys Lys Lys Pro Ser Asn
225                 230                 235                 240

Lys Lys Lys Ala Ala Leu Met Phe Ala Asn Ala Glu Glu Glu Phe Phe
                245                 250                 255

Tyr Glu Lys Ala Ile Leu Lys Phe Asn Tyr Ser Val Gln Glu Glu Ser
            260                 265                 270

Asp Thr Cys Leu Gly Gly Lys Trp Ser Phe Asp Asp Val Pro Met Thr
        275                 280                 285

Pro Leu Arg Thr Val Met Leu Ile Pro Gly Asp Lys Met Asn Glu Ile
    290                 295                 300

Met Asp Lys Leu Lys Glu Tyr Leu Ser Val
305                 310
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<210> 9547
<211> 292
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1948; "

<220>
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<223> /note="Gene Symbol: BCCIP; "

<220>
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<223> /note="Gene Name:
BRCA2 and CDKN1A interacting prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P287; "

<220>
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<223> /note="ENSP ID: ENSP00000299130"

<400> 9547
Met Ala Ser Arg Ser Lys Arg Arg Ala Val Glu Ser Gly Val Pro Gln
1   5   10   15

Pro Pro Asp Pro Pro Val Gln Arg Asp Glu Glu Glu Glu Lys Glu Val
            20   25   30

Glu Asn Glu Asp Glu Asp Asp Asp Asp Ser Asp Lys Glu Lys Asp Glu
        35   40   45

Glu Asp Glu Val Ile Asp Glu Glu Val Asn Ile Glu Phe Glu Ala Tyr
    50   55   60

Ser Leu Ser Asp Asn Asp Tyr Asp Gly Ile Lys Lys Leu Leu Gln Gln
65   70   75   80

Leu Phe Leu Lys Ala Pro Val Asn Thr Ala Glu Leu Thr Asp Leu Leu
                85   90   95

Ile Gln Gln Asn His Ile Gly Ser Val Ile Lys Gln Thr Asp Val Ser
            100   105   110

Glu Asp Ser Asn Asp Asp Met Asp Glu Asp Glu Val Phe Gly Phe Ile
        115   120   125

Ser Leu Leu Asn Leu Thr Glu Arg Lys Gly Thr Gln Cys Val Glu Gln
    130   135   140

```
Ile Gln Glu Leu Val Leu Arg Phe Cys Glu Lys Asn Cys Glu Lys Ser
145                 150                 155                 160

Met Val Glu Gln Leu Asp Lys Phe Leu Asn Asp Thr Thr Lys Pro Val
                165                 170                 175

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

Leu Pro Met Tyr Gln Gln Leu Gln Lys Glu Leu Ala Gly Ala His Arg
        195                 200                 205

Thr Asn Lys Pro Cys Gly Lys Cys Tyr Phe Tyr Leu Leu Ile Ser Lys
    210                 215                 220

Thr Phe Val Glu Ala Gly Lys Asn Asn Ser Lys Lys Lys Pro Ser Asn
225                 230                 235                 240

Lys Lys Lys Ala Ala Leu Met Phe Ala Asn Ala Glu Glu Glu Phe Phe
                245                 250                 255

Tyr Glu Glu Gln Gly Lys Pro Glu Val Leu Gly Gly Pro Asp Thr Arg
            260                 265                 270

Arg Gly Leu Glu Pro Val Pro Ile Gln His Asn Gly Trp Ser Val Pro
        275                 280                 285

Pro Val Leu Glu
    290


<210> 9548
<211> 322
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name:
BRCA2 and CDKN1A interacting prt; "

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<220>
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<223> /note="ENSP ID: ENSP00000357748"

<400> 9548

```
Met Ala Ser Arg Ser Lys Arg Arg Ala Val Glu Ser Gly Val Pro Gln
1               5                   10                  15

Pro Pro Asp Pro Pro Val Gln Arg Asp Glu Glu Glu Glu Lys Glu Val
            20                  25                  30

Glu Asn Glu Asp Glu Asp Asp Asp Asp Ser Asp Lys Glu Lys Asp Glu
        35                  40                  45

Glu Asp Glu Val Ile Asp Glu Glu Val Asn Ile Glu Phe Glu Ala Tyr
    50                  55                  60

Ser Leu Ser Asp Asn Asp Tyr Asp Gly Ile Lys Lys Leu Leu Gln Gln
65                  70                  75                  80

Leu Phe Leu Lys Ala Pro Val Asn Thr Ala Glu Leu Thr Asp Leu Leu
                85                  90                  95

Ile Gln Gln Asn His Ile Gly Ser Val Ile Lys Gln Thr Asp Val Ser
            100                 105                 110

Glu Asp Ser Asn Asp Asp Met Asp Glu Asp Glu Val Phe Gly Phe Ile
        115                 120                 125

Ser Leu Leu Asn Leu Thr Glu Arg Lys Gly Thr Gln Cys Val Glu Gln
    130                 135                 140

Ile Gln Glu Leu Val Leu Arg Phe Cys Glu Lys Asn Cys Glu Lys Ser
145                 150                 155                 160

Met Val Glu Gln Leu Asp Lys Phe Leu Asn Asp Thr Thr Lys Pro Val
                165                 170                 175

Gly Leu Leu Leu Ser Glu Arg Phe Ile Asn Val Pro Pro Gln Ile Ala
```

```
            180                 185                 190

Leu Pro Met Tyr Gln Gln Leu Gln Lys Glu Leu Ala Gly Ala His Arg
        195                 200                 205

Thr Asn Lys Pro Cys Gly Lys Cys Tyr Phe Tyr Leu Leu Ile Ser Lys
    210                 215                 220

Thr Phe Val Glu Ala Gly Lys Asn Asn Ser Lys Lys Lys Pro Ser Asn
225                 230                 235                 240

Lys Lys Lys Ala Ala Leu Met Phe Ala Asn Ala Glu Glu Glu Phe Phe
                245                 250                 255

Tyr Glu Glu Gln Gly Lys Pro Glu Val Leu Gly Gly Pro Asp Thr Arg
            260                 265                 270

Arg Gly Leu Glu Pro Val Pro Ile Gln His Asn Gly Gly Ser Arg Gly
        275                 280                 285

Gln Val Thr Ala Leu Val Ser Leu Lys Ala Gly Leu Ile Gln Ser Arg
    290                 295                 300

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

Leu Ser
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<210> 9549
<211> 1271
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
breakpoint cluster region; "

<220>
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<223> /note="Uniprot ID: P11274; "

<220>
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<223> /note="ENSP ID: ENSP00000303507"

<400> 9549
Met Val Asp Pro Val Gly Phe Ala Glu Ala Trp Lys Ala Gln Phe Pro
1   5   10   15

Asp Ser Glu Pro Pro Arg Met Glu Leu Arg Ser Val Gly Asp Ile Glu
            20   25   30

Gln Glu Leu Glu Arg Cys Lys Ala Ser Ile Arg Arg Leu Glu Gln Glu
        35   40   45

Val Asn Gln Glu Arg Phe Arg Met Ile Tyr Leu Gln Thr Leu Leu Ala
    50   55   60

Lys Glu Lys Lys Ser Tyr Asp Arg Gln Arg Trp Gly Phe Arg Arg Ala
65   70   75   80

Ala Gln Ala Pro Asp Gly Ala Ser Glu Pro Arg Ala Ser Ala Ser Arg
                85   90   95

Pro Gln Pro Ala Pro Ala Asp Gly Ala Asp Pro Pro Pro Ala Glu Glu
            100   105   110

Pro Glu Ala Arg Pro Asp Gly Glu Gly Ser Pro Gly Lys Ala Arg Pro
        115   120   125

Gly Thr Ala Arg Arg Pro Gly Ala Ala Ala Ser Gly Glu Arg Asp Asp
    130   135   140

Arg Gly Pro Pro Ala Ser Val Ala Ala Leu Arg Ser Asn Phe Glu Arg
145   150   155   160

Ile Arg Lys Gly His Gly Gln Pro Gly Ala Asp Ala Glu Lys Pro Phe
                165   170   175

Tyr Val Asn Val Glu Phe His His Glu Arg Gly Leu Val Lys Val Asn
            180   185   190

```
Asp Lys Glu Val Ser Asp Arg Ile Ser Ser Leu Gly Ser Gln Ala Met
        195                 200                 205

Gln Met Glu Arg Lys Lys Ser Gln His Gly Ala Gly Ser Ser Val Gly
    210                 215                 220

Asp Ala Ser Arg Pro Pro Tyr Arg Gly Arg Ser Ser Glu Ser Ser Cys
225                 230                 235                 240

Gly Val Asp Gly Asp Tyr Glu Asp Ala Glu Leu Asn Pro Arg Phe Leu
                245                 250                 255

Lys Asp Asn Leu Ile Asp Ala Asn Gly Gly Ser Arg Pro Pro Trp Pro
            260                 265                 270

Pro Leu Glu Tyr Gln Pro Tyr Gln Ser Ile Tyr Val Gly Gly Met Met
        275                 280                 285

Glu Gly Glu Gly Lys Gly Pro Leu Leu Arg Ser Gln Ser Thr Ser Glu
    290                 295                 300

Gln Glu Lys Arg Leu Thr Trp Pro Arg Arg Ser Tyr Ser Pro Arg Ser
305                 310                 315                 320

Phe Glu Asp Cys Gly Gly Gly Tyr Thr Pro Asp Cys Ser Ser Asn Glu
                325                 330                 335

Asn Leu Thr Ser Ser Glu Glu Asp Phe Ser Ser Gly Gln Ser Ser Arg
            340                 345                 350

Val Ser Pro Ser Pro Thr Thr Tyr Arg Met Phe Arg Asp Lys Ser Arg
        355                 360                 365

Ser Pro Ser Gln Asn Ser Gln Gln Ser Phe Asp Ser Ser Ser Pro Pro
    370                 375                 380

Thr Pro Gln Cys His Lys Arg His Arg His Cys Pro Val Val Val Ser
385                 390                 395                 400

Glu Ala Thr Ile Val Gly Val Arg Lys Thr Gly Gln Ile Trp Pro Asn
                405                 410                 415

Asp Gly Glu Gly Ala Phe His Gly Asp Ala Asp Gly Ser Phe Gly Thr
```

```
            420                 425                 430

Pro Pro Gly Tyr Gly Cys Ala Ala Asp Arg Ala Glu Glu Gln Arg Arg
        435                 440                 445

His Gln Asp Gly Leu Pro Tyr Ile Asp Asp Ser Pro Ser Ser Ser Pro
    450                 455                 460

His Leu Ser Ser Lys Gly Arg Gly Ser Arg Asp Ala Leu Val Ser Gly
465                 470                 475                 480

Ala Leu Glu Ser Thr Lys Ala Ser Glu Leu Asp Leu Glu Lys Gly Leu
                485                 490                 495

Glu Met Arg Lys Trp Val Leu Ser Gly Ile Leu Ala Ser Glu Glu Thr
            500                 505                 510

Tyr Leu Ser His Leu Glu Ala Leu Leu Leu Pro Met Lys Pro Leu Lys
        515                 520                 525

Ala Ala Ala Thr Thr Ser Gln Pro Val Leu Thr Ser Gln Gln Ile Glu
    530                 535                 540

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

Tyr Asp Gly Leu Phe Pro Arg Val Gln Gln Trp Ser His Gln Gln Arg
                565                 570                 575

Val Gly Asp Leu Phe Gln Lys Leu Ala Ser Gln Leu Gly Val Tyr Arg
            580                 585                 590

Ala Phe Val Asp Asn Tyr Gly Val Ala Met Glu Met Ala Glu Lys Cys
        595                 600                 605

Cys Gln Ala Asn Ala Gln Phe Ala Glu Ile Ser Glu Asn Leu Arg Ala
    610                 615                 620

Arg Ser Asn Lys Asp Ala Lys Asp Pro Thr Thr Lys Asn Ser Leu Glu
625                 630                 635                 640

Thr Leu Leu Tyr Lys Pro Val Asp Arg Val Thr Arg Ser Thr Leu Val
                645                 650                 655
```

```
Leu His Asp Leu Leu Lys His Thr Pro Ala Ser His Pro Asp His Pro
            660                 665                 670

Leu Leu Gln Asp Ala Leu Arg Ile Ser Gln Asn Phe Leu Ser Ser Ile
        675                 680                 685

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

Glu His Arg Gln Leu Leu Lys Asp Ser Phe Met Val Glu Leu Val Glu
705                 710                 715                 720

Gly Ala Arg Lys Leu Arg His Val Phe Leu Phe Thr Asp Leu Leu Leu
                725                 730                 735

Cys Thr Lys Leu Lys Lys Gln Ser Gly Gly Lys Thr Gln Gln Tyr Asp
            740                 745                 750

Cys Lys Trp Tyr Ile Pro Leu Thr Asp Leu Ser Phe Gln Met Val Asp
        755                 760                 765

Glu Leu Glu Ala Val Pro Asn Ile Pro Leu Val Pro Asp Glu Glu Leu
    770                 775                 780

Asp Ala Leu Lys Ile Lys Ile Ser Gln Ile Lys Asn Asp Ile Gln Arg
785                 790                 795                 800

Glu Lys Arg Ala Asn Lys Gly Ser Lys Ala Thr Glu Arg Leu Lys Lys
                805                 810                 815

Lys Leu Ser Glu Gln Glu Ser Leu Leu Leu Leu Met Ser Pro Ser Met
            820                 825                 830

Ala Phe Arg Val His Ser Arg Asn Gly Lys Ser Tyr Thr Phe Leu Ile
        835                 840                 845

Ser Ser Asp Tyr Glu Arg Ala Glu Trp Arg Glu Asn Ile Arg Glu Gln
    850                 855                 860

Gln Lys Lys Cys Phe Arg Ser Phe Ser Leu Thr Ser Val Glu Leu Gln
865                 870                 875                 880
```

```
Met Leu Thr Asn Ser Cys Val Lys Leu Gln Thr Val His Ser Ile Pro
                885                 890                 895

Leu Thr Ile Asn Lys Glu Asp Asp Glu Ser Pro Gly Leu Tyr Gly Phe
            900                 905                 910

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

Leu Tyr Cys Thr Leu Glu Val Asp Ser Phe Gly Tyr Phe Val Asn Lys
    930                 935                 940

Ala Lys Thr Arg Val Tyr Arg Asp Thr Ala Glu Pro Asn Trp Asn Glu
945                 950                 955                 960

Glu Phe Glu Ile Glu Leu Glu Gly Ser Gln Thr Leu Arg Ile Leu Cys
                965                 970                 975

Tyr Glu Lys Cys Tyr Asn Lys Thr Lys Ile Pro Lys Glu Asp Gly Glu
            980                 985                 990

Ser Thr Asp Arg Leu Met Gly Lys  Gly Gln Val Gln Leu  Asp Pro
Gln
        995                 1000                1005

Ala Leu  Gln Asp Arg Asp Trp  Gln Arg Thr Val Ile  Ala Met Asn
    1010                1015                1020

Gly Ile  Glu Val Lys Leu Ser  Val Lys Phe Asn Ser  Arg Glu Phe
    1025                1030                1035

Ser Leu  Lys Arg Met Pro Ser  Arg Lys Gln Thr Gly  Val Phe Gly
    1040                1045                1050

Val Lys  Ile Ala Val Val Thr  Lys Arg Glu Arg Ser  Lys Val Pro
    1055                1060                1065

Tyr Ile  Val Arg Gln Cys Val  Glu Glu Ile Glu Arg  Arg Gly Met
    1070                1075                1080

Glu Glu  Val Gly Ile Tyr Arg  Val Ser Gly Val Ala  Thr Asp Ile
    1085                1090                1095
```

```
Gln Ala  Leu Lys Ala Ala Phe  Asp Val Asn Asn Lys  Asp Val Ser
    1100                1105                1110

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

Lys Leu  Tyr Phe Arg Glu Leu  Pro Glu Pro Leu Phe  Thr Asp Glu
    1130                1135                1140

Phe Tyr  Pro Asn Phe Ala Glu  Gly Ile Ala Leu Ser  Asp Pro Val
    1145                1150                1155

Ala Lys  Glu Ser Cys Met Leu  Asn Leu Leu Leu Ser  Leu Pro Glu
    1160                1165                1170

Ala Asn  Leu Leu Thr Phe Leu  Phe Leu Leu Asp His  Leu Lys Arg
    1175                1180                1185

Val Ala  Glu Lys Glu Ala Val  Asn Lys Met Ser Leu  His Asn Leu
    1190                1195                1200

Ala Thr  Val Phe Gly Pro Thr  Leu Leu Arg Pro Ser  Glu Lys Glu
    1205                1210                1215

Ser Lys  Leu Pro Ala Asn Pro  Ser Gln Pro Ile Thr  Met Thr Asp
    1220                1225                1230

Ser Trp  Ser Leu Glu Val Met  Ser Gln Val Gln Val  Leu Leu Tyr
    1235                1240                1245

Phe Leu  Gln Leu Glu Ala Ile  Pro Ala Pro Asp Ser  Lys Arg Gln
    1250                1255                1260

Ser Ile  Leu Phe Ser Thr Glu  Val
    1265                1270


<210> 9550
<211> 1227
<212> PRT
<213> Homo sapiens

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Met Val Asp Pro Val Gly Phe Ala Glu Ala Trp Lys Ala Gln Phe Pro
1   5   10   15

Asp Ser Glu Pro Pro Arg Met Glu Leu Arg Ser Val Gly Asp Ile Glu
            20   25   30

Gln Glu Leu Glu Arg Cys Lys Ala Ser Ile Arg Arg Leu Glu Gln Glu
        35   40   45

Val Asn Gln Glu Arg Phe Arg Met Ile Tyr Leu Gln Thr Leu Leu Ala
    50   55   60

Lys Glu Lys Lys Ser Tyr Asp Arg Gln Arg Trp Gly Phe Arg Arg Ala
65   70   75   80

Ala Gln Ala Pro Asp Gly Ala Ser Glu Pro Arg Ala Ser Ala Ser Arg
                85   90   95

Pro Gln Pro Ala Pro Ala Asp Gly Ala Asp Pro Pro Pro Ala Glu Glu
            100   105   110

Pro Glu Ala Arg Pro Asp Gly Glu Gly Ser Pro Gly Lys Ala Arg Pro
        115   120   125

Gly Thr Ala Arg Arg Pro Gly Ala Ala Ala Ser Gly Glu Arg Asp Asp
    130   135   140

Arg Gly Pro Pro Ala Ser Val Ala Ala Leu Arg Ser Asn Phe Glu Arg
145   150   155   160

Ile Arg Lys Gly His Gly Gln Pro Gly Ala Asp Ala Glu Lys Pro Phe
165 170 175

Tyr Val Asn Val Glu Phe His His Glu Arg Gly Leu Val Lys Val Asn
180 185 190

Asp Lys Glu Val Ser Asp Arg Ile Ser Ser Leu Gly Ser Gln Ala Met
195 200 205

Gln Met Glu Arg Lys Lys Ser Gln His Gly Ala Gly Ser Ser Val Gly
210 215 220

Asp Ala Ser Arg Pro Pro Tyr Arg Gly Arg Ser Ser Glu Ser Ser Cys
225 230 235 240

Gly Val Asp Gly Asp Tyr Glu Asp Ala Glu Leu Asn Pro Arg Phe Leu
245 250 255

Lys Asp Asn Leu Ile Asp Ala Asn Gly Gly Ser Arg Pro Pro Trp Pro
260 265 270

Pro Leu Glu Tyr Gln Pro Tyr Gln Ser Ile Tyr Val Gly Gly Met Met
275 280 285

Glu Gly Glu Gly Lys Gly Pro Leu Leu Arg Ser Gln Ser Thr Ser Glu
290 295 300

Gln Glu Lys Arg Leu Thr Trp Pro Arg Arg Ser Tyr Ser Pro Arg Ser
305 310 315 320

Phe Glu Asp Cys Gly Gly Gly Tyr Thr Pro Asp Cys Ser Ser Asn Glu
325 330 335

Asn Leu Thr Ser Ser Glu Glu Asp Phe Ser Ser Gly Gln Ser Ser Arg
340 345 350

Val Ser Pro Ser Pro Thr Thr Tyr Arg Met Phe Arg Asp Lys Ser Arg
355 360 365

Ser Pro Ser Gln Asn Ser Gln Gln Ser Phe Asp Ser Ser Ser Pro Pro
370 375 380

```
Thr Pro Gln Cys His Lys Arg His Arg His Cys Pro Val Val Val Ser
385                 390                 395                 400

Glu Ala Thr Ile Val Gly Val Arg Lys Thr Gly Gln Ile Trp Pro Asn
                405                 410                 415

Asp Gly Glu Gly Ala Phe His Gly Asp Ala Asp Gly Ser Phe Gly Thr
            420                 425                 430

Pro Pro Gly Tyr Gly Cys Ala Ala Asp Arg Ala Glu Glu Gln Arg Arg
        435                 440                 445

His Gln Asp Gly Leu Pro Tyr Ile Asp Asp Ser Pro Ser Ser Ser Pro
    450                 455                 460

His Leu Ser Ser Lys Gly Arg Gly Ser Arg Asp Ala Leu Val Ser Gly
465                 470                 475                 480

Ala Leu Glu Ser Thr Lys Ala Ser Glu Leu Asp Leu Glu Lys Gly Leu
                485                 490                 495

Glu Met Arg Lys Trp Val Leu Ser Gly Ile Leu Ala Ser Glu Glu Thr
            500                 505                 510

Tyr Leu Ser His Leu Glu Ala Leu Leu Leu Pro Met Lys Pro Leu Lys
        515                 520                 525

Ala Ala Ala Thr Thr Ser Gln Pro Val Leu Thr Ser Gln Gln Ile Glu
    530                 535                 540

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

Tyr Asp Gly Leu Phe Pro Arg Val Gln Gln Trp Ser His Gln Gln Arg
                565                 570                 575

Val Gly Asp Leu Phe Gln Lys Leu Ala Ser Gln Leu Gly Val Tyr Arg
            580                 585                 590

Ala Phe Val Asp Asn Tyr Gly Val Ala Met Glu Met Ala Glu Lys Cys
        595                 600                 605
```

```
Cys Gln Ala Asn Ala Gln Phe Ala Glu Ile Ser Glu Asn Leu Arg Ala
    610                 615                 620

Arg Ser Asn Lys Asp Ala Lys Asp Pro Thr Thr Lys Asn Ser Leu Glu
625                 630                 635                 640

Thr Leu Leu Tyr Lys Pro Val Asp Arg Val Thr Arg Ser Thr Leu Val
                645                 650                 655

Leu His Asp Leu Leu Lys His Thr Pro Ala Ser His Pro Asp His Pro
            660                 665                 670

Leu Leu Gln Asp Ala Leu Arg Ile Ser Gln Asn Phe Leu Ser Ser Ile
        675                 680                 685

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

Glu His Arg Gln Leu Leu Lys Asp Ser Phe Met Val Glu Leu Val Glu
705                 710                 715                 720

Gly Ala Arg Lys Leu Arg His Val Phe Leu Phe Thr Asp Leu Leu Leu
                725                 730                 735

Cys Thr Lys Leu Lys Lys Gln Ser Gly Gly Lys Thr Gln Gln Tyr Asp
            740                 745                 750

Cys Lys Trp Tyr Ile Pro Leu Thr Asp Leu Ser Phe Gln Met Val Asp
        755                 760                 765

Glu Leu Glu Ala Val Pro Asn Ile Pro Leu Val Pro Asp Glu Glu Leu
    770                 775                 780

Asp Ala Leu Lys Ile Lys Ile Ser Gln Ile Lys Asn Asp Ile Gln Arg
785                 790                 795                 800

Glu Lys Arg Ala Asn Lys Gly Ser Lys Ala Thr Glu Arg Leu Lys Lys
                805                 810                 815

Lys Leu Ser Glu Gln Glu Ser Leu Leu Leu Leu Met Ser Pro Ser Met
            820                 825                 830

Ala Phe Arg Val His Ser Arg Asn Gly Lys Ser Tyr Thr Phe Leu Ile
```

```
        835                 840                 845

Ser Ser Asp Tyr Glu Arg Ala Glu Trp Arg Glu Asn Ile Arg Glu Gln
    850                 855                 860

Gln Lys Lys Cys Phe Arg Ser Phe Ser Leu Thr Ser Val Glu Leu Gln
865                 870                 875                 880

Met Leu Thr Asn Ser Cys Val Lys Leu Gln Thr Val His Ser Ile Pro
                885                 890                 895

Leu Thr Ile Asn Lys Glu Asp Asp Glu Ser Pro Gly Leu Tyr Gly Phe
            900                 905                 910

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

Leu Tyr Cys Thr Leu Glu Val Asp Ser Phe Gly Tyr Phe Val Asn Lys
    930                 935                 940

Ala Lys Thr Arg Val Tyr Arg Asp Thr Ala Glu Pro Asn Trp Asn Glu
945                 950                 955                 960

Leu Asp Pro Gln Ala Leu Gln Asp Arg Asp Trp Gln Arg Thr Val Ile
                965                 970                 975

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

Glu Phe Ser Leu Lys Arg Met Pro  Ser Arg Lys Gln Thr  Gly Val
Phe
        995                 1000                1005

Gly Val  Lys Ile Ala Val Val  Thr Lys Arg Glu Arg  Ser Lys Val
    1010                1015                1020

Pro Tyr  Ile Val Arg Gln Cys  Val Glu Glu Ile Glu  Arg Arg Gly
    1025                1030                1035

Met Glu  Glu Val Gly Ile Tyr  Arg Val Ser Gly Val  Ala Thr Asp
    1040                1045                1050

Ile Gln  Ala Leu Lys Ala Ala  Phe Asp Val Asn Asn  Lys Asp Val
```

```
    1055                1060                1065

Ser Val  Met Met Ser Glu Met  Asp Val Asn Ala Ile  Ala Gly Thr
    1070                1075                1080

Leu Lys  Leu Tyr Phe Arg Glu  Leu Pro Glu Pro Leu  Phe Thr Asp
    1085                1090                1095

Glu Phe  Tyr Pro Asn Phe Ala  Glu Gly Ile Ala Leu  Ser Asp Pro
    1100                1105                1110

Val Ala  Lys Glu Ser Cys Met  Leu Asn Leu Leu Leu  Ser Leu Pro
    1115                1120                1125

Glu Ala  Asn Leu Leu Thr Phe  Leu Phe Leu Leu Asp  His Leu Lys
    1130                1135                1140

Arg Val  Ala Glu Lys Glu Ala  Val Asn Lys Met Ser  Leu His Asn
    1145                1150                1155

Leu Ala  Thr Val Phe Gly Pro  Thr Leu Leu Arg Pro  Ser Glu Lys
    1160                1165                1170

Glu Ser  Lys Leu Pro Ala Asn  Pro Ser Gln Pro Ile  Thr Met Thr
    1175                1180                1185

Asp Ser  Trp Ser Leu Glu Val  Met Ser Gln Val Gln  Val Leu Leu
    1190                1195                1200

Tyr Phe  Leu Gln Leu Glu Ala  Ile Pro Ala Pro Asp  Ser Lys Arg
    1205                1210                1215

Gln Ser  Ile Leu Phe Ser Thr  Glu Val
    1220                1225


<210> 9551
<211> 465
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1949; "

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<221> source
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<223> /note="Gene Name:
breakpoint cluster region; "

<220>
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<400> 9551

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Met Val Asp Pro Val Gly Phe Ala Glu Ala Trp Lys Ala Gln Phe Pro
1               5                  10                  15

Asp Ser Glu Pro Pro Arg Met Glu Leu Arg Ser Val Gly Asp Ile Glu
            20                  25                  30

Gln Glu Leu Glu Arg Cys Lys Ala Ser Ile Arg Arg Leu Glu Gln Glu
        35                  40                  45

Val Asn Gln Glu Arg Phe Arg Met Ile Tyr Leu Gln Thr Leu Leu Ala
    50                  55                  60

Lys Glu Lys Lys Ser Tyr Asp Arg Gln Arg Trp Gly Phe Arg Arg Ala
65                  70                  75                  80

Ala Gln Ala Pro Asp Gly Ala Ser Glu Pro Arg Ala Ser Ala Ser Arg
                85                  90                  95

Pro Gln Pro Ala Pro Ala Asp Gly Ala Asp Pro Pro Pro Ala Glu Glu
            100                 105                 110

Pro Glu Ala Arg Pro Asp Gly Glu Gly Ser Pro Gly Lys Ala Arg Pro
        115                 120                 125

Gly Thr Ala Arg Arg Pro Gly Ala Ala Ala Ser Gly Glu Arg Asp Asp
    130                 135                 140

Arg Gly Pro Pro Ala Ser Val Ala Ala Leu Arg Ser Asn Phe Glu Arg
145                 150                 155                 160

Ile Arg Lys Gly His Gly Gln Pro Gly Ala Asp Ala Glu Lys Pro Phe
                165                 170                 175
```

```
Tyr Val Asn Val Glu Phe His His Glu Arg Gly Leu Val Lys Val Asn
            180                 185                 190

Asp Lys Glu Val Ser Asp Arg Ile Ser Ser Leu Gly Ser Gln Ala Met
        195                 200                 205

Gln Met Glu Arg Lys Lys Ser Gln His Gly Ala Gly Ser Ser Val Gly
    210                 215                 220

Asp Ala Ser Arg Pro Pro Tyr Arg Gly Arg Ser Ser Glu Ser Ser Cys
225                 230                 235                 240

Gly Val Asp Gly Asp Tyr Glu Asp Ala Glu Leu Asn Pro Arg Phe Leu
                245                 250                 255

Lys Asp Asn Leu Ile Asp Ala Asn Gly Gly Ser Arg Pro Pro Trp Pro
            260                 265                 270

Pro Leu Glu Tyr Gln Pro Tyr Gln Ser Ile Tyr Val Gly Gly Met Met
        275                 280                 285

Glu Gly Glu Gly Lys Gly Pro Leu Leu Arg Ser Gln Ser Thr Ser Glu
    290                 295                 300

Gln Glu Lys Arg Leu Thr Trp Pro Arg Arg Ser Tyr Ser Pro Arg Ser
305                 310                 315                 320

Phe Glu Asp Cys Gly Gly Gly Tyr Thr Pro Asp Cys Ser Ser Asn Glu
                325                 330                 335

Asn Leu Thr Ser Ser Glu Glu Asp Phe Ser Ser Gly Gln Ser Ser Arg
            340                 345                 350

Val Ser Pro Ser Pro Thr Thr Tyr Arg Met Phe Arg Asp Lys Ser Arg
        355                 360                 365

Ser Pro Ser Gln Asn Ser Gln Gln Ser Phe Asp Ser Ser Ser Pro Pro
    370                 375                 380

Thr Pro Gln Cys His Lys Arg His Arg His Cys Pro Val Val Val Ser
385                 390                 395                 400

Glu Ala Thr Ile Val Gly Val Arg Lys Thr Gly Gln Ile Trp Pro Asn
```

405 410 415

Asp Gly Glu Gly Ala Phe His Gly Glu His Pro Gly Ala Ala Glu Glu
420 425 430

Val Phe Gln Lys Leu Leu Pro Asp Ile Arg Gly Ala Ala Asp Ala Asp
435 440 445

Gln Leu Val Cys Glu Thr Pro Asp Cys Pro Gln His Ser Ala Asp His
450 455 460

Gln
465

<210> 9552
<211> 257
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1949; "

<220>
<221> source
<223> /note="Gene Symbol: BCR; "

<220>
<221> source
<223> /note="Gene Name:
breakpoint cluster region; "

<220>
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<400> 9552
Ala Leu Glu Ser Thr Lys Ala Ser Glu Leu Asp Leu Glu Lys Gly Leu
1 5 10 15

Glu Met Arg Lys Trp Val Leu Ser Gly Ile Leu Ala Ser Glu Glu Thr
20 25 30

Tyr Leu Ser His Leu Glu Ala Leu Leu Leu Pro Met Lys Pro Leu Lys
35 40 45

Ala Ala Ala Thr Thr Ser Gln Pro Val Leu Thr Ser Gln Gln Ile Glu
50 55 60

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

Tyr Asp Gly Leu Phe Pro Arg Val Gln Gln Trp Ser His Gln Gln Arg
                85                  90                  95

Val Gly Asp Leu Phe Gln Lys Leu Asn Leu Arg Ala Arg Ser Asn Lys
            100                 105                 110

Asp Ala Lys Asp Pro Thr Thr Lys Asn Ser Leu Glu Thr Leu Leu Tyr
        115                 120                 125

Lys Pro Val Asp Arg Val Thr Arg Ser Thr Leu Val Leu His Asp Leu
    130                 135                 140

Leu Lys His Thr Pro Ala Ser His Pro Asp His Pro Leu Leu Gln Asp
145                 150                 155                 160

Ala Leu Arg Ile Ser Gln Asn Phe Leu Ser Ser Ile Asn Glu Glu Ile
                165                 170                 175

Thr Pro Arg Arg Gln Ser Met Thr Val Lys Lys Gly Glu His Arg Gln
            180                 185                 190

Leu Leu Lys Asp Ser Phe Met Val Glu Leu Val Glu Gly Ala Arg Lys
        195                 200                 205

Leu Arg His Val Phe Leu Phe Thr Asp Leu Leu Leu Cys Thr Lys Leu
    210                 215                 220

Lys Lys Gln Ser Gly Gly Lys Thr Gln Gln Tyr Asp Cys Lys Trp Tyr
225                 230                 235                 240

Ile Pro Leu Thr Asp Leu Ser Phe Gln Met Val Asp Glu Leu Glu Ala
                245                 250                 255

Val
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<210> 9553
<211> 721
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="Uniprot ID: P38398; "

<220>
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<223> /note="ENSP ID: ENSP00000312236"

<400> 9553

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Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                  10                  15


Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30


Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45


Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60


Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80


Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95


Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110


Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125


Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140
```

```
Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165                 170                 175

Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180                 185                 190

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

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Gly
    210                 215                 220

Glu Ala Ala Ser Gly Cys Glu Ser Glu Thr Ser Val Ser Glu Asp Cys
225                 230                 235                 240

Ser Gly Leu Ser Ser Gln Ser Asp Ile Leu Thr Thr Gln Gln Arg Asp
                245                 250                 255

Thr Met Gln His Asn Leu Ile Lys Leu Gln Gln Glu Met Ala Glu Leu
            260                 265                 270

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

Ser Ile Ile Ser Asp Ser Ser Ala Leu Glu Asp Leu Arg Asn Pro Glu
    290                 295                 300

Gln Ser Thr Ser Glu Lys Ala Val Leu Thr Ser Gln Lys Ser Ser Glu
305                 310                 315                 320

Tyr Pro Ile Ser Gln Asn Pro Glu Gly Leu Ser Ala Asp Lys Phe Glu
                325                 330                 335

Val Ser Ala Asp Ser Ser Thr Ser Lys Asn Lys Glu Pro Gly Val Glu
            340                 345                 350

Arg Ser Ser Pro Ser Lys Cys Pro Ser Leu Asp Asp Arg Trp Tyr Met
        355                 360                 365
```

```
His Ser Cys Ser Gly Ser Leu Gln Asn Arg Asn Tyr Pro Ser Gln Glu
    370                 375                 380

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

Gly Pro His Asp Leu Thr Glu Thr Ser Tyr Leu Pro Arg Gln Asp Leu
                405                 410                 415

Glu Gly Thr Pro Tyr Leu Glu Ser Gly Ile Ser Leu Phe Ser Asp Asp
            420                 425                 430

Pro Glu Ser Asp Pro Ser Glu Asp Arg Ala Pro Glu Ser Ala Arg Val
        435                 440                 445

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

Val Ala Glu Ser Ala Gln Ser Pro Ala Ala Ala His Thr Thr Asp Thr
465                 470                 475                 480

Ala Gly Tyr Asn Ala Met Glu Glu Ser Val Ser Arg Glu Lys Pro Glu
                485                 490                 495

Leu Thr Ala Ser Thr Glu Arg Val Asn Lys Arg Met Ser Met Val Val
            500                 505                 510

Ser Gly Leu Thr Pro Glu Glu Phe Met Leu Val Tyr Lys Phe Ala Arg
        515                 520                 525

Lys His His Ile Thr Leu Thr Asn Leu Ile Thr Glu Glu Thr Thr His
    530                 535                 540

Val Val Met Lys Thr Asp Ala Glu Phe Val Cys Glu Arg Thr Leu Lys
545                 550                 555                 560

Tyr Phe Leu Gly Ile Ala Gly Gly Lys Trp Val Val Ser Tyr Phe Trp
                565                 570                 575

Val Thr Gln Ser Ile Lys Glu Arg Lys Met Leu Asn Glu His Asp Phe
            580                 585                 590
```

```
Glu Val Arg Gly Asp Val Val Asn Gly Arg Asn His Gln Gly Pro Lys
        595                 600                 605

Arg Ala Arg Glu Ser Gln Asp Arg Lys Ile Phe Arg Gly Leu Glu Ile
    610                 615                 620

Cys Cys Tyr Gly Pro Phe Thr Asn Met Pro Thr Asp Gln Leu Glu Trp
625                 630                 635                 640

Met Val Gln Leu Cys Gly Ala Ser Val Val Lys Glu Leu Ser Ser Phe
                645                 650                 655

Thr Leu Gly Thr Gly Val His Pro Ile Val Val Val Gln Pro Asp Ala
            660                 665                 670

Trp Thr Glu Asp Asn Gly Phe His Ala Ile Gly Gln Met Cys Glu Ala
        675                 680                 685

Pro Val Val Thr Arg Glu Trp Val Leu Asp Ser Val Ala Leu Tyr Gln
    690                 695                 700

Cys Gln Glu Leu Asp Thr Tyr Leu Ile Pro Gln Ile Pro His Ser His
705                 710                 715                 720

Tyr
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<210> 9554
<211> 1399
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000326002"

<400> 9554

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Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                  10                  15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140

Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165                 170                 175

Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180                 185                 190

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

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala
    210                 215                 220
```

```
Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln
225                 230                 235                 240

Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg
                245                 250                 255

His Pro Glu Lys Tyr Gln Gly Ser Ser Val Ser Asn Leu His Val Glu
            260                 265                 270

Pro Cys Gly Thr Asn Thr His Ala Ser Ser Leu Gln His Glu Asn Ser
        275                 280                 285

Ser Leu Leu Leu Thr Lys Asp Arg Met Asn Val Glu Lys Ala Glu Phe
    290                 295                 300

Cys Asn Lys Ser Lys Gln Pro Gly Leu Ala Arg Ser Gln His Asn Arg
305                 310                 315                 320

Trp Ala Gly Ser Lys Glu Thr Cys Asn Asp Arg Arg Thr Pro Ser Thr
                325                 330                 335

Glu Lys Lys Val Asp Leu Asn Ala Asp Pro Leu Cys Glu Arg Lys Glu
            340                 345                 350

Trp Asn Lys Gln Lys Leu Pro Cys Ser Glu Asn Pro Arg Asp Thr Glu
        355                 360                 365

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

Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly Ser Asp Asp Ser His Asp
385                 390                 395                 400

Gly Glu Ser Glu Ser Asn Ala Lys Val Ala Asp Val Leu Asp Val Leu
                405                 410                 415

Asn Glu Val Asp Glu Tyr Ser Gly Ser Ser Glu Lys Ile Asp Leu Leu
            420                 425                 430

Ala Ser Asp Pro His Glu Ala Leu Ile Cys Lys Ser Glu Arg Val His
        435                 440                 445
```

Ser Lys Ser Val Glu Ser Asn Ile Glu Asp Lys Ile Phe Gly Lys Thr
450 455 460

Tyr Arg Lys Lys Ala Ser Leu Pro Asn Leu Ser His Val Thr Glu Asn
465 470 475 480

Leu Ile Ile Gly Ala Phe Val Thr Glu Pro Gln Ile Ile Gln Glu Arg
485 490 495

Pro Leu Thr Asn Lys Leu Lys Arg Lys Arg Arg Pro Thr Ser Gly Leu
500 505 510

His Pro Glu Asp Phe Ile Lys Lys Ala Asp Leu Ala Val Gln Lys Thr
515 520 525

Pro Glu Met Ile Asn Gln Gly Thr Asn Gln Thr Glu Gln Asn Gly Gln
530 535 540

Val Met Asn Ile Thr Asn Ser Gly His Glu Asn Lys Thr Lys Gly Asp
545 550 555 560

Ser Ile Gln Asn Glu Lys Asn Pro Asn Pro Ile Glu Ser Leu Glu Lys
565 570 575

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

Asn Met Glu Leu Glu Leu Asn Ile His Asn Ser Lys Ala Pro Lys Lys
595 600 605

Asn Arg Leu Arg Arg Lys Ser Ser Thr Arg His Ile His Ala Leu Glu
610 615 620

Leu Val Val Ser Arg Asn Leu Ser Pro Pro Asn Cys Thr Glu Leu Gln
625 630 635 640

Ile Asp Ser Cys Ser Ser Ser Glu Glu Ile Lys Lys Lys Lys Tyr Asn
645 650 655

Gln Met Pro Val Arg His Ser Arg Asn Leu Gln Leu Met Glu Gly Lys
660 665 670

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

675 680 685

Ser Lys Arg His Asp Ser Asp Thr Phe Pro Glu Leu Lys Leu Thr Asn
690 695 700

Ala Pro Gly Ser Phe Thr Lys Cys Ser Asn Thr Ser Glu Leu Lys Glu
705 710 715 720

Phe Val Asn Pro Ser Leu Pro Arg Glu Glu Lys Glu Glu Lys Leu Glu
725 730 735

Thr Val Lys Val Ser Asn Asn Ala Glu Asp Pro Lys Asp Leu Met Leu
740 745 750

Ser Gly Glu Arg Val Leu Gln Thr Glu Arg Ser Val Glu Ser Ser Ser
755 760 765

Ile Ser Leu Val Pro Gly Thr Asp Tyr Gly Thr Gln Glu Ser Ile Ser
770 775 780

Leu Leu Glu Val Ser Thr Leu Gly Lys Ala Lys Thr Glu Pro Asn Lys
785 790 795 800

Cys Val Ser Gln Cys Ala Ala Phe Glu Asn Pro Lys Gly Leu Ile His
805 810 815

Gly Cys Ser Lys Asp Asn Arg Asn Asp Thr Glu Gly Phe Lys Tyr Pro
820 825 830

Leu Gly His Glu Val Asn His Ser Arg Glu Thr Ser Ile Glu Met Glu
835 840 845

Glu Ser Glu Leu Asp Ala Gln Tyr Leu Gln Asn Thr Phe Lys Val Ser
850 855 860

Lys Arg Gln Ser Phe Ala Pro Phe Ser Asn Pro Gly Asn Ala Glu Glu
865 870 875 880

Glu Cys Ala Thr Phe Ser Ala His Ser Gly Ser Leu Lys Lys Gln Ser
885 890 895

Pro Lys Val Thr Phe Glu Cys Glu Gln Lys Glu Glu Asn Gln Gly Lys
900 905 910

```
Asn Glu Ser Asn Ile Lys Pro Val Gln Thr Val Asn Ile Thr Ala Gly
        915                 920                 925

Phe Pro Val Val Gly Gln Lys Asp Lys Pro Val Asp Asn Ala Lys Cys
    930                 935                 940

Ser Ile Lys Gly Gly Ser Arg Phe Cys Leu Ser Ser Gln Phe Arg Gly
945                 950                 955                 960

Asn Glu Thr Gly Leu Ile Thr Pro Asn Lys His Gly Leu Leu Gln Asn
                965                 970                 975

Pro Tyr Arg Ile Pro Pro Leu Phe Pro Ile Lys Ser Phe Val Lys Thr
            980                 985                 990

Lys Cys Lys Lys Asn Leu Leu Glu  Glu Asn Phe Glu Glu  His Ser
Met
        995                 1000                1005

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

Ser Thr  Ile Ser Arg Asn Asn  Ile Arg Glu Asn Val  Phe Lys Glu
    1025                1030                1035

Ala Ser  Ser Ser Asn Ile Asn  Glu Val Gly Ser Ser  Thr Asn Glu
    1040                1045                1050

Val Gly  Ser Ser Ile Asn Glu  Ile Gly Ser Ser Asp  Glu Asn Ile
    1055                1060                1065

Gln Ala  Glu Leu Gly Arg Asn  Arg Gly Pro Lys Leu  Asn Ala Met
    1070                1075                1080

Leu Arg  Leu Gly Val Leu Gln  Pro Glu Val Tyr Lys  Gln Ser Leu
    1085                1090                1095

Pro Gly  Ser Asn Cys Lys His  Pro Glu Ile Lys Lys  Gln Glu Tyr
    1100                1105                1110

Glu Glu  Val Val Gln Thr Val  Asn Thr Asp Phe Ser  Pro Tyr Leu
    1115                1120                1125
```

```
Ile Ser  Asp Asn Leu Glu Gln  Pro Met Gly Ser Ser  His Ala Ser
    1130                1135                1140

Gln Val  Cys Ser Glu Thr Pro  Asp Asp Leu Leu Asp  Asp Gly Glu
    1145                1150                1155

Ile Lys  Glu Asp Thr Ser Phe  Ala Glu Asn Asp Ile  Lys Glu Ser
    1160                1165                1170

Ser Ala  Val Phe Ser Lys Ser  Val Gln Lys Gly Glu  Leu Ser Arg
    1175                1180                1185

Ser Pro  Ser Pro Phe Thr His  Thr His Leu Ala Gln  Gly Tyr Arg
    1190                1195                1200

Arg Gly  Ala Lys Lys Leu Glu  Ser Ser Glu Glu Asn  Leu Ser Ser
    1205                1210                1215

Glu Asp  Glu Glu Leu Pro Cys  Phe Gln His Leu Leu  Phe Gly Lys
    1220                1225                1230

Val Asn  Asn Ile Pro Ser Gln  Ser Thr Arg His Ser  Thr Val Ala
    1235                1240                1245

Thr Glu  Cys Leu Ser Lys Asn  Thr Glu Glu Asn Leu  Leu Ser Leu
    1250                1255                1260

Lys Asn  Ser Leu Asn Asp Cys  Ser Asn Gln Val Ile  Leu Ala Lys
    1265                1270                1275

Ala Ser  Gln Glu His His Leu  Ser Glu Glu Thr Lys  Cys Ser Ala
    1280                1285                1290

Ser Leu  Phe Ser Ser Gln Cys  Ser Glu Leu Glu Asp  Leu Thr Ala
    1295                1300                1305

Asn Thr  Asn Thr Gln Asp Pro  Phe Leu Ile Gly Ser  Ser Lys Gln
    1310                1315                1320

Met Arg  His Gln Ser Glu Ser  Gln Gly Val Gly Leu  Ser Asp Lys
    1325                1330                1335
```

Glu Leu Val Ser Asp Asp Glu Glu Arg Gly Thr Gly Leu Glu Glu
1340 1345 1350

Asn Asn Gln Glu Glu Gln Ser Met Asp Ser Asn Leu Gly Ile Gly
1355 1360 1365

Thr Arg Phe Leu Cys Leu Pro Gln Ser Ile Tyr Arg Ser Glu Leu
1370 1375 1380

Asn Val Tyr Ala Phe Gly Glu His Ile Leu Gln Ile Ser Lys Tyr
1385 1390 1395

Ser

<210> 9555
<211> 1863
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="Uniprot ID: P38398; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000350283"

<400> 9555
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1 5 10 15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
20 25 30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met

```
        35                  40                  45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140

Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165                 170                 175

Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180                 185                 190

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

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala
    210                 215                 220

Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln
225                 230                 235                 240

Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg
                245                 250                 255

His Pro Glu Lys Tyr Gln Gly Ser Ser Val Ser Asn Leu His Val Glu
            260                 265                 270
```

```
Pro Cys Gly Thr Asn Thr His Ala Ser Ser Leu Gln His Glu Asn Ser
        275                 280                 285

Ser Leu Leu Leu Thr Lys Asp Arg Met Asn Val Glu Lys Ala Glu Phe
    290                 295                 300

Cys Asn Lys Ser Lys Gln Pro Gly Leu Ala Arg Ser Gln His Asn Arg
305                 310                 315                 320

Trp Ala Gly Ser Lys Glu Thr Cys Asn Asp Arg Arg Thr Pro Ser Thr
                325                 330                 335

Glu Lys Lys Val Asp Leu Asn Ala Asp Pro Leu Cys Glu Arg Lys Glu
            340                 345                 350

Trp Asn Lys Gln Lys Leu Pro Cys Ser Glu Asn Pro Arg Asp Thr Glu
        355                 360                 365

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

Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly Ser Asp Asp Ser His Asp
385                 390                 395                 400

Gly Glu Ser Glu Ser Asn Ala Lys Val Ala Asp Val Leu Asp Val Leu
                405                 410                 415

Asn Glu Val Asp Glu Tyr Ser Gly Ser Ser Glu Lys Ile Asp Leu Leu
            420                 425                 430

Ala Ser Asp Pro His Glu Ala Leu Ile Cys Lys Ser Glu Arg Val His
        435                 440                 445

Ser Lys Ser Val Glu Ser Asn Ile Glu Asp Lys Ile Phe Gly Lys Thr
    450                 455                 460

Tyr Arg Lys Lys Ala Ser Leu Pro Asn Leu Ser His Val Thr Glu Asn
465                 470                 475                 480

Leu Ile Ile Gly Ala Phe Val Thr Glu Pro Gln Ile Ile Gln Glu Arg
                485                 490                 495
```

Pro Leu Thr Asn Lys Leu Lys Arg Lys Arg Arg Pro Thr Ser Gly Leu
500 505 510

His Pro Glu Asp Phe Ile Lys Lys Ala Asp Leu Ala Val Gln Lys Thr
515 520 525

Pro Glu Met Ile Asn Gln Gly Thr Asn Gln Thr Glu Gln Asn Gly Gln
530 535 540

Val Met Asn Ile Thr Asn Ser Gly His Glu Asn Lys Thr Lys Gly Asp
545 550 555 560

Ser Ile Gln Asn Glu Lys Asn Pro Asn Pro Ile Glu Ser Leu Glu Lys
565 570 575

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

Asn Met Glu Leu Glu Leu Asn Ile His Asn Ser Lys Ala Pro Lys Lys
595 600 605

Asn Arg Leu Arg Arg Lys Ser Ser Thr Arg His Ile His Ala Leu Glu
610 615 620

Leu Val Val Ser Arg Asn Leu Ser Pro Pro Asn Cys Thr Glu Leu Gln
625 630 635 640

Ile Asp Ser Cys Ser Ser Ser Glu Glu Ile Lys Lys Lys Lys Tyr Asn
645 650 655

Gln Met Pro Val Arg His Ser Arg Asn Leu Gln Leu Met Glu Gly Lys
660 665 670

Glu Pro Ala Thr Gly Ala Lys Lys Ser Asn Lys Pro Asn Glu Gln Thr
675 680 685

Ser Lys Arg His Asp Ser Asp Thr Phe Pro Glu Leu Lys Leu Thr Asn
690 695 700

Ala Pro Gly Ser Phe Thr Lys Cys Ser Asn Thr Ser Glu Leu Lys Glu
705 710 715 720

```
Phe Val Asn Pro Ser Leu Pro Arg Glu Glu Lys Glu Glu Lys Leu Glu
                725                 730                 735

Thr Val Lys Val Ser Asn Asn Ala Glu Asp Pro Lys Asp Leu Met Leu
            740                 745                 750

Ser Gly Glu Arg Val Leu Gln Thr Glu Arg Ser Val Glu Ser Ser Ser
        755                 760                 765

Ile Ser Leu Val Pro Gly Thr Asp Tyr Gly Thr Gln Glu Ser Ile Ser
    770                 775                 780

Leu Leu Glu Val Ser Thr Leu Gly Lys Ala Lys Thr Glu Pro Asn Lys
785                 790                 795                 800

Cys Val Ser Gln Cys Ala Ala Phe Glu Asn Pro Lys Gly Leu Ile His
                805                 810                 815

Gly Cys Ser Lys Asp Asn Arg Asn Asp Thr Glu Gly Phe Lys Tyr Pro
            820                 825                 830

Leu Gly His Glu Val Asn His Ser Arg Glu Thr Ser Ile Glu Met Glu
        835                 840                 845

Glu Ser Glu Leu Asp Ala Gln Tyr Leu Gln Asn Thr Phe Lys Val Ser
    850                 855                 860

Lys Arg Gln Ser Phe Ala Pro Phe Ser Asn Pro Gly Asn Ala Glu Glu
865                 870                 875                 880

Glu Cys Ala Thr Phe Ser Ala His Ser Gly Ser Leu Lys Lys Gln Ser
                885                 890                 895

Pro Lys Val Thr Phe Glu Cys Glu Gln Lys Glu Glu Asn Gln Gly Lys
            900                 905                 910

Asn Glu Ser Asn Ile Lys Pro Val Gln Thr Val Asn Ile Thr Ala Gly
        915                 920                 925

Phe Pro Val Val Gly Gln Lys Asp Lys Pro Val Asp Asn Ala Lys Cys
    930                 935                 940

Ser Ile Lys Gly Gly Ser Arg Phe Cys Leu Ser Ser Gln Phe Arg Gly
```

945 950 955 960

Asn Glu Thr Gly Leu Ile Thr Pro Asn Lys His Gly Leu Leu Gln Asn
965 970 975

Pro Tyr Arg Ile Pro Pro Leu Phe Pro Ile Lys Ser Phe Val Lys Thr
980 985 990

Lys Cys Lys Lys Asn Leu Leu Glu Glu Asn Phe Glu Glu His Ser
Met
995 1000 1005

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

Ser Thr Ile Ser Arg Asn Asn Ile Arg Glu Asn Val Phe Lys Glu
1025 1030 1035

Ala Ser Ser Ser Asn Ile Asn Glu Val Gly Ser Ser Thr Asn Glu
1040 1045 1050

Val Gly Ser Ser Ile Asn Glu Ile Gly Ser Ser Asp Glu Asn Ile
1055 1060 1065

Gln Ala Glu Leu Gly Arg Asn Arg Gly Pro Lys Leu Asn Ala Met
1070 1075 1080

Leu Arg Leu Gly Val Leu Gln Pro Glu Val Tyr Lys Gln Ser Leu
1085 1090 1095

Pro Gly Ser Asn Cys Lys His Pro Glu Ile Lys Lys Gln Glu Tyr
1100 1105 1110

Glu Glu Val Val Gln Thr Val Asn Thr Asp Phe Ser Pro Tyr Leu
1115 1120 1125

Ile Ser Asp Asn Leu Glu Gln Pro Met Gly Ser Ser His Ala Ser
1130 1135 1140

Gln Val Cys Ser Glu Thr Pro Asp Asp Leu Leu Asp Asp Gly Glu
1145 1150 1155

Ile Lys Glu Asp Thr Ser Phe Ala Glu Asn Asp Ile Lys Glu Ser

1160 1165 1170

Ser Ala Val Phe Ser Lys Ser Val Gln Lys Gly Glu Leu Ser Arg
1175 1180 1185

Ser Pro Ser Pro Phe Thr His Thr His Leu Ala Gln Gly Tyr Arg
1190 1195 1200

Arg Gly Ala Lys Lys Leu Glu Ser Ser Glu Glu Asn Leu Ser Ser
1205 1210 1215

Glu Asp Glu Glu Leu Pro Cys Phe Gln His Leu Leu Phe Gly Lys
1220 1225 1230

Val Asn Asn Ile Pro Ser Gln Ser Thr Arg His Ser Thr Val Ala
1235 1240 1245

Thr Glu Cys Leu Ser Lys Asn Thr Glu Glu Asn Leu Leu Ser Leu
1250 1255 1260

Lys Asn Ser Leu Asn Asp Cys Ser Asn Gln Val Ile Leu Ala Lys
1265 1270 1275

Ala Ser Gln Glu His His Leu Ser Glu Glu Thr Lys Cys Ser Ala
1280 1285 1290

Ser Leu Phe Ser Ser Gln Cys Ser Glu Leu Glu Asp Leu Thr Ala
1295 1300 1305

Asn Thr Asn Thr Gln Asp Pro Phe Leu Ile Gly Ser Ser Lys Gln
1310 1315 1320

Met Arg His Gln Ser Glu Ser Gln Gly Val Gly Leu Ser Asp Lys
1325 1330 1335

Glu Leu Val Ser Asp Asp Glu Glu Arg Gly Thr Gly Leu Glu Glu
1340 1345 1350

Asn Asn Gln Glu Glu Gln Ser Met Asp Ser Asn Leu Gly Glu Ala
1355 1360 1365

Ala Ser Gly Cys Glu Ser Glu Thr Ser Val Ser Glu Asp Cys Ser
1370 1375 1380

```
Gly Leu  Ser Ser Gln Ser Asp  Ile Leu Thr Thr Gln  Gln Arg Asp
    1385                1390                1395

Thr Met  Gln His Asn Leu Ile  Lys Leu Gln Gln Glu  Met Ala Glu
    1400                1405                1410

Leu Glu  Ala Val Leu Glu Gln  His Gly Ser Gln Pro  Ser Asn Ser
    1415                1420                1425

Tyr Pro  Ser Ile Ile Ser Asp  Ser Ser Ala Leu Glu  Asp Leu Arg
    1430                1435                1440

Asn Pro  Glu Gln Ser Thr Ser  Glu Lys Ala Val Leu  Thr Ser Gln
    1445                1450                1455

Lys Ser  Ser Glu Tyr Pro Ile  Ser Gln Asn Pro Glu  Gly Leu Ser
    1460                1465                1470

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

Lys Glu  Pro Gly Val Glu Arg  Ser Ser Pro Ser Lys  Cys Pro Ser
    1490                1495                1500

Leu Asp  Asp Arg Trp Tyr Met  His Ser Cys Ser Gly  Ser Leu Gln
    1505                1510                1515

Asn Arg  Asn Tyr Pro Ser Gln  Glu Glu Leu Ile Lys  Val Val Asp
    1520                1525                1530

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

Glu Thr  Ser Tyr Leu Pro Arg  Gln Asp Leu Glu Gly  Thr Pro Tyr
    1550                1555                1560

Leu Glu  Ser Gly Ile Ser Leu  Phe Ser Asp Asp Pro  Glu Ser Asp
    1565                1570                1575

Pro Ser  Glu Asp Arg Ala Pro  Glu Ser Ala Arg Val  Gly Asn Ile
    1580                1585                1590
```

```
Pro Ser  Ser Thr Ser Ala Leu  Lys Val Pro Gln Leu  Lys Val Ala
    1595                1600                1605

Glu Ser  Ala Gln Ser Pro Ala  Ala Ala His Thr Thr  Asp Thr Ala
    1610                1615                1620

Gly Tyr  Asn Ala Met Glu Glu  Ser Val Ser Arg Glu  Lys Pro Glu
    1625                1630                1635

Leu Thr  Ala Ser Thr Glu Arg  Val Asn Lys Arg Met  Ser Met Val
    1640                1645                1650

Val Ser  Gly Leu Thr Pro Glu  Glu Phe Met Leu Val  Tyr Lys Phe
    1655                1660                1665

Ala Arg  Lys His His Ile Thr  Leu Thr Asn Leu Ile  Thr Glu Glu
    1670                1675                1680

Thr Thr  His Val Val Met Lys  Thr Asp Ala Glu Phe  Val Cys Glu
    1685                1690                1695

Arg Thr  Leu Lys Tyr Phe Leu  Gly Ile Ala Gly Gly  Lys Trp Val
    1700                1705                1710

Val Ser  Tyr Phe Trp Val Thr  Gln Ser Ile Lys Glu  Arg Lys Met
    1715                1720                1725

Leu Asn  Glu His Asp Phe Glu  Val Arg Gly Asp Val  Val Asn Gly
    1730                1735                1740

Arg Asn  His Gln Gly Pro Lys  Arg Ala Arg Glu Ser  Gln Asp Arg
    1745                1750                1755

Lys Ile  Phe Arg Gly Leu Glu  Ile Cys Cys Tyr Gly  Pro Phe Thr
    1760                1765                1770

Asn Met  Pro Thr Asp Gln Leu  Glu Trp Met Val Gln  Leu Cys Gly
    1775                1780                1785

Ala Ser  Val Val Lys Glu Leu  Ser Ser Phe Thr Leu  Gly Thr Gly
    1790                1795                1800
```

```
Val His  Pro Ile Val Val Val  Gln Pro Asp Ala Trp  Thr Glu Asp
    1805                1810                1815


Asn Gly  Phe His Ala Ile Gly  Gln Met Cys Glu Ala  Pro Val Val
    1820                1825                1830


Thr Arg  Glu Trp Val Leu Asp  Ser Val Ala Leu Tyr  Gln Cys Gln
    1835                1840                1845


Glu Leu  Asp Thr Tyr Leu Ile  Pro Gln Ile Pro His  Ser His Tyr
    1850                1855                1860


<210> 9556
<211> 437
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397145"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9556
Xaa Leu Asp Ser Ala Lys Lys Ala Ala Cys Glu Phe Ser Glu Thr Asp
1               5                  10                  15


Val Thr Asn Thr Glu His His Gln Pro Ser Asn Asn Asp Leu Asn Thr
            20                  25                  30


Thr Glu Lys Arg Ala Ala Glu Arg His Pro Glu Lys Tyr Gln Gly Ser
        35                  40                  45
```

```
Ser Val Ser Asn Leu His Val Glu Pro Cys Gly Thr Asn Thr His Ala
    50                  55                  60

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

Met Asn Val Glu Lys Ala Glu Phe Cys Asn Lys Ser Lys Gln Pro Gly
                85                  90                  95

Leu Ala Arg Ser Gln His Asn Arg Trp Ala Gly Ser Lys Glu Thr Cys
            100                 105                 110

Asn Asp Arg Arg Thr Pro Ser Thr Glu Lys Lys Val Asp Leu Asn Ala
        115                 120                 125

Asp Pro Leu Cys Glu Arg Lys Glu Trp Asn Lys Gln Lys Leu Pro Cys
    130                 135                 140

Ser Glu Asn Pro Arg Asp Thr Glu Asp Val Pro Trp Ile Thr Leu Asn
145                 150                 155                 160

Ser Ser Ile Gln Lys Val Asn Glu Trp Phe Ser Arg Ser Asp Glu Leu
                165                 170                 175

Leu Gly Ser Asp Asp Ser His Asp Gly Glu Ser Glu Ser Asn Ala Lys
            180                 185                 190

Val Ala Asp Val Leu Asp Val Leu Asn Glu Val Asp Glu Tyr Ser Gly
        195                 200                 205

Ser Ser Glu Lys Ile Asp Leu Leu Ala Ser Asp Pro His Glu Ala Leu
    210                 215                 220

Ile Cys Lys Ser Glu Arg Val His Ser Lys Ser Val Glu Ser Asn Ile
225                 230                 235                 240

Glu Asp Lys Ile Phe Gly Lys Thr Tyr Arg Lys Lys Ala Ser Leu Pro
                245                 250                 255

Asn Leu Ser His Val Thr Glu Asn Leu Ile Ile Gly Ala Phe Val Thr
            260                 265                 270

Glu Pro Gln Ile Ile Gln Glu Arg Pro Leu Thr Asn Lys Leu Lys Arg
```

275 280 285

Lys Arg Arg Pro Thr Ser Gly Leu His Pro Glu Asp Phe Ile Lys Lys
290 295 300

Ala Asp Leu Ala Val Gln Lys Thr Pro Glu Met Ile Asn Gln Gly Thr
305 310 315 320

Asn Gln Thr Glu Gln Asn Gly Gln Val Met Asn Ile Thr Asn Ser Gly
325 330 335

His Glu Asn Lys Thr Lys Gly Asp Ser Ile Gln Asn Glu Lys Asn Pro
340 345 350

Asn Pro Ile Glu Ser Leu Glu Lys Glu Ser Ala Phe Lys Thr Lys Ala
355 360 365

Glu Pro Ile Ser Ser Ser Ile Ser Asn Met Glu Leu Glu Leu Asn Ile
370 375 380

His Asn Ser Lys Ala Pro Lys Lys Asn Arg Leu Arg Arg Lys Ser Ser
385 390 395 400

Thr Arg His Ile His Ala Leu Glu Leu Val Val Ser Arg Asn Leu Ser
405 410 415

Pro Pro Asn Cys Thr Glu Leu Gln Ile Asp Ser Cys Ser Ser Ser Glu
420 425 430

Glu Ile Lys Lys Lys
435

<210> 9557
<211> 699
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>

<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="Uniprot ID: P38398; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417148"

<400> 9557

```
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                  10                  15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140

Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165                 170                 175
```

```
Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180                 185                 190

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

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala
    210                 215                 220

Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln
225                 230                 235                 240

Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg
                245                 250                 255

His Pro Glu Lys Tyr Gln Gly Glu Ala Ala Ser Gly Cys Glu Ser Glu
            260                 265                 270

Thr Ser Val Ser Glu Asp Cys Ser Gly Leu Ser Ser Gln Ser Asp Ile
        275                 280                 285

Leu Thr Thr Gln Gln Arg Asp Thr Met Gln His Asn Leu Ile Lys Leu
    290                 295                 300

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

Gln Pro Ser Asn Ser Tyr Pro Ser Ile Ile Ser Asp Ser Ser Ala Leu
                325                 330                 335

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

Ser Gln Lys Ser Ser Glu Tyr Pro Ile Ser Gln Asn Pro Glu Gly Leu
        355                 360                 365

Ser Ala Asp Lys Phe Glu Val Ser Ala Asp Ser Ser Thr Ser Lys Asn
    370                 375                 380

Lys Glu Pro Gly Val Glu Arg Ser Ser Pro Ser Lys Cys Pro Ser Leu
385                 390                 395                 400

Asp Asp Arg Trp Tyr Met His Ser Cys Ser Gly Ser Leu Gln Asn Arg
```

405 410 415

Asn Tyr Pro Ser Gln Glu Glu Leu Ile Lys Val Val Asp Val Glu Glu
420 425 430

Gln Gln Leu Glu Glu Ser Gly Pro His Asp Leu Thr Glu Thr Ser Tyr
435 440 445

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

Ser Leu Phe Ser Asp Asp Pro Glu Ser Asp Pro Ser Glu Asp Arg Ala
465 470 475 480

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

Lys Val Pro Gln Leu Lys Val Ala Glu Ser Ala Gln Ser Pro Ala Ala
500 505 510

Ala His Thr Thr Asp Thr Ala Gly Tyr Asn Ala Met Glu Glu Ser Val
515 520 525

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

Arg Met Ser Met Val Val Ser Gly Leu Thr Pro Glu Glu Phe Met Leu
545 550 555 560

Val Tyr Lys Phe Ala Arg Lys His His Ile Thr Leu Thr Asn Leu Ile
565 570 575

Thr Glu Glu Thr Thr His Val Val Met Lys Thr Asp Ala Glu Phe Val
580 585 590

Cys Glu Arg Thr Leu Lys Tyr Phe Leu Gly Ile Ala Gly Gly Lys Trp
595 600 605

Val Val Ser Tyr Phe Trp Val Thr Gln Ser Ile Lys Glu Arg Lys Met
610 615 620

Leu Asn Glu His Asp Phe Glu Val Arg Gly Asp Val Val Asn Gly Arg
625 630 635 640

```
Asn His Gln Gly Pro Lys Arg Ala Arg Glu Ser Gln Asp Arg Lys Ile
                645                 650                 655

Phe Arg Gly Leu Glu Ile Cys Cys Tyr Gly Pro Phe Thr Asn Met Pro
            660                 665                 670

Thr Gly Cys Pro Pro Asn Cys Gly Cys Ala Ala Arg Cys Leu Asp Arg
        675                 680                 685

Gly Gln Trp Leu Pro Cys Asn Trp Ala Asp Val
    690                 695


<210> 9558
<211> 242
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417241"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9558
Xaa Ile Pro Ser Gln Ser Thr Arg His Ser Thr Val Ala Thr Glu Cys
1               5                   10                  15

Leu Ser Lys Asn Thr Glu Glu Asn Leu Leu Ser Leu Lys Asn Ser Leu
            20                  25                  30

Asn Asp Cys Ser Asn Gln Val Ile Leu Ala Lys Ala Ser Gln Glu His
        35                  40                  45
```

```
His Leu Ser Glu Glu Thr Lys Cys Ser Ala Ser Leu Phe Ser Ser Gln
    50                  55                  60

Cys Ser Glu Leu Glu Asp Leu Thr Ala Asn Thr Asn Thr Gln Asp Pro
65                  70                  75                  80

Phe Leu Ile Gly Ser Ser Lys Gln Met Arg His Gln Ser Glu Ser Gln
                85                  90                  95

Gly Val Gly Leu Ser Asp Lys Glu Leu Val Ser Asp Asp Glu Glu Arg
            100                 105                 110

Gly Thr Gly Leu Glu Glu Asn Asn Gln Glu Glu Gln Ser Met Asp Ser
        115                 120                 125

Asn Leu Gly Glu Ala Ala Ser Gly Cys Glu Ser Glu Thr Ser Val Ser
    130                 135                 140

Glu Asp Cys Ser Gly Leu Ser Ser Gln Ser Asp Ile Leu Thr Thr Gln
145                 150                 155                 160

Gln Arg Asp Thr Met Gln His Asn Leu Ile Lys Leu Gln Gln Glu Met
                165                 170                 175

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

Ser Tyr Pro Ser Ile Ile Ser Asp Ser Ser Ala Leu Glu Asp Leu Arg
        195                 200                 205

Asn Pro Glu Gln Ser Thr Ser Glu Lys Val Leu Thr Ser Gln Lys Ser
    210                 215                 220

Ser Glu Tyr Pro Ile Ser Gln Asn Pro Glu Gly Leu Ser Ala Asp Lys
225                 230                 235                 240

Phe Glu
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<210> 9559
<211> 222
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417554"

<400> 9559

```
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                  10                  15


Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30


Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45


Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60


Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80


Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95


Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110


Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125


Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140


Pro Ser Leu Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly Thr
```

```
145                 150                 155                 160

Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr Ser
                165                 170                 175

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

Ala Thr Tyr Cys Ser Val Gly Asp Gln Glu Leu Leu Gln Ile Thr Pro
        195                 200                 205

Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys
    210                 215                 220


<210> 9560
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="Uniprot ID:  P38398; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417988"

<400> 9560
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                   10                  15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45
```

```
Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu
    50                  55                  60


<210> 9561
<211> 266
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418212"

<400> 9561
Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp Thr Gly Leu Glu
1               5                   10                  15


Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn Asn Ser Pro Glu
            20                  25                  30


His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met Gly Tyr Arg Asn
        35                  40                  45


Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn Pro Ser Leu Gln
    50                  55                  60


Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly Thr Val Arg Thr
65                  70                  75                  80


Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr Ser Val Tyr Ile
                85                  90                  95


Glu Leu Ala Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu
            100                 105                 110


His His Gln Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala
```

```
        115                 120                 125

Ala Glu Arg His Pro Glu Lys Tyr Gln Gly Glu Ala Ala Ser Gly Cys
    130                 135                 140

Glu Ser Glu Thr Ser Val Ser Glu Asp Cys Ser Gly Leu Ser Ser Gln
145                 150                 155                 160

Ser Asp Ile Leu Thr Thr Gln Gln Arg Asp Thr Met Gln His Asn Leu
                165                 170                 175

Ile Lys Leu Gln Gln Glu Met Ala Glu Leu Glu Ala Val Leu Glu Gln
            180                 185                 190

His Gly Ser Gln Pro Ser Asn Ser Tyr Pro Ser Ile Ile Ser Asp Ser
        195                 200                 205

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

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

Pro Glu Gly Leu Ser Ala Asp Lys Phe Glu Val Ser Ala Asp Ser Ser
                245                 250                 255

Thr Ser Lys Asn Lys Glu Pro Gly Val Glu
            260                 265
```

<210> 9562
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="Uniprot ID: P38398; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418548"

<400> 9562
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1   5   10   15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20   25   30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35   40   45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu
    50   55   60

<210> 9563
<211> 1816
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="Uniprot ID: P38398; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418775"

<400> 9563
Met Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu
1   5   10   15

Cys Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe

```
            20                  25                  30

Ser Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu
        35                  40                  45

Asp Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu
    50                  55                  60

Asn Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser
65                  70                  75                  80

Met Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu
                85                  90                  95

Asn Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu
            100                 105                 110

Gly Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys
        115                 120                 125

Thr Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val
    130                 135                 140

Asn Lys Ala Thr Tyr Cys Ser Val Gly Asp Gln Glu Leu Leu Gln Ile
145                 150                 155                 160

Thr Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys
                165                 170                 175

Ala Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His
            180                 185                 190

Gln Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu
        195                 200                 205

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

Glu Pro Cys Gly Thr Asn Thr His Ala Ser Ser Leu Gln His Glu Asn
225                 230                 235                 240

Ser Ser Leu Leu Leu Thr Lys Asp Arg Met Asn Val Glu Lys Ala Glu
                245                 250                 255
```

```
Phe Cys Asn Lys Ser Lys Gln Pro Gly Leu Ala Arg Ser Gln His Asn
            260                 265                 270

Arg Trp Ala Gly Ser Lys Glu Thr Cys Asn Asp Arg Arg Thr Pro Ser
        275                 280                 285

Thr Glu Lys Lys Val Asp Leu Asn Ala Asp Pro Leu Cys Glu Arg Lys
    290                 295                 300

Glu Trp Asn Lys Gln Lys Leu Pro Cys Ser Glu Asn Pro Arg Asp Thr
305                 310                 315                 320

Glu Asp Val Pro Trp Ile Thr Leu Asn Ser Ser Ile Gln Lys Val Asn
                325                 330                 335

Glu Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly Ser Asp Asp Ser His
            340                 345                 350

Asp Gly Glu Ser Glu Ser Asn Ala Lys Val Ala Asp Val Leu Asp Val
        355                 360                 365

Leu Asn Glu Val Asp Glu Tyr Ser Gly Ser Ser Glu Lys Ile Asp Leu
    370                 375                 380

Leu Ala Ser Asp Pro His Glu Ala Leu Ile Cys Lys Ser Glu Arg Val
385                 390                 395                 400

His Ser Lys Ser Val Glu Ser Asn Ile Glu Asp Lys Ile Phe Gly Lys
                405                 410                 415

Thr Tyr Arg Lys Lys Ala Ser Leu Pro Asn Leu Ser His Val Thr Glu
            420                 425                 430

Asn Leu Ile Ile Gly Ala Phe Val Thr Glu Pro Gln Ile Ile Gln Glu
        435                 440                 445

Arg Pro Leu Thr Asn Lys Leu Lys Arg Lys Arg Arg Pro Thr Ser Gly
    450                 455                 460

Leu His Pro Glu Asp Phe Ile Lys Lys Ala Asp Leu Ala Val Gln Lys
465                 470                 475                 480
```

Thr Pro Glu Met Ile Asn Gln Gly Thr Asn Gln Thr Glu Gln Asn Gly
485 490 495

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

Asp Ser Ile Gln Asn Glu Lys Asn Pro Asn Pro Ile Glu Ser Leu Glu
515 520 525

Lys Glu Ser Ala Phe Lys Thr Lys Ala Glu Pro Ile Ser Ser Ser Ile
530 535 540

Ser Asn Met Glu Leu Glu Leu Asn Ile His Asn Ser Lys Ala Pro Lys
545 550 555 560

Lys Asn Arg Leu Arg Arg Lys Ser Ser Thr Arg His Ile His Ala Leu
565 570 575

Glu Leu Val Val Ser Arg Asn Leu Ser Pro Pro Asn Cys Thr Glu Leu
580 585 590

Gln Ile Asp Ser Cys Ser Ser Ser Glu Glu Ile Lys Lys Lys Lys Tyr
595 600 605

Asn Gln Met Pro Val Arg His Ser Arg Asn Leu Gln Leu Met Glu Gly
610 615 620

Lys Glu Pro Ala Thr Gly Ala Lys Lys Ser Asn Lys Pro Asn Glu Gln
625 630 635 640

Thr Ser Lys Arg His Asp Ser Asp Thr Phe Pro Glu Leu Lys Leu Thr
645 650 655

Asn Ala Pro Gly Ser Phe Thr Lys Cys Ser Asn Thr Ser Glu Leu Lys
660 665 670

Glu Phe Val Asn Pro Ser Leu Pro Arg Glu Glu Lys Glu Glu Lys Leu
675 680 685

Glu Thr Val Lys Val Ser Asn Asn Ala Glu Asp Pro Lys Asp Leu Met
690 695 700

```
Leu Ser Gly Glu Arg Val Leu Gln Thr Glu Arg Ser Val Glu Ser Ser
705                 710                 715                 720

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

Ser Leu Leu Glu Val Ser Thr Leu Gly Lys Ala Lys Thr Glu Pro Asn
            740                 745                 750

Lys Cys Val Ser Gln Cys Ala Ala Phe Glu Asn Pro Lys Gly Leu Ile
        755                 760                 765

His Gly Cys Ser Lys Asp Asn Arg Asn Asp Thr Glu Gly Phe Lys Tyr
    770                 775                 780

Pro Leu Gly His Glu Val Asn His Ser Arg Glu Thr Ser Ile Glu Met
785                 790                 795                 800

Glu Glu Ser Glu Leu Asp Ala Gln Tyr Leu Gln Asn Thr Phe Lys Val
                805                 810                 815

Ser Lys Arg Gln Ser Phe Ala Pro Phe Ser Asn Pro Gly Asn Ala Glu
            820                 825                 830

Glu Glu Cys Ala Thr Phe Ser Ala His Ser Gly Ser Leu Lys Lys Gln
        835                 840                 845

Ser Pro Lys Val Thr Phe Glu Cys Glu Gln Lys Glu Glu Asn Gln Gly
    850                 855                 860

Lys Asn Glu Ser Asn Ile Lys Pro Val Gln Thr Val Asn Ile Thr Ala
865                 870                 875                 880

Gly Phe Pro Val Val Gly Gln Lys Asp Lys Pro Val Asp Asn Ala Lys
                885                 890                 895

Cys Ser Ile Lys Gly Gly Ser Arg Phe Cys Leu Ser Ser Gln Phe Arg
            900                 905                 910

Gly Asn Glu Thr Gly Leu Ile Thr Pro Asn Lys His Gly Leu Leu Gln
        915                 920                 925

Asn Pro Tyr Arg Ile Pro Pro Leu Phe Pro Ile Lys Ser Phe Val Lys
```

930 935 940

Thr Lys Cys Lys Lys Asn Leu Leu Glu Glu Asn Phe Glu Glu His Ser
945 950 955 960

Met Ser Pro Glu Arg Glu Met Gly Asn Glu Asn Ile Pro Ser Thr Val
965 970 975

Ser Thr Ile Ser Arg Asn Asn Ile Arg Glu Asn Val Phe Lys Glu Ala
980 985 990

Ser Ser Ser Asn Ile Asn Glu Val Gly Ser Ser Thr Asn Glu Val Gly
995 1000 1005

Ser Ser Ile Asn Glu Ile Gly Ser Ser Asp Glu Asn Ile Gln Ala
1010 1015 1020

Glu Leu Gly Arg Asn Arg Gly Pro Lys Leu Asn Ala Met Leu Arg
1025 1030 1035

Leu Gly Val Leu Gln Pro Glu Val Tyr Lys Gln Ser Leu Pro Gly
1040 1045 1050

Ser Asn Cys Lys His Pro Glu Ile Lys Lys Gln Glu Tyr Glu Glu
1055 1060 1065

Val Val Gln Thr Val Asn Thr Asp Phe Ser Pro Tyr Leu Ile Ser
1070 1075 1080

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

Cys Ser Glu Thr Pro Asp Asp Leu Leu Asp Asp Gly Glu Ile Lys
1100 1105 1110

Glu Asp Thr Ser Phe Ala Glu Asn Asp Ile Lys Glu Ser Ser Ala
1115 1120 1125

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

Ser Pro Phe Thr His Thr His Leu Ala Gln Gly Tyr Arg Arg Gly

1145 1150 1155

Ala Lys Lys Leu Glu Ser Ser Glu Glu Asn Leu Ser Ser Glu Asp
1160 1165 1170

Glu Glu Leu Pro Cys Phe Gln His Leu Leu Phe Gly Lys Val Asn
1175 1180 1185

Asn Ile Pro Ser Gln Ser Thr Arg His Ser Thr Val Ala Thr Glu
1190 1195 1200

Cys Leu Ser Lys Asn Thr Glu Glu Asn Leu Leu Ser Leu Lys Asn
1205 1210 1215

Ser Leu Asn Asp Cys Ser Asn Gln Val Ile Leu Ala Lys Ala Ser
1220 1225 1230

Gln Glu His His Leu Ser Glu Glu Thr Lys Cys Ser Ala Ser Leu
1235 1240 1245

Phe Ser Ser Gln Cys Ser Glu Leu Glu Asp Leu Thr Ala Asn Thr
1250 1255 1260

Asn Thr Gln Asp Pro Phe Leu Ile Gly Ser Ser Lys Gln Met Arg
1265 1270 1275

His Gln Ser Glu Ser Gln Gly Val Gly Leu Ser Asp Lys Glu Leu
1280 1285 1290

Val Ser Asp Asp Glu Glu Arg Gly Thr Gly Leu Glu Glu Asn Asn
1295 1300 1305

Gln Glu Glu Gln Ser Met Asp Ser Asn Leu Gly Glu Ala Ala Ser
1310 1315 1320

Gly Cys Glu Ser Glu Thr Ser Val Ser Glu Asp Cys Ser Gly Leu
1325 1330 1335

Ser Ser Gln Ser Asp Ile Leu Thr Thr Gln Gln Arg Asp Thr Met
1340 1345 1350

Gln His Asn Leu Ile Lys Leu Gln Gln Glu Met Ala Glu Leu Glu
1355 1360 1365

```
Ala Val  Leu Glu Gln His Gly  Ser Gln Pro Ser Asn  Ser Tyr Pro
    1370                1375                1380

Ser Ile  Ile Ser Asp Ser Ser  Ala Leu Glu Asp Leu  Arg Asn Pro
    1385                1390                1395

Glu Gln  Ser Thr Ser Glu Lys  Ala Val Leu Thr Ser  Gln Lys Ser
    1400                1405                1410

Ser Glu  Tyr Pro Ile Ser Gln  Asn Pro Glu Gly Leu  Ser Ala Asp
    1415                1420                1425

Lys Phe  Glu Val Ser Ala Asp  Ser Ser Thr Ser Lys  Asn Lys Glu
    1430                1435                1440

Pro Gly  Val Glu Arg Ser Ser  Pro Ser Lys Cys Pro  Ser Leu Asp
    1445                1450                1455

Asp Arg  Trp Tyr Met His Ser  Cys Ser Gly Ser Leu  Gln Asn Arg
    1460                1465                1470

Asn Tyr  Pro Ser Gln Glu Glu  Leu Ile Lys Val Val  Asp Val Glu
    1475                1480                1485

Glu Gln  Gln Leu Glu Glu Ser  Gly Pro His Asp Leu  Thr Glu Thr
    1490                1495                1500

Ser Tyr  Leu Pro Arg Gln Asp  Leu Glu Gly Thr Pro  Tyr Leu Glu
    1505                1510                1515

Ser Gly  Ile Ser Leu Phe Ser  Asp Asp Pro Glu Ser  Asp Pro Ser
    1520                1525                1530

Glu Asp  Arg Ala Pro Glu Ser  Ala Arg Val Gly Asn  Ile Pro Ser
    1535                1540                1545

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

Ala Gln  Ser Pro Ala Ala Ala  His Thr Thr Asp Thr  Ala Gly Tyr
    1565                1570                1575
```

```
Asn Ala  Met Glu Glu Ser Val  Ser Arg Glu Lys Pro  Glu Leu Thr
    1580                1585                1590

Ala Ser  Thr Glu Arg Val Asn  Lys Arg Met Ser Met  Val Val Ser
    1595                1600                1605

Gly Leu  Thr Pro Glu Glu Phe  Met Leu Val Tyr Lys  Phe Ala Arg
    1610                1615                1620

Lys His  His Ile Thr Leu Thr  Asn Leu Ile Thr Glu  Glu Thr Thr
    1625                1630                1635

His Val  Val Met Lys Thr Asp  Ala Glu Phe Val Cys  Glu Arg Thr
    1640                1645                1650

Leu Lys  Tyr Phe Leu Gly Ile  Ala Gly Gly Lys Trp  Val Val Ser
    1655                1660                1665

Tyr Phe  Trp Val Thr Gln Ser  Ile Lys Glu Arg Lys  Met Leu Asn
    1670                1675                1680

Glu His  Asp Phe Glu Val Arg  Gly Asp Val Val Asn  Gly Arg Asn
    1685                1690                1695

His Gln  Gly Pro Lys Arg Ala  Arg Glu Ser Gln Asp  Arg Lys Ile
    1700                1705                1710

Phe Arg  Gly Leu Glu Ile Cys  Cys Tyr Gly Pro Phe  Thr Asn Met
    1715                1720                1725

Pro Thr  Asp Gln Leu Glu Trp  Met Val Gln Leu Cys  Gly Ala Ser
    1730                1735                1740

Val Val  Lys Glu Leu Ser Ser  Phe Thr Leu Gly Thr  Gly Val His
    1745                1750                1755

Pro Ile  Val Val Val Gln Pro  Asp Ala Trp Thr Glu  Asp Asn Gly
    1760                1765                1770

Phe His  Ala Ile Gly Gln Met  Cys Glu Ala Pro Val  Val Thr Arg
    1775                1780                1785
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Glu Trp Val Leu Asp Ser Val Ala Leu Tyr Gln Cys Gln Glu Leu
1790 1795 1800

Asp Thr Tyr Leu Ile Pro Gln Ile Pro His Ser His Tyr
1805 1810 1815

<210> 9564
<211> 572
<212> PRT
<213> Homo sapiens

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breast cancer 1, early onset; "

<220>
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Met Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu
1 5 10 15

Cys Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe
20 25 30

Ser Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu
35 40 45

Asp Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu
50 55 60

Asn Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser
65 70 75 80

Met Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu
85 90 95

Asn Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu
100 105 110

```
Gly Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys
        115                 120                 125

Thr Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val
    130                 135                 140

Asn Lys Ala Thr Tyr Cys Ser Val Gly Asp Gln Glu Leu Leu Gln Ile
145                 150                 155                 160

Thr Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys
                165                 170                 175

Ala Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His
            180                 185                 190

Gln Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu
        195                 200                 205

Arg His Pro Glu Lys Tyr Gln Gly Glu Ala Ala Ser Gly Cys Glu Ser
    210                 215                 220

Glu Thr Ser Val Ser Glu Asp Cys Ser Gly Leu Ser Ser Gln Ser Asp
225                 230                 235                 240

Ile Leu Thr Thr Gln Gln Arg Asp Thr Met Gln His Asn Leu Ile Lys
                245                 250                 255

Leu Gln Gln Glu Met Ala Glu Leu Glu Ala Val Leu Glu Gln His Gly
            260                 265                 270

Ser Gln Pro Ser Asn Ser Tyr Pro Ser Ile Ile Ser Asp Ser Ser Ala
        275                 280                 285

Leu Glu Asp Leu Arg Asn Pro Glu Gln Ser Thr Ser Glu Lys Ala Val
    290                 295                 300

Leu Thr Ser Gln Lys Ser Ser Glu Tyr Pro Ile Ser Gln Asn Pro Glu
305                 310                 315                 320

Gly Leu Ser Ala Asp Lys Phe Glu Val Ser Ala Asp Ser Ser Thr Ser
                325                 330                 335
```

```
Lys Asn Lys Glu Pro Gly Val Glu Arg Ser Ser Pro Ser Lys Cys Pro
            340                 345                 350

Ser Leu Asp Asp Arg Trp Tyr Met His Ser Cys Ser Gly Ser Leu Gln
        355                 360                 365

Asn Arg Asn Tyr Pro Ser Gln Glu Glu Leu Ile Lys Val Val Asp Val
    370                 375                 380

Glu Glu Gln Gln Leu Glu Glu Ser Gly Pro His Asp Leu Thr Glu Thr
385                 390                 395                 400

Ser Tyr Leu Pro Arg Gln Asp Leu Glu Gly Thr Pro Tyr Leu Glu Ser
                405                 410                 415

Gly Ile Ser Leu Phe Ser Asp Asp Pro Glu Ser Asp Pro Ser Glu Asp
            420                 425                 430

Arg Ala Pro Glu Ser Ala Arg Val Gly Asn Ile Pro Ser Ser Thr Ser
        435                 440                 445

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

Ala Ala Ala His Thr Thr Asp Thr Ala Gly Tyr Asn Ala Met Glu Glu
465                 470                 475                 480

Ser Val Ser Arg Glu Lys Pro Glu Leu Thr Ala Ser Thr Glu Arg Val
                485                 490                 495

Asn Lys Arg Met Ser Met Val Val Ser Gly Leu Thr Pro Glu Glu Phe
            500                 505                 510

Met Leu Val Tyr Lys Phe Ala Arg Lys His His Ile Thr Leu Thr Asn
        515                 520                 525

Leu Ile Thr Glu Glu Thr Thr His Val Val Met Lys Thr Asp Ala Glu
    530                 535                 540

Phe Val Cys Glu Arg Thr Leu Lys Tyr Phe Leu Gly Ile Ala Gly Gly
545                 550                 555                 560
```

Lys Trp Val Val Ser Tyr Phe Trp Val Thr Gln Ser
565 570

<210> 9565
<211> 1884
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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breast cancer 1, early onset; "

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Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1 5 10 15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
20 25 30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
35 40 45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
50 55 60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65 70 75 80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
85 90 95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
100 105 110

```
Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140

Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165                 170                 175

Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180                 185                 190

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

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala
    210                 215                 220

Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln
225                 230                 235                 240

Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg
                245                 250                 255

His Pro Glu Lys Tyr Gln Gly Ser Ser Val Ser Asn Leu His Val Glu
            260                 265                 270

Pro Cys Gly Thr Asn Thr His Ala Ser Ser Leu Gln His Glu Asn Ser
        275                 280                 285

Ser Leu Leu Leu Thr Lys Asp Arg Met Asn Val Glu Lys Ala Glu Phe
    290                 295                 300

Cys Asn Lys Ser Lys Gln Pro Gly Leu Ala Arg Ser Gln His Asn Arg
305                 310                 315                 320

Trp Ala Gly Ser Lys Glu Thr Cys Asn Asp Arg Arg Thr Pro Ser Thr
                325                 330                 335
```

Glu Lys Lys Val Asp Leu Asn Ala Asp Pro Leu Cys Glu Arg Lys Glu
340 345 350

Trp Asn Lys Gln Lys Leu Pro Cys Ser Glu Asn Pro Arg Asp Thr Glu
355 360 365

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

Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly Ser Asp Asp Ser His Asp
385 390 395 400

Gly Glu Ser Glu Ser Asn Ala Lys Val Ala Asp Val Leu Asp Val Leu
405 410 415

Asn Glu Val Asp Glu Tyr Ser Gly Ser Ser Glu Lys Ile Asp Leu Leu
420 425 430

Ala Ser Asp Pro His Glu Ala Leu Ile Cys Lys Ser Glu Arg Val His
435 440 445

Ser Lys Ser Val Glu Ser Asn Ile Glu Asp Lys Ile Phe Gly Lys Thr
450 455 460

Tyr Arg Lys Lys Ala Ser Leu Pro Asn Leu Ser His Val Thr Glu Asn
465 470 475 480

Leu Ile Ile Gly Ala Phe Val Thr Glu Pro Gln Ile Ile Gln Glu Arg
485 490 495

Pro Leu Thr Asn Lys Leu Lys Arg Lys Arg Arg Pro Thr Ser Gly Leu
500 505 510

His Pro Glu Asp Phe Ile Lys Lys Ala Asp Leu Ala Val Gln Lys Thr
515 520 525

Pro Glu Met Ile Asn Gln Gly Thr Asn Gln Thr Glu Gln Asn Gly Gln
530 535 540

Val Met Asn Ile Thr Asn Ser Gly His Glu Asn Lys Thr Lys Gly Asp
545 550 555 560

Ser Ile Gln Asn Glu Lys Asn Pro Asn Pro Ile Glu Ser Leu Glu Lys
565 570 575

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

Asn Met Glu Leu Glu Leu Asn Ile His Asn Ser Lys Ala Pro Lys Lys
595 600 605

Asn Arg Leu Arg Arg Lys Ser Ser Thr Arg His Ile His Ala Leu Glu
610 615 620

Leu Val Val Ser Arg Asn Leu Ser Pro Pro Asn Cys Thr Glu Leu Gln
625 630 635 640

Ile Asp Ser Cys Ser Ser Ser Glu Glu Ile Lys Lys Lys Lys Tyr Asn
645 650 655

Gln Met Pro Val Arg His Ser Arg Asn Leu Gln Leu Met Glu Gly Lys
660 665 670

Glu Pro Ala Thr Gly Ala Lys Lys Ser Asn Lys Pro Asn Glu Gln Thr
675 680 685

Ser Lys Arg His Asp Ser Asp Thr Phe Pro Glu Leu Lys Leu Thr Asn
690 695 700

Ala Pro Gly Ser Phe Thr Lys Cys Ser Asn Thr Ser Glu Leu Lys Glu
705 710 715 720

Phe Val Asn Pro Ser Leu Pro Arg Glu Glu Lys Glu Glu Lys Leu Glu
725 730 735

Thr Val Lys Val Ser Asn Asn Ala Glu Asp Pro Lys Asp Leu Met Leu
740 745 750

Ser Gly Glu Arg Val Leu Gln Thr Glu Arg Ser Val Glu Ser Ser Ser
755 760 765

Ile Ser Leu Val Pro Gly Thr Asp Tyr Gly Thr Gln Glu Ser Ile Ser
770 775 780

Leu Leu Glu Val Ser Thr Leu Gly Lys Ala Lys Thr Glu Pro Asn Lys

785 790 795 800

Cys Val Ser Gln Cys Ala Ala Phe Glu Asn Pro Lys Gly Leu Ile His
805 810 815

Gly Cys Ser Lys Asp Asn Arg Asn Asp Thr Glu Gly Phe Lys Tyr Pro
820 825 830

Leu Gly His Glu Val Asn His Ser Arg Glu Thr Ser Ile Glu Met Glu
835 840 845

Glu Ser Glu Leu Asp Ala Gln Tyr Leu Gln Asn Thr Phe Lys Val Ser
850 855 860

Lys Arg Gln Ser Phe Ala Pro Phe Ser Asn Pro Gly Asn Ala Glu Glu
865 870 875 880

Glu Cys Ala Thr Phe Ser Ala His Ser Gly Ser Leu Lys Lys Gln Ser
885 890 895

Pro Lys Val Thr Phe Glu Cys Glu Gln Lys Glu Glu Asn Gln Gly Lys
900 905 910

Asn Glu Ser Asn Ile Lys Pro Val Gln Thr Val Asn Ile Thr Ala Gly
915 920 925

Phe Pro Val Val Gly Gln Lys Asp Lys Pro Val Asp Asn Ala Lys Cys
930 935 940

Ser Ile Lys Gly Gly Ser Arg Phe Cys Leu Ser Ser Gln Phe Arg Gly
945 950 955 960

Asn Glu Thr Gly Leu Ile Thr Pro Asn Lys His Gly Leu Leu Gln Asn
965 970 975

Pro Tyr Arg Ile Pro Pro Leu Phe Pro Ile Lys Ser Phe Val Lys Thr
980 985 990

Lys Cys Lys Lys Asn Leu Leu Glu Glu Asn Phe Glu Glu His Ser
Met
995 1000 1005

Ser Pro Glu Arg Glu Met Gly Asn Glu Asn Ile Pro Ser Thr Val

1010 1015 1020

Ser Thr Ile Ser Arg Asn Asn Ile Arg Glu Asn Val Phe Lys Glu
1025 1030 1035

Ala Ser Ser Ser Asn Ile Asn Glu Val Gly Ser Ser Thr Asn Glu
1040 1045 1050

Val Gly Ser Ser Ile Asn Glu Ile Gly Ser Ser Asp Glu Asn Ile
1055 1060 1065

Gln Ala Glu Leu Gly Arg Asn Arg Gly Pro Lys Leu Asn Ala Met
1070 1075 1080

Leu Arg Leu Gly Val Leu Gln Pro Glu Val Tyr Lys Gln Ser Leu
1085 1090 1095

Pro Gly Ser Asn Cys Lys His Pro Glu Ile Lys Lys Gln Glu Tyr
1100 1105 1110

Glu Glu Val Val Gln Thr Val Asn Thr Asp Phe Ser Pro Tyr Leu
1115 1120 1125

Ile Ser Asp Asn Leu Glu Gln Pro Met Gly Ser Ser His Ala Ser
1130 1135 1140

Gln Val Cys Ser Glu Thr Pro Asp Asp Leu Leu Asp Asp Gly Glu
1145 1150 1155

Ile Lys Glu Asp Thr Ser Phe Ala Glu Asn Asp Ile Lys Glu Ser
1160 1165 1170

Ser Ala Val Phe Ser Lys Ser Val Gln Lys Gly Glu Leu Ser Arg
1175 1180 1185

Ser Pro Ser Pro Phe Thr His Thr His Leu Ala Gln Gly Tyr Arg
1190 1195 1200

Arg Gly Ala Lys Lys Leu Glu Ser Ser Glu Glu Asn Leu Ser Ser
1205 1210 1215

Glu Asp Glu Glu Leu Pro Cys Phe Gln His Leu Leu Phe Gly Lys
1220 1225 1230

```
Val Asn  Asn Ile Pro Ser Gln  Ser Thr Arg His Ser  Thr Val Ala
    1235                1240                1245

Thr Glu  Cys Leu Ser Lys Asn  Thr Glu Glu Asn Leu  Leu Ser Leu
    1250                1255                1260

Lys Asn  Ser Leu Asn Asp Cys  Ser Asn Gln Val Ile  Leu Ala Lys
    1265                1270                1275

Ala Ser  Gln Glu His His Leu  Ser Glu Glu Thr Lys  Cys Ser Ala
    1280                1285                1290

Ser Leu  Phe Ser Ser Gln Cys  Ser Glu Leu Glu Asp  Leu Thr Ala
    1295                1300                1305

Asn Thr  Asn Thr Gln Asp Pro  Phe Leu Ile Gly Ser  Ser Lys Gln
    1310                1315                1320

Met Arg  His Gln Ser Glu Ser  Gln Gly Val Gly Leu  Ser Asp Lys
    1325                1330                1335

Glu Leu  Val Ser Asp Asp Glu  Glu Arg Gly Thr Gly  Leu Glu Glu
    1340                1345                1350

Asn Asn  Gln Glu Glu Gln Ser  Met Asp Ser Asn Leu  Gly Glu Ala
    1355                1360                1365

Ala Ser  Gly Cys Glu Ser Glu  Thr Ser Val Ser Glu  Asp Cys Ser
    1370                1375                1380

Gly Leu  Ser Ser Gln Ser Asp  Ile Leu Thr Thr Gln  Gln Arg Asp
    1385                1390                1395

Thr Met  Gln His Asn Leu Ile  Lys Leu Gln Gln Glu  Met Ala Glu
    1400                1405                1410

Leu Glu  Ala Val Leu Glu Gln  His Gly Ser Gln Pro  Ser Asn Ser
    1415                1420                1425

Tyr Pro  Ser Ile Ile Ser Asp  Ser Ser Ala Leu Glu  Asp Leu Arg
    1430                1435                1440
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Asn Pro Glu Gln Ser Thr Ser Glu Lys Asp Ser His Ile His Gly
1445 1450 1455

Gln Arg Asn Asn Ser Met Phe Ser Lys Arg Pro Arg Glu His Ile
1460 1465 1470

Ser Val Leu Thr Ser Gln Lys Ser Ser Glu Tyr Pro Ile Ser Gln
1475 1480 1485

Asn Pro Glu Gly Leu Ser Ala Asp Lys Phe Glu Val Ser Ala Asp
1490 1495 1500

Ser Ser Thr Ser Lys Asn Lys Glu Pro Gly Val Glu Arg Ser Ser
1505 1510 1515

Pro Ser Lys Cys Pro Ser Leu Asp Asp Arg Trp Tyr Met His Ser
1520 1525 1530

Cys Ser Gly Ser Leu Gln Asn Arg Asn Tyr Pro Ser Gln Glu Glu
1535 1540 1545

Leu Ile Lys Val Val Asp Val Glu Glu Gln Gln Leu Glu Glu Ser
1550 1555 1560

Gly Pro His Asp Leu Thr Glu Thr Ser Tyr Leu Pro Arg Gln Asp
1565 1570 1575

Leu Glu Gly Thr Pro Tyr Leu Glu Ser Gly Ile Ser Leu Phe Ser
1580 1585 1590

Asp Asp Pro Glu Ser Asp Pro Ser Glu Asp Arg Ala Pro Glu Ser
1595 1600 1605

Ala Arg Val Gly Asn Ile Pro Ser Ser Thr Ser Ala Leu Lys Val
1610 1615 1620

Pro Gln Leu Lys Val Ala Glu Ser Ala Gln Ser Pro Ala Ala Ala
1625 1630 1635

His Thr Thr Asp Thr Ala Gly Tyr Asn Ala Met Glu Glu Ser Val
1640 1645 1650

Ser Arg Glu Lys Pro Glu Leu Thr Ala Ser Thr Glu Arg Val Asn
1655 1660 1665

Lys Arg Met Ser Met Val Val Ser Gly Leu Thr Pro Glu Glu Phe
1670 1675 1680

Met Leu Val Tyr Lys Phe Ala Arg Lys His His Ile Thr Leu Thr
1685 1690 1695

Asn Leu Ile Thr Glu Glu Thr Thr His Val Val Met Lys Thr Asp
1700 1705 1710

Ala Glu Phe Val Cys Glu Arg Thr Leu Lys Tyr Phe Leu Gly Ile
1715 1720 1725

Ala Gly Gly Lys Trp Val Val Ser Tyr Phe Trp Val Thr Gln Ser
1730 1735 1740

Ile Lys Glu Arg Lys Met Leu Asn Glu His Asp Phe Glu Val Arg
1745 1750 1755

Gly Asp Val Val Asn Gly Arg Asn His Gln Gly Pro Lys Arg Ala
1760 1765 1770

Arg Glu Ser Gln Asp Arg Lys Ile Phe Arg Gly Leu Glu Ile Cys
1775 1780 1785

Cys Tyr Gly Pro Phe Thr Asn Met Pro Thr Asp Gln Leu Glu Trp
1790 1795 1800

Met Val Gln Leu Cys Gly Ala Ser Val Val Lys Glu Leu Ser Ser
1805 1810 1815

Phe Thr Leu Gly Thr Gly Val His Pro Ile Val Val Val Gln Pro
1820 1825 1830

Asp Ala Trp Thr Glu Asp Asn Gly Phe His Ala Ile Gly Gln Met
1835 1840 1845

Cys Glu Ala Pro Val Val Thr Arg Glu Trp Val Leu Asp Ser Val
1850 1855 1860

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

1865 1870 1875

Ile Pro His Ser His Tyr
1880

<210> 9566
<211> 177
<212> PRT
<213> Homo sapiens

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Met Asn Val Glu Lys Ala Glu Phe Cys Asn Lys Ser Lys Gln Pro Gly
1 5 10 15

Leu Ala Arg Ser Gln His Asn Arg Trp Ala Gly Ser Lys Glu Thr Cys
20 25 30

Asn Asp Arg Arg Thr Pro Ser Thr Glu Lys Lys Val Asp Leu Asn Ala
35 40 45

Asp Pro Leu Cys Glu Arg Lys Glu Trp Asn Lys Gln Lys Leu Pro Cys
50 55 60

Ser Glu Asn Pro Arg Asp Thr Glu Asp Val Pro Trp Ile Thr Leu Asn
65 70 75 80

Ser Ser Ile Gln Lys Val Asn Glu Trp Phe Ser Arg Ser Asp Glu Leu
85 90 95

Leu Gly Ser Asp Asp Ser His Asp Gly Glu Ser Glu Ser Asn Ala Lys
100 105 110

```
Val Ala Asp Val Leu Asp Val Leu Asn Glu Val Asp Glu Tyr Ser Gly
        115                 120                 125

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

Ile Cys Lys Ser Glu Arg Val His Ser Lys Ser Val Glu Ser Asn Ile
145                 150                 155                 160

Glu Asp Lys Ile Phe Gly Lys Thr Tyr Arg Lys Lys Ala Ser Leu Pro
                165                 170                 175

Asn
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<210> 9567
<211> 473
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<220>
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<220>
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<400> 9567

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Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                   10                  15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
```

```
    50                  55                  60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140

Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165                 170                 175

Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180                 185                 190

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

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala
    210                 215                 220

Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln
225                 230                 235                 240

Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg
                245                 250                 255

His Pro Glu Lys Tyr Gln Gly Ser Ser Val Ser Asn Leu His Val Glu
            260                 265                 270

Pro Cys Gly Thr Asn Thr His Ala Ser Ser Leu Gln His Glu Asn Ser
        275                 280                 285
```

Ser Leu Leu Leu Thr Lys Asp Arg Met Asn Val Glu Lys Ala Glu Phe
290 295 300

Cys Asn Lys Ser Lys Gln Pro Gly Leu Ala Arg Ser Gln His Asn Arg
305 310 315 320

Trp Ala Gly Ser Lys Glu Thr Cys Asn Asp Arg Arg Thr Pro Ser Thr
325 330 335

Glu Lys Lys Val Asp Leu Asn Ala Asp Pro Leu Cys Glu Arg Lys Glu
340 345 350

Trp Asn Lys Gln Lys Leu Pro Cys Ser Glu Asn Pro Arg Asp Thr Glu
355 360 365

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

Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly Ser Asp Asp Ser His Asp
385 390 395 400

Gly Glu Ser Glu Ser Asn Ala Lys Val Ala Asp Val Leu Asp Val Leu
405 410 415

Asn Glu Val Asp Glu Tyr Ser Gly Ser Ser Glu Lys Ile Asp Leu Leu
420 425 430

Ala Ser Asp Pro His Glu Ala Leu Ile Cys Lys Ser Glu Arg Val His
435 440 445

Ser Lys Ser Val Glu Ser Asn Ile Glu Asp Lys Ile Phe Gly Lys Thr
450 455 460

Tyr Arg Lys Lys Ala Ser Leu Pro Asn
465 470

<210> 9568
<211> 649
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419274"

<400> 9568

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Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                  10                  15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140

Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
```

```
                165                 170                 175

Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180                 185                 190

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

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala
    210                 215                 220

Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln
225                 230                 235                 240

Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg
                245                 250                 255

His Pro Glu Lys Tyr Gln Gly Ser Ser Val Ser Asn Leu His Val Glu
            260                 265                 270

Pro Cys Gly Thr Asn Thr His Ala Ser Ser Leu Gln His Glu Asn Ser
        275                 280                 285

Ser Leu Leu Leu Thr Lys Asp Arg Met Asn Val Glu Lys Ala Glu Phe
    290                 295                 300

Cys Asn Lys Ser Lys Gln Pro Gly Leu Ala Arg Ser Gln His Asn Arg
305                 310                 315                 320

Trp Ala Gly Ser Lys Glu Thr Cys Asn Asp Arg Arg Thr Pro Ser Thr
                325                 330                 335

Glu Lys Lys Val Asp Leu Asn Ala Asp Pro Leu Cys Glu Arg Lys Glu
            340                 345                 350

Trp Asn Lys Gln Lys Leu Pro Cys Ser Glu Asn Pro Arg Asp Thr Glu
        355                 360                 365

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

Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly Ser Asp Asp Ser His Asp
385                 390                 395                 400
```

```
Gly Glu Ser Glu Ser Asn Ala Lys Val Ala Asp Val Leu Asp Val Leu
                405                 410                 415

Asn Glu Val Asp Glu Tyr Ser Gly Ser Ser Glu Lys Ile Asp Leu Leu
            420                 425                 430

Ala Ser Asp Pro His Glu Ala Leu Ile Cys Lys Ser Glu Arg Val His
        435                 440                 445

Ser Lys Ser Val Glu Ser Asn Ile Glu Asp Lys Ile Phe Gly Lys Thr
    450                 455                 460

Tyr Arg Lys Lys Ala Ser Leu Pro Asn Leu Ser His Val Thr Glu Asn
465                 470                 475                 480

Leu Ile Ile Gly Ala Phe Val Thr Glu Pro Gln Ile Ile Gln Glu Arg
                485                 490                 495

Pro Leu Thr Asn Lys Leu Lys Arg Lys Arg Arg Pro Thr Ser Gly Leu
            500                 505                 510

His Pro Glu Asp Phe Ile Lys Lys Ala Asp Leu Ala Val Gln Lys Thr
        515                 520                 525

Pro Glu Met Ile Asn Gln Gly Thr Asn Gln Thr Glu Gln Asn Gly Gln
    530                 535                 540

Val Met Asn Ile Thr Asn Ser Gly His Glu Asn Lys Thr Lys Gly Asp
545                 550                 555                 560

Ser Ile Gln Asn Glu Lys Asn Pro Asn Pro Ile Glu Ser Leu Glu Lys
                565                 570                 575

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

Asn Met Glu Leu Glu Leu Asn Ile His Asn Ser Lys Ala Pro Lys Lys
        595                 600                 605

Asn Arg Leu Arg Arg Lys Ser Ser Thr Arg His Ile His Ala Leu Glu
    610                 615                 620
```

```
Leu Val Val Ser Arg Asn Leu Ser Pro Pro Asn Cys Thr Glu Leu Gln
625                 630                 635                 640


Ile Asp Ser Cys Ser Ser Ser Glu Glu
                645


<210> 9569
<211> 498
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419481"

<400> 9569
Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp Thr Gly Leu Glu
1               5                   10                  15


Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn Asn Ser Pro Glu
            20                  25                  30


His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met Gly Tyr Arg Asn
        35                  40                  45


Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn Pro Ser Leu Glu
    50                  55                  60


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


Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr Ser Val Tyr Ile Glu
                85                  90                  95


Leu Ala Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His
```

100 105 110

His Gln Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala
115 120 125

Glu Arg His Pro Glu Lys Tyr Gln Gly Glu Ala Ala Ser Gly Cys Glu
130 135 140

Ser Glu Thr Ser Val Ser Glu Asp Cys Ser Gly Leu Ser Ser Gln Ser
145 150 155 160

Asp Ile Leu Thr Thr Gln Gln Arg Asp Thr Met Gln His Asn Leu Ile
165 170 175

Lys Leu Gln Gln Glu Met Ala Glu Leu Glu Ala Val Leu Glu Gln His
180 185 190

Gly Ser Gln Pro Ser Asn Ser Tyr Pro Ser Ile Ile Ser Asp Ser Ser
195 200 205

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

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

Glu Gly Leu Ser Ala Asp Lys Phe Glu Val Ser Ala Asp Ser Ser Thr
245 250 255

Ser Lys Asn Lys Glu Pro Gly Val Glu Arg Ser Ser Pro Ser Lys Cys
260 265 270

Pro Ser Leu Asp Asp Arg Trp Tyr Met His Ser Cys Ser Gly Ser Leu
275 280 285

Gln Asn Arg Asn Tyr Pro Ser Gln Glu Glu Leu Ile Lys Val Val Asp
290 295 300

Val Glu Glu Gln Gln Leu Glu Glu Ser Gly Pro His Asp Leu Thr Glu
305 310 315 320

Thr Ser Tyr Leu Pro Arg Gln Asp Leu Glu Gly Thr Pro Tyr Leu Glu
325 330 335

```
Ser Gly Ile Ser Leu Phe Ser Asp Asp Pro Glu Ser Asp Pro Ser Glu
            340                 345                 350

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

Ser Ala Leu Lys Val Pro Gln Leu Lys Val Ala Glu Ser Ala Gln Ser
    370                 375                 380

Pro Ala Ala Ala His Thr Thr Asp Thr Ala Gly Tyr Asn Ala Met Glu
385                 390                 395                 400

Glu Ser Val Ser Arg Glu Lys Pro Glu Leu Thr Ala Ser Thr Glu Arg
                405                 410                 415

Val Asn Lys Arg Met Ser Met Val Val Ser Gly Leu Thr Pro Glu Glu
            420                 425                 430

Phe Met Leu Val Tyr Lys Phe Ala Arg Lys His His Ile Thr Leu Thr
        435                 440                 445

Asn Leu Ile Thr Glu Glu Thr Thr His Val Val Met Lys Thr Asp Ala
    450                 455                 460

Glu Phe Val Cys Glu Arg Thr Leu Lys Tyr Phe Leu Gly Ile Ala Gly
465                 470                 475                 480

Gly Lys Trp Val Val Ser Tyr Phe Trp Val Thr Gln Ser Ile Lys Glu
                485                 490                 495

Arg Lys
```

<210> 9570
<211> 622
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source

<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419988"

<400> 9570

```
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                  10                  15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Ser Leu Gln
        35                  40                  45

Glu Ser Thr Arg Phe Ser Gln Leu Val Glu Glu Leu Leu Lys Ile Ile
    50                  55                  60

Cys Ala Phe Gln Leu Asp Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn
65                  70                  75                  80

Phe Ala Lys Lys Glu Asn Asn Ser Pro Glu His Leu Lys Asp Glu Val
                85                  90                  95

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

Gln Ser Glu Pro Glu Asn Pro Ser Leu Gln Glu Thr Ser Leu Ser Val
        115                 120                 125

Gln Leu Ser Asn Leu Gly Thr Val Arg Thr Leu Arg Thr Lys Gln Arg
    130                 135                 140

Ile Gln Pro Gln Lys Thr Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser
145                 150                 155                 160

Ser Glu Asp Thr Val Asn Lys Ala Thr Tyr Cys Ser Val Gly Asp Gln
                165                 170                 175

Glu Leu Leu Gln Ile Thr Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu
```

```
            180                 185                 190

Asp Ser Ala Lys Lys Ala Ala Cys Glu Phe Ser Glu Thr Asp Val Thr
        195                 200                 205

Asn Thr Glu His His Gln Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu
    210                 215                 220

Lys Arg Ala Ala Glu Arg His Pro Glu Lys Tyr Gln Gly Ser Ser Val
225                 230                 235                 240

Ser Asn Leu His Val Glu Pro Cys Gly Thr Asn Thr His Ala Ser Ser
                245                 250                 255

Leu Gln His Glu Asn Ser Ser Leu Leu Leu Thr Lys Asp Arg Met Asn
            260                 265                 270

Val Glu Lys Ala Glu Phe Cys Asn Lys Ser Lys Gln Pro Gly Leu Ala
        275                 280                 285

Arg Ser Gln His Asn Arg Trp Ala Gly Ser Lys Glu Thr Cys Asn Asp
    290                 295                 300

Arg Arg Thr Pro Ser Thr Glu Lys Lys Val Asp Leu Asn Ala Asp Pro
305                 310                 315                 320

Leu Cys Glu Arg Lys Glu Trp Asn Lys Gln Lys Leu Pro Cys Ser Glu
                325                 330                 335

Asn Pro Arg Asp Thr Glu Asp Val Pro Trp Ile Thr Leu Asn Ser Ser
            340                 345                 350

Ile Gln Lys Val Asn Glu Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly
        355                 360                 365

Ser Asp Asp Ser His Asp Gly Glu Ser Glu Ser Asn Ala Lys Val Ala
    370                 375                 380

Asp Val Leu Asp Val Leu Asn Glu Val Asp Glu Tyr Ser Gly Ser Ser
385                 390                 395                 400

Glu Lys Ile Asp Leu Leu Ala Ser Asp Pro His Glu Ala Leu Ile Cys
                405                 410                 415
```

```
Lys Ser Glu Arg Val His Ser Lys Ser Val Glu Ser Asn Ile Glu Asp
            420                 425                 430

Lys Ile Phe Gly Lys Thr Tyr Arg Lys Lys Ala Ser Leu Pro Asn Leu
        435                 440                 445

Ser His Val Thr Glu Asn Leu Ile Ile Gly Ala Phe Val Thr Glu Pro
    450                 455                 460

Gln Ile Ile Gln Glu Arg Pro Leu Thr Asn Lys Leu Lys Arg Lys Arg
465                 470                 475                 480

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

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

Thr Glu Gln Asn Gly Gln Val Met Asn Ile Thr Asn Ser Gly His Glu
        515                 520                 525

Asn Lys Thr Lys Gly Asp Ser Ile Gln Asn Glu Lys Asn Pro Asn Pro
    530                 535                 540

Ile Glu Ser Leu Glu Lys Glu Ser Ala Phe Lys Thr Lys Ala Glu Pro
545                 550                 555                 560

Ile Ser Ser Ser Ile Ser Asn Met Glu Leu Glu Leu Asn Ile His Asn
                565                 570                 575

Ser Lys Ala Pro Lys Lys Asn Arg Leu Arg Arg Lys Ser Ser Thr Arg
            580                 585                 590

His Ile His Ala Leu Glu Leu Val Val Ser Arg Asn Leu Ser Pro Pro
        595                 600                 605

Asn Cys Thr Glu Leu Gln Ile Asp Ser Cys Ser Ser Ser Glu
    610                 615                 620
```

<210> 9571
<211> 319
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420201"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9571
Xaa Gln Leu Asp Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala
1 5 10 15

Lys Lys Glu Asn Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile
20 25 30

Ile Gln Ser Met Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser
35 40 45

Glu Pro Glu Asn Pro Ser Leu Glu Thr Ser Leu Ser Val Gln Leu Ser
50 55 60

Asn Leu Gly Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro
65 70 75 80

Gln Lys Thr Ser Val Tyr Ile Glu Leu Ala Ala Cys Glu Phe Ser Glu
85 90 95

Thr Asp Val Thr Asn Thr Glu His His Gln Pro Ser Asn Asn Asp Leu
100 105 110

Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg His Pro Glu Lys Tyr Gln
115 120 125

```
Gly Ser Ser Val Ser Asn Leu His Val Glu Pro Cys Gly Thr Asn Thr
    130                 135                 140

His Ala Ser Ser Leu Gln His Glu Asn Ser Ser Leu Leu Leu Thr Lys
145                 150                 155                 160

Asp Arg Met Asn Val Glu Lys Ala Glu Phe Cys Asn Lys Ser Lys Gln
                165                 170                 175

Pro Gly Leu Ala Arg Ser Gln His Asn Arg Trp Ala Gly Ser Lys Glu
            180                 185                 190

Thr Cys Asn Asp Arg Arg Thr Pro Ser Thr Glu Lys Lys Val Asp Leu
        195                 200                 205

Asn Ala Asp Pro Leu Cys Glu Arg Lys Glu Trp Asn Lys Gln Lys Leu
    210                 215                 220

Pro Cys Ser Glu Asn Pro Arg Asp Thr Glu Asp Val Pro Trp Ile Thr
225                 230                 235                 240

Leu Asn Ser Ser Ile Gln Lys Val Asn Glu Trp Phe Ser Arg Ser Asp
                245                 250                 255

Glu Leu Leu Gly Ser Asp Asp Ser His Asp Gly Glu Ser Glu Ser Asn
            260                 265                 270

Ala Lys Val Ala Asp Val Leu Asp Val Leu Asn Glu Val Asp Glu Tyr
        275                 280                 285

Ser Gly Ser Ser Glu Lys Ile Asp Leu Leu Ala Ser Asp Pro His Glu
    290                 295                 300

Ala Leu Ile Cys Lys Ser Glu Arg Val His Ser Lys Ser Val Glu
305                 310                 315


<210> 9572
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "
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<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420253"

<400> 9572
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1 5 10 15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
20 25 30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Val Leu Leu
35 40 45

Cys Cys Pro Ser Trp Ser Thr Val Val Arg Ser
50 55

<210> 9573
<211> 623
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420412"

<400> 9573
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1 5 10 15

```
Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140

Pro Ser Leu Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly Thr
145                 150                 155                 160

Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr Ser
                165                 170                 175

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

Ala Thr Tyr Cys Ser Val Gly Asp Gln Glu Leu Leu Gln Ile Thr Pro
        195                 200                 205

Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala Ala
    210                 215                 220

Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln Pro
225                 230                 235                 240
```

```
Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg His
                245                 250                 255

Pro Glu Lys Tyr Gln Gly Glu Ala Ala Ser Gly Cys Glu Ser Glu Thr
            260                 265                 270

Ser Val Ser Glu Asp Cys Ser Gly Leu Ser Ser Gln Ser Asp Ile Leu
        275                 280                 285

Thr Thr Gln Gln Arg Asp Thr Met Gln His Asn Leu Ile Lys Leu Gln
    290                 295                 300

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

Pro Ser Asn Ser Tyr Pro Ser Ile Ile Ser Asp Ser Ser Ala Leu Glu
                325                 330                 335

Asp Leu Arg Asn Pro Glu Gln Ser Thr Ser Glu Lys Ala Val Leu Thr
            340                 345                 350

Ser Gln Lys Ser Ser Glu Tyr Pro Ile Ser Gln Asn Pro Glu Gly Leu
        355                 360                 365

Ser Ala Asp Lys Phe Glu Val Ser Ala Asp Ser Ser Thr Ser Lys Asn
    370                 375                 380

Lys Glu Pro Gly Val Glu Arg Ser Ser Pro Ser Lys Cys Pro Ser Leu
385                 390                 395                 400

Asp Asp Arg Trp Tyr Met His Ser Cys Ser Gly Ser Leu Gln Asn Arg
                405                 410                 415

Asn Tyr Pro Ser Gln Glu Glu Leu Ile Lys Val Val Asp Val Glu Glu
            420                 425                 430

Gln Gln Leu Glu Glu Ser Gly Pro His Asp Leu Thr Glu Thr Ser Tyr
        435                 440                 445

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

Ser Leu Phe Ser Asp Asp Pro Glu Ser Asp Pro Ser Glu Asp Arg Ala
```

```
465                 470                 475                 480

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

Lys Val Pro Gln Leu Lys Val Ala Glu Ser Ala Gln Ser Pro Ala Ala
            500                 505                 510

Ala His Thr Thr Asp Thr Ala Gly Tyr Asn Ala Met Glu Glu Ser Val
        515                 520                 525

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

Arg Met Ser Met Val Val Ser Gly Leu Thr Pro Glu Glu Phe Met Leu
545                 550                 555                 560

Val Tyr Lys Phe Ala Arg Lys His His Ile Thr Leu Thr Asn Leu Ile
                565                 570                 575

Thr Glu Glu Thr Thr His Val Val Met Lys Thr Asp Ala Glu Phe Val
            580                 585                 590

Cys Glu Arg Thr Leu Lys Tyr Phe Leu Gly Ile Ala Gly Gly Lys Trp
        595                 600                 605

Val Val Ser Tyr Phe Trp Val Thr Gln Ser Ile Lys Glu Arg Lys
    610                 615                 620


<210> 9574
<211> 759
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "
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<220>
<221> source
<223> /note="Uniprot ID: P38398; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420705"

<400> 9574
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1   5   10   15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20   25   30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35   40   45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50   55   60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65   70   75   80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85   90   95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100   105   110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115   120   125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130   135   140

Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145   150   155   160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165   170   175

Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn
            180   185   190

```
Lys Ala Thr Tyr Cys Ser Val Gly Asp Gln Glu Leu Leu Gln Ile Thr
        195                 200                 205

Pro Gln Gly Thr Arg Asp Glu Ile Ser Leu Asp Ser Ala Lys Lys Ala
    210                 215                 220

Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln
225                 230                 235                 240

Pro Ser Asn Asn Asp Leu Asn Thr Thr Glu Lys Arg Ala Ala Glu Arg
                245                 250                 255

His Pro Glu Lys Tyr Gln Gly Glu Ala Ala Ser Gly Cys Glu Ser Glu
            260                 265                 270

Thr Ser Val Ser Glu Asp Cys Ser Gly Leu Ser Ser Gln Ser Asp Ile
        275                 280                 285

Leu Thr Thr Gln Gln Arg Asp Thr Met Gln His Asn Leu Ile Lys Leu
    290                 295                 300

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

Gln Pro Ser Asn Ser Tyr Pro Ser Ile Ile Ser Asp Ser Ser Ala Leu
                325                 330                 335

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

Ser Gln Lys Ser Ser Glu Tyr Pro Ile Ser Gln Asn Pro Glu Gly Leu
        355                 360                 365

Ser Ala Asp Lys Phe Glu Val Ser Ala Asp Ser Ser Thr Ser Lys Asn
    370                 375                 380

Lys Glu Pro Gly Val Glu Arg Ser Ser Pro Ser Lys Cys Pro Ser Leu
385                 390                 395                 400

Asp Asp Arg Trp Tyr Met His Ser Cys Ser Gly Ser Leu Gln Asn Arg
                405                 410                 415

Asn Tyr Pro Ser Gln Glu Glu Leu Ile Lys Val Val Asp Val Glu Glu
```

```
            420                 425                 430

Gln Gln Leu Glu Glu Ser Gly Pro His Asp Leu Thr Glu Thr Ser Tyr
        435                 440                 445

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

Ser Leu Phe Ser Asp Asp Pro Glu Ser Asp Pro Ser Glu Asp Arg Ala
465                 470                 475                 480

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

Lys Val Pro Gln Leu Lys Val Ala Glu Ser Ala Gln Ser Pro Ala Ala
            500                 505                 510

Ala His Thr Thr Asp Thr Ala Gly Tyr Asn Ala Met Glu Glu Ser Val
        515                 520                 525

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

Arg Met Ser Met Val Val Ser Gly Leu Thr Pro Glu Glu Phe Met Leu
545                 550                 555                 560

Val Tyr Lys Phe Ala Arg Lys His His Ile Thr Leu Thr Asn Leu Ile
                565                 570                 575

Thr Glu Glu Thr Thr His Val Val Met Lys Thr Asp Ala Glu Phe Val
            580                 585                 590

Cys Glu Arg Thr Leu Lys Tyr Phe Leu Gly Ile Ala Gly Gly Lys Trp
        595                 600                 605

Val Val Ser Tyr Phe Trp Val Thr Gln Ser Ile Lys Glu Arg Lys Met
    610                 615                 620

Leu Asn Glu His Asp Phe Glu Val Arg Gly Asp Val Val Asn Gly Arg
625                 630                 635                 640

Asn His Gln Gly Pro Lys Arg Ala Arg Glu Ser Gln Asp Arg Lys Ile
                645                 650                 655
```

```
Phe Arg Gly Leu Glu Ile Cys Cys Tyr Gly Pro Phe Thr Asn Met Pro
            660                 665                 670

Thr Asp Gln Leu Glu Trp Met Val Gln Leu Cys Gly Ala Ser Val Val
        675                 680                 685

Lys Glu Leu Ser Ser Phe Thr Leu Gly Thr Gly Val His Pro Ile Val
    690                 695                 700

Val Val Gln Pro Asp Ala Trp Thr Glu Asp Asn Gly Phe His Ala Ile
705                 710                 715                 720

Gly Gln Met Cys Glu Ala Pro Val Val Thr Arg Glu Trp Val Leu Asp
                725                 730                 735

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

Gln Ile Pro His Ser His Tyr
        755
```

<210> 9575
<211> 98
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420781"

<400> 9575

```
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                   10                  15
```

```
Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Ser Leu Gln
        35                  40                  45

Glu Ser Thr Arg Phe Ser Gln Leu Val Glu Glu Leu Leu Lys Ile Ile
    50                  55                  60

Cys Ala Phe Gln Leu Asp Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn
65                  70                  75                  80

Phe Ala Lys Lys Glu Asn Asn Ser Pro Glu His Leu Lys Asp Glu Val
                85                  90                  95

Ser Ile
```

<210> 9576
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465347"

<400> 9576

```
Met Ser Asp Ser Lys Lys Thr Trp Leu Gln Tyr Gln Leu Glu Trp Met
1               5                   10                  15

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

Leu Gly Thr Gly Val His Pro Ile Val Val Val Gln Pro Asp Ala Trp
        35                  40                  45
```

```
Thr Glu Asp Asn Gly Phe His Ala Ile Gly Gln Met Cys Glu Ala Pro
    50                  55                  60

Val Val Thr Arg Glu Trp Val Leu Asp Ser Val Ala Leu Tyr Gln Cys
65                  70                  75                  80

Gln Glu Leu Asp Thr Tyr Leu Ile Pro Gln Ile Pro His Ser His Tyr
                85                  90                  95


<210> 9577
<211> 173
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465818"

<400> 9577
Met Asp Ala Glu Phe Val Cys Glu Arg Thr Leu Lys Tyr Phe Leu Gly
1               5                   10                  15

Ile Ala Gly Gly Lys Trp Val Val Ser Tyr Phe Trp Val Thr Gln Ser
            20                  25                  30

Ile Lys Glu Arg Lys Met Leu Asn Glu His Asp Phe Glu Val Arg Gly
        35                  40                  45

Asp Val Val Asn Gly Arg Asn His Gln Gly Pro Lys Arg Ala Arg Glu
    50                  55                  60

Ser Gln Asp Arg Lys Ile Phe Arg Gly Leu Glu Ile Cys Cys Tyr Gly
65                  70                  75                  80
```

```
Pro Phe Thr Asn Met Pro Thr Asp Gln Leu Glu Trp Met Val Gln Leu
                85                  90                  95

Cys Gly Ala Ser Val Val Lys Glu Leu Ser Ser Phe Thr Leu Gly Thr
            100                 105                 110

Gly Val His Pro Ile Val Val Val Gln Pro Asp Ala Trp Thr Glu Asp
        115                 120                 125

Asn Gly Phe His Ala Ile Gly Gln Met Cys Glu Ala Pro Val Val Thr
    130                 135                 140

Arg Glu Trp Val Leu Asp Ser Val Ala Leu Tyr Gln Cys Gln Glu Leu
145                 150                 155                 160

Asp Thr Tyr Leu Ile Pro Gln Ile Pro His Ser His Tyr
                165                 170


<210> 9578
<211> 354
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467329"

<400> 9578
Met His Ser Cys Ser Gly Ser Leu Gln Asn Arg Asn Tyr Pro Ser Gln
1               5                   10                  15

Glu Glu Leu Ile Lys Val Val Asp Val Glu Glu Gln Gln Leu Glu Glu
            20                  25                  30

Ser Gly Pro His Asp Leu Thr Glu Thr Ser Tyr Leu Pro Arg Gln Asp
        35                  40                  45
```

```
Leu Glu Gly Thr Pro Tyr Leu Glu Ser Gly Ile Ser Leu Phe Ser Asp
    50                  55                  60

Asp Pro Glu Ser Asp Pro Ser Glu Asp Arg Ala Pro Glu Ser Ala Arg
65                  70                  75                  80

Val Gly Asn Ile Pro Ser Ser Thr Ser Ala Leu Lys Val Pro Gln Leu
                85                  90                  95

Lys Val Ala Glu Ser Ala Gln Ser Pro Ala Ala Ala His Thr Thr Asp
            100                 105                 110

Thr Ala Gly Tyr Asn Ala Met Glu Glu Ser Val Ser Arg Glu Lys Pro
        115                 120                 125

Glu Leu Thr Ala Ser Thr Glu Arg Val Asn Lys Arg Met Ser Met Val
    130                 135                 140

Val Ser Gly Leu Thr Pro Glu Glu Phe Met Leu Val Tyr Lys Phe Ala
145                 150                 155                 160

Arg Lys His His Ile Thr Leu Thr Asn Leu Ile Thr Glu Glu Thr Thr
                165                 170                 175

His Val Val Met Lys Thr Asp Ala Glu Phe Val Cys Glu Arg Thr Leu
            180                 185                 190

Lys Tyr Phe Leu Gly Ile Ala Gly Gly Lys Trp Val Val Ser Tyr Phe
        195                 200                 205

Trp Val Thr Gln Ser Ile Lys Glu Arg Lys Met Leu Asn Glu His Asp
    210                 215                 220

Phe Glu Val Arg Gly Asp Val Val Asn Gly Arg Asn His Gln Gly Pro
225                 230                 235                 240

Lys Arg Ala Arg Glu Ser Gln Asp Arg Lys Ile Phe Arg Gly Leu Glu
                245                 250                 255

Ile Cys Cys Tyr Gly Pro Phe Thr Asn Met Pro Thr Asp Gln Leu Glu
            260                 265                 270
```

```
Trp Met Val Gln Leu Cys Gly Ala Ser Val Val Lys Glu Leu Ser Ser
        275                 280                 285

Phe Thr Leu Gly Thr Gly Val His Pro Ile Val Val Gln Pro Asp
    290                 295                 300

Ala Trp Thr Glu Asp Asn Gly Phe His Ala Ile Gly Gln Met Cys Glu
305                 310                 315                 320

Ala Pro Val Val Thr Arg Glu Trp Val Leu Asp Ser Val Ala Leu Tyr
                325                 330                 335

Gln Cys Gln Glu Leu Asp Thr Tyr Leu Ile Pro Gln Ile Pro His Ser
            340                 345                 350

His Tyr
```

<210> 9579
<211> 23
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478114"

<400> 9579
```
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                   10                  15

Ala Met Gln Lys Ile Leu Glu
            20
```

<210> 9580

<211> 798
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1950; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 1, early onset; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489431"

<400> 9580

```
Met Asp Leu Ser Ala Leu Arg Val Glu Glu Val Gln Asn Val Ile Asn
1               5                  10                  15

Ala Met Gln Lys Ile Leu Glu Cys Pro Ile Cys Leu Glu Leu Ile Lys
            20                  25                  30

Glu Pro Val Ser Thr Lys Cys Asp His Ile Phe Cys Lys Phe Cys Met
        35                  40                  45

Leu Lys Leu Leu Asn Gln Lys Lys Gly Pro Ser Gln Cys Pro Leu Cys
    50                  55                  60

Lys Asn Asp Ile Thr Lys Arg Ser Leu Gln Glu Ser Thr Arg Phe Ser
65                  70                  75                  80

Gln Leu Val Glu Glu Leu Leu Lys Ile Ile Cys Ala Phe Gln Leu Asp
                85                  90                  95

Thr Gly Leu Glu Tyr Ala Asn Ser Tyr Asn Phe Ala Lys Lys Glu Asn
            100                 105                 110

Asn Ser Pro Glu His Leu Lys Asp Glu Val Ser Ile Ile Gln Ser Met
        115                 120                 125

Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn
    130                 135                 140
```

```
Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly
145                 150                 155                 160

Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr
                165                 170                 175

Ser Val Tyr Ile Glu Leu Ala Ala Cys Glu Phe Ser Glu Thr Asp Val
            180                 185                 190

Thr Asn Thr Glu His His Gln Pro Ser Asn Asn Asp Leu Asn Thr Thr
        195                 200                 205

Glu Lys Arg Ala Ala Glu Arg His Pro Glu Lys Tyr Gln Gly Ser Ser
    210                 215                 220

Val Ser Asn Leu His Val Glu Pro Cys Gly Thr Asn Thr His Ala Ser
225                 230                 235                 240

Ser Leu Gln His Glu Asn Ser Ser Leu Leu Leu Thr Lys Asp Arg Met
                245                 250                 255

Asn Val Glu Lys Ala Glu Phe Cys Asn Lys Ser Lys Gln Pro Gly Leu
            260                 265                 270

Ala Arg Ser Gln His Asn Arg Trp Ala Gly Ser Lys Glu Thr Cys Asn
        275                 280                 285

Asp Arg Arg Thr Pro Ser Thr Glu Lys Lys Val Asp Leu Asn Ala Asp
    290                 295                 300

Pro Leu Cys Glu Arg Lys Glu Trp Asn Lys Gln Lys Leu Pro Cys Ser
305                 310                 315                 320

Glu Asn Pro Arg Asp Thr Glu Asp Val Pro Trp Ile Thr Leu Asn Ser
                325                 330                 335

Ser Ile Gln Lys Val Asn Glu Trp Phe Ser Arg Ser Asp Glu Leu Leu
            340                 345                 350

Gly Ser Asp Asp Ser His Asp Gly Glu Ser Glu Ser Asn Ala Lys Val
        355                 360                 365
```

```
Ala Asp Val Leu Asp Val Leu Asn Glu Val Asp Glu Tyr Ser Gly Ser
    370                 375                 380

Ser Glu Lys Ile Asp Leu Leu Ala Ser Asp Pro His Glu Ala Leu Ile
385                 390                 395                 400

Cys Lys Ser Glu Arg Val His Ser Lys Ser Val Glu Ser Asn Ile Glu
                405                 410                 415

Asp Lys Ile Phe Gly Lys Thr Tyr Arg Lys Lys Ala Ser Leu Pro Asn
            420                 425                 430

Leu Ser His Val Thr Glu Asn Leu Ile Ile Gly Ala Phe Val Thr Glu
        435                 440                 445

Pro Gln Ile Ile Gln Glu Arg Pro Leu Thr Asn Lys Leu Lys Arg Lys
    450                 455                 460

Arg Arg Pro Thr Ser Gly Leu His Pro Glu Asp Phe Ile Lys Lys Ala
465                 470                 475                 480

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

Gln Thr Glu Gln Asn Gly Gln Val Met Asn Ile Thr Asn Ser Gly His
            500                 505                 510

Glu Asn Lys Thr Lys Gly Asp Ser Ile Gln Asn Glu Lys Asn Pro Asn
        515                 520                 525

Pro Ile Glu Ser Leu Glu Lys Glu Ser Ala Phe Lys Thr Lys Ala Glu
    530                 535                 540

Pro Ile Ser Ser Ser Ile Ser Asn Met Glu Leu Glu Leu Asn Ile His
545                 550                 555                 560

Asn Ser Lys Ala Pro Lys Lys Asn Arg Leu Arg Arg Lys Ser Ser Thr
                565                 570                 575

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

Pro Asn Cys Thr Glu Leu Gln Ile Asp Ser Cys Ser Ser Ser Glu Glu
```

595 600 605

Ile Lys Lys Lys Lys Tyr Asn Gln Met Pro Val Arg His Ser Arg Asn
610 615 620

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

Asn Lys Pro Asn Glu Gln Thr Ser Lys Arg His Asp Ser Asp Thr Phe
645 650 655

Pro Glu Leu Lys Leu Thr Asn Ala Pro Gly Ser Phe Thr Lys Cys Ser
660 665 670

Asn Thr Ser Glu Leu Lys Glu Phe Val Asn Pro Ser Leu Pro Arg Glu
675 680 685

Glu Lys Glu Glu Lys Leu Glu Thr Val Lys Val Ser Asn Asn Ala Glu
690 695 700

Asp Pro Lys Asp Leu Met Leu Ser Gly Glu Arg Val Leu Gln Thr Glu
705 710 715 720

Arg Ser Val Glu Ser Ser Ser Ile Ser Leu Val Pro Gly Thr Asp Tyr
725 730 735

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

Ala Lys Thr Glu Pro Asn Lys Cys Val Ser Gln Cys Ala Ala Phe Glu
755 760 765

Asn Pro Lys Gly Leu Ile His Gly Cys Ser Lys Asp Asn Arg Asn Asp
770 775 780

Thr Glu Gly Phe Lys Tyr Pro Leu Gly His Glu Val Asn His
785 790 795

<210> 9581
<211> 3418
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 1951; "

<220>
<221> source
<223> /note="Gene Symbol: BRCA2; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer 2, early onset; "

<220>
<221> source
<223> /note="Uniprot ID: P51587; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369497"

<400> 9581

```
Met Pro Ile Gly Ser Lys Glu Arg Pro Thr Phe Phe Glu Ile Phe Lys
1               5                  10                  15


Thr Arg Cys Asn Lys Ala Asp Leu Gly Pro Ile Ser Leu Asn Trp Phe
            20                  25                  30


Glu Glu Leu Ser Ser Glu Ala Pro Pro Tyr Asn Ser Glu Pro Ala Glu
        35                  40                  45


Glu Ser Glu His Lys Asn Asn Asn Tyr Glu Pro Asn Leu Phe Lys Thr
    50                  55                  60


Pro Gln Arg Lys Pro Ser Tyr Asn Gln Leu Ala Ser Thr Pro Ile Ile
65                  70                  75                  80


Phe Lys Glu Gln Gly Leu Thr Leu Pro Leu Tyr Gln Ser Pro Val Lys
                85                  90                  95


Glu Leu Asp Lys Phe Lys Leu Asp Leu Gly Arg Asn Val Pro Asn Ser
            100                 105                 110


Arg His Lys Ser Leu Arg Thr Val Lys Thr Lys Met Asp Gln Ala Asp
        115                 120                 125


Asp Val Ser Cys Pro Leu Leu Asn Ser Cys Leu Ser Glu Ser Pro Val
    130                 135                 140
```

```
Val Leu Gln Cys Thr His Val Thr Pro Gln Arg Asp Lys Ser Val Val
145                 150                 155                 160

Cys Gly Ser Leu Phe His Thr Pro Lys Phe Val Lys Gly Arg Gln Thr
                165                 170                 175

Pro Lys His Ile Ser Glu Ser Leu Gly Ala Glu Val Asp Pro Asp Met
            180                 185                 190

Ser Trp Ser Ser Ser Leu Ala Thr Pro Pro Thr Leu Ser Ser Thr Val
        195                 200                 205

Leu Ile Val Arg Asn Glu Glu Ala Ser Glu Thr Val Phe Pro His Asp
    210                 215                 220

Thr Thr Ala Asn Val Lys Ser Tyr Phe Ser Asn His Asp Glu Ser Leu
225                 230                 235                 240

Lys Lys Asn Asp Arg Phe Ile Ala Ser Val Thr Asp Ser Glu Asn Thr
                245                 250                 255

Asn Gln Arg Glu Ala Ala Ser His Gly Phe Gly Lys Thr Ser Gly Asn
            260                 265                 270

Ser Phe Lys Val Asn Ser Cys Lys Asp His Ile Gly Lys Ser Met Pro
        275                 280                 285

Asn Val Leu Glu Asp Glu Val Tyr Glu Thr Val Val Asp Thr Ser Glu
    290                 295                 300

Glu Asp Ser Phe Ser Leu Cys Phe Ser Lys Cys Arg Thr Lys Asn Leu
305                 310                 315                 320

Gln Lys Val Arg Thr Ser Lys Thr Arg Lys Lys Ile Phe His Glu Ala
                325                 330                 335

Asn Ala Asp Glu Cys Glu Lys Ser Lys Asn Gln Val Lys Glu Lys Tyr
            340                 345                 350

Ser Phe Val Ser Glu Val Glu Pro Asn Asp Thr Asp Pro Leu Asp Ser
        355                 360                 365

Asn Val Ala Asn Gln Lys Pro Phe Glu Ser Gly Ser Asp Lys Ile Ser
```

370 375 380

Lys Glu Val Val Pro Ser Leu Ala Cys Glu Trp Ser Gln Leu Thr Leu
385 390 395 400

Ser Gly Leu Asn Gly Ala Gln Met Glu Lys Ile Pro Leu Leu His Ile
405 410 415

Ser Ser Cys Asp Gln Asn Ile Ser Glu Lys Asp Leu Leu Asp Thr Glu
420 425 430

Asn Lys Arg Lys Lys Asp Phe Leu Thr Ser Glu Asn Ser Leu Pro Arg
435 440 445

Ile Ser Ser Leu Pro Lys Ser Glu Lys Pro Leu Asn Glu Glu Thr Val
450 455 460

Val Asn Lys Arg Asp Glu Glu Gln His Leu Glu Ser His Thr Asp Cys
465 470 475 480

Ile Leu Ala Val Lys Gln Ala Ile Ser Gly Thr Ser Pro Val Ala Ser
485 490 495

Ser Phe Gln Gly Ile Lys Lys Ser Ile Phe Arg Ile Arg Glu Ser Pro
500 505 510

Lys Glu Thr Phe Asn Ala Ser Phe Ser Gly His Met Thr Asp Pro Asn
515 520 525

Phe Lys Lys Glu Thr Glu Ala Ser Glu Ser Gly Leu Glu Ile His Thr
530 535 540

Val Cys Ser Gln Lys Glu Asp Ser Leu Cys Pro Asn Leu Ile Asp Asn
545 550 555 560

Gly Ser Trp Pro Ala Thr Thr Thr Gln Asn Ser Val Ala Leu Lys Asn
565 570 575

Ala Gly Leu Ile Ser Thr Leu Lys Lys Lys Thr Asn Lys Phe Ile Tyr
580 585 590

Ala Ile His Asp Glu Thr Ser Tyr Lys Gly Lys Lys Ile Pro Lys Asp
595 600 605

```
Gln Lys Ser Glu Leu Ile Asn Cys Ser Ala Gln Phe Glu Ala Asn Ala
    610                 615                 620

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

Ser Ser Val Lys Arg Ser Cys Ser Gln Asn Asp Ser Glu Glu Pro Thr
                645                 650                 655

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

Asn Glu Thr Cys Ser Asn Asn Thr Val Ile Ser Gln Asp Leu Asp Tyr
        675                 680                 685

Lys Glu Ala Lys Cys Asn Lys Glu Lys Leu Gln Leu Phe Ile Thr Pro
    690                 695                 700

Glu Ala Asp Ser Leu Ser Cys Leu Gln Glu Gly Gln Cys Glu Asn Asp
705                 710                 715                 720

Pro Lys Ser Lys Lys Val Ser Asp Ile Lys Glu Glu Val Leu Ala Ala
                725                 730                 735

Ala Cys His Pro Val Gln His Ser Lys Val Glu Tyr Ser Asp Thr Asp
            740                 745                 750

Phe Gln Ser Gln Lys Ser Leu Leu Tyr Asp His Glu Asn Ala Ser Thr
        755                 760                 765

Leu Ile Leu Thr Pro Thr Ser Lys Asp Val Leu Ser Asn Leu Val Met
    770                 775                 780

Ile Ser Arg Gly Lys Glu Ser Tyr Lys Met Ser Asp Lys Leu Lys Gly
785                 790                 795                 800

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

Lys Asn Gln Asp Val Cys Ala Leu Asn Glu Asn Tyr Lys Asn Val Glu
            820                 825                 830
```

```
Leu Leu Pro Pro Glu Lys Tyr Met Arg Val Ala Ser Pro Ser Arg Lys
        835                 840                 845

Val Gln Phe Asn Gln Asn Thr Asn Leu Arg Val Ile Gln Lys Asn Gln
    850                 855                 860

Glu Glu Thr Thr Ser Ile Ser Lys Ile Thr Val Asn Pro Asp Ser Glu
865                 870                 875                 880

Glu Leu Phe Ser Asp Asn Glu Asn Asn Phe Val Phe Gln Val Ala Asn
                885                 890                 895

Glu Arg Asn Asn Leu Ala Leu Gly Asn Thr Lys Glu Leu His Glu Thr
            900                 905                 910

Asp Leu Thr Cys Val Asn Glu Pro Ile Phe Lys Asn Ser Thr Met Val
        915                 920                 925

Leu Tyr Gly Asp Thr Gly Asp Lys Gln Ala Thr Gln Val Ser Ile Lys
    930                 935                 940

Lys Asp Leu Val Tyr Val Leu Ala Glu Glu Asn Lys Asn Ser Val Lys
945                 950                 955                 960

Gln His Ile Lys Met Thr Leu Gly Gln Asp Leu Lys Ser Asp Ile Ser
                965                 970                 975

Leu Asn Ile Asp Lys Ile Pro Glu Lys Asn Asn Asp Tyr Met Asn Lys
            980                 985                 990

Trp Ala Gly Leu Leu Gly Pro Ile  Ser Asn His Ser Phe  Gly Gly
Ser
        995                 1000                1005

Phe Arg  Thr Ala Ser Asn Lys  Glu Ile Lys Leu Ser  Glu His Asn
    1010                1015                1020

Ile Lys  Lys Ser Lys Met Phe  Phe Lys Asp Ile Glu  Glu Gln Tyr
    1025                1030                1035

Pro Thr  Ser Leu Ala Cys Val  Glu Ile Val Asn Thr  Leu Ala Leu
    1040                1045                1050
```

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

Ser Ala  His Leu Gln Ser Ser  Val Val Val Ser Asp  Cys Lys Asn
    1070                1075                1080

Ser His  Ile Thr Pro Gln Met  Leu Phe Ser Lys Gln  Asp Phe Asn
    1085                1090                1095

Ser Asn  His Asn Leu Thr Pro  Ser Gln Lys Ala Glu  Ile Thr Glu
    1100                1105                1110

Leu Ser  Thr Ile Leu Glu Glu  Ser Gly Ser Gln Phe  Glu Phe Thr
    1115                1120                1125

Gln Phe  Arg Lys Pro Ser Tyr  Ile Leu Gln Lys Ser  Thr Phe Glu
    1130                1135                1140

Val Pro  Glu Asn Gln Met Thr  Ile Leu Lys Thr Thr  Ser Glu Glu
    1145                1150                1155

Cys Arg  Asp Ala Asp Leu His  Val Ile Met Asn Ala  Pro Ser Ile
    1160                1165                1170

Gly Gln  Val Asp Ser Ser Lys  Gln Phe Glu Gly Thr  Val Glu Ile
    1175                1180                1185

Lys Arg  Lys Phe Ala Gly Leu  Leu Lys Asn Asp Cys  Asn Lys Ser
    1190                1195                1200

Ala Ser  Gly Tyr Leu Thr Asp  Glu Asn Glu Val Gly  Phe Arg Gly
    1205                1210                1215

Phe Tyr  Ser Ala His Gly Thr  Lys Leu Asn Val Ser  Thr Glu Ala
    1220                1225                1230

Leu Gln  Lys Ala Val Lys Leu  Phe Ser Asp Ile Glu  Asn Ile Ser
    1235                1240                1245

Glu Glu  Thr Ser Ala Glu Val  His Pro Ile Ser Leu  Ser Ser Ser
    1250                1255                1260
```

```
Lys Cys  His Asp Ser Val Val  Ser Met Phe Lys Ile  Glu Asn His
    1265                1270                1275

Asn Asp  Lys Thr Val Ser Glu  Lys Asn Asn Lys Cys  Gln Leu Ile
    1280                1285                1290

Leu Gln  Asn Asn Ile Glu Met  Thr Thr Gly Thr Phe  Val Glu Glu
    1295                1300                1305

Ile Thr  Glu Asn Tyr Lys Arg  Asn Thr Glu Asn Glu  Asp Asn Lys
    1310                1315                1320

Tyr Thr  Ala Ala Ser Arg Asn  Ser His Asn Leu Glu  Phe Asp Gly
    1325                1330                1335

Ser Asp  Ser Ser Lys Asn Asp  Thr Val Cys Ile His  Lys Asp Glu
    1340                1345                1350

Thr Asp  Leu Leu Phe Thr Asp  Gln His Asn Ile Cys  Leu Lys Leu
    1355                1360                1365

Ser Gly  Gln Phe Met Lys Glu  Gly Asn Thr Gln Ile  Lys Glu Asp
    1370                1375                1380

Leu Ser  Asp Leu Thr Phe Leu  Glu Val Ala Lys Ala  Gln Glu Ala
    1385                1390                1395

Cys His  Gly Asn Thr Ser Asn  Lys Glu Gln Leu Thr  Ala Thr Lys
    1400                1405                1410

Thr Glu  Gln Asn Ile Lys Asp  Phe Glu Thr Ser Asp  Thr Phe Phe
    1415                1420                1425

Gln Thr  Ala Ser Gly Lys Asn  Ile Ser Val Ala Lys  Glu Ser Phe
    1430                1435                1440

Asn Lys  Ile Val Asn Phe Phe  Asp Gln Lys Pro Glu  Glu Leu His
    1445                1450                1455

Asn Phe  Ser Leu Asn Ser Glu  Leu His Ser Asp Ile  Arg Lys Asn
    1460                1465                1470

Lys Met  Asp Ile Leu Ser Tyr  Glu Glu Thr Asp Ile  Val Lys His
```

1475 1480 1485

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

Val Thr Phe Gln Gly Gln Pro Glu Arg Asp Glu Lys Ile Lys Glu
1505 1510 1515

Pro Thr Leu Leu Gly Phe His Thr Ala Ser Gly Lys Lys Val Lys
1520 1525 1530

Ile Ala Lys Glu Ser Leu Asp Lys Val Lys Asn Leu Phe Asp Glu
1535 1540 1545

Lys Glu Gln Gly Thr Ser Glu Ile Thr Ser Phe Ser His Gln Trp
1550 1555 1560

Ala Lys Thr Leu Lys Tyr Arg Glu Ala Cys Lys Asp Leu Glu Leu
1565 1570 1575

Ala Cys Glu Thr Ile Glu Ile Thr Ala Ala Pro Lys Cys Lys Glu
1580 1585 1590

Met Gln Asn Ser Leu Asn Asn Asp Lys Asn Leu Val Ser Ile Glu
1595 1600 1605

Thr Val Val Pro Pro Lys Leu Leu Ser Asp Asn Leu Cys Arg Gln
1610 1615 1620

Thr Glu Asn Leu Lys Thr Ser Lys Ser Ile Phe Leu Lys Val Lys
1625 1630 1635

Val His Glu Asn Val Glu Lys Glu Thr Ala Lys Ser Pro Ala Thr
1640 1645 1650

Cys Tyr Thr Asn Gln Ser Pro Tyr Ser Val Ile Glu Asn Ser Ala
1655 1660 1665

Leu Ala Phe Tyr Thr Ser Cys Ser Arg Lys Thr Ser Val Ser Gln
1670 1675 1680

Thr Ser Leu Leu Glu Ala Lys Lys Trp Leu Arg Glu Gly Ile Phe
1685 1690 1695

```
Asp Gly  Gln Pro Glu Arg Ile  Asn Thr Ala Asp Tyr  Val Gly Asn
    1700                1705                1710

Tyr Leu  Tyr Glu Asn Asn Ser  Asn Ser Thr Ile Ala  Glu Asn Asp
    1715                1720                1725

Lys Asn  His Leu Ser Glu Lys  Gln Asp Thr Tyr Leu  Ser Asn Ser
    1730                1735                1740

Ser Met  Ser Asn Ser Tyr Ser  Tyr His Ser Asp Glu  Val Tyr Asn
    1745                1750                1755

Asp Ser  Gly Tyr Leu Ser Lys  Asn Lys Leu Asp Ser  Gly Ile Glu
    1760                1765                1770

Pro Val  Leu Lys Asn Val Glu  Asp Gln Lys Asn Thr  Ser Phe Ser
    1775                1780                1785

Lys Val  Ile Ser Asn Val Lys  Asp Ala Asn Ala Tyr  Pro Gln Thr
    1790                1795                1800

Val Asn  Glu Asp Ile Cys Val  Glu Glu Leu Val Thr  Ser Ser Ser
    1805                1810                1815

Pro Cys  Lys Asn Lys Asn Ala  Ala Ile Lys Leu Ser  Ile Ser Asn
    1820                1825                1830

Ser Asn  Asn Phe Glu Val Gly  Pro Pro Ala Phe Arg  Ile Ala Ser
    1835                1840                1845

Gly Lys  Ile Val Cys Val Ser  His Glu Thr Ile Lys  Lys Val Lys
    1850                1855                1860

Asp Ile  Phe Thr Asp Ser Phe  Ser Lys Val Ile Lys  Glu Asn Asn
    1865                1870                1875

Glu Asn  Lys Ser Lys Ile Cys  Gln Thr Lys Ile Met  Ala Gly Cys
    1880                1885                1890

Tyr Glu  Ala Leu Asp Asp Ser  Glu Asp Ile Leu His  Asn Ser Leu
    1895                1900                1905
```

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Asp Asn  Asp Glu Cys Ser Thr  His Ser His Lys Val  Phe Ala Asp
    1910                 1915                 1920

Ile Gln  Ser Glu Glu Ile Leu  Gln His Asn Gln Asn  Met Ser Gly
    1925                 1930                 1935

Leu Glu  Lys Val Ser Lys Ile  Ser Pro Cys Asp Val  Ser Leu Glu
    1940                 1945                 1950

Thr Ser  Asp Ile Cys Lys Cys  Ser Ile Gly Lys Leu  His Lys Ser
    1955                 1960                 1965

Val Ser  Ser Ala Asn Thr Cys  Gly Ile Phe Ser Thr  Ala Ser Gly
    1970                 1975                 1980

Lys Ser  Val Gln Val Ser Asp  Ala Ser Leu Gln Asn  Ala Arg Gln
    1985                 1990                 1995

Val Phe  Ser Glu Ile Glu Asp  Ser Thr Lys Gln Val  Phe Ser Lys
    2000                 2005                 2010

Val Leu  Phe Lys Ser Asn Glu  His Ser Asp Gln Leu  Thr Arg Glu
    2015                 2020                 2025

Glu Asn  Thr Ala Ile Arg Thr  Pro Glu His Leu Ile  Ser Gln Lys
    2030                 2035                 2040

Gly Phe  Ser Tyr Asn Val Val  Asn Ser Ser Ala Phe  Ser Gly Phe
    2045                 2050                 2055

Ser Thr  Ala Ser Gly Lys Gln  Val Ser Ile Leu Glu  Ser Ser Leu
    2060                 2065                 2070

His Lys  Val Lys Gly Val Leu  Glu Glu Phe Asp Leu  Ile Arg Thr
    2075                 2080                 2085

Glu His  Ser Leu His Tyr Ser  Pro Thr Ser Arg Gln  Asn Val Ser
    2090                 2095                 2100

Lys Ile  Leu Pro Arg Val Asp  Lys Arg Asn Pro Glu  His Cys Val
    2105                 2110                 2115
```

Asn Ser Glu Met Glu Lys Thr Cys Ser Lys Glu Phe Lys Leu Ser
2120 2125 2130

Asn Asn Leu Asn Val Glu Gly Gly Ser Ser Glu Asn Asn His Ser
2135 2140 2145

Ile Lys Val Ser Pro Tyr Leu Ser Gln Phe Gln Gln Asp Lys Gln
2150 2155 2160

Gln Leu Val Leu Gly Thr Lys Val Ser Leu Val Glu Asn Ile His
2165 2170 2175

Val Leu Gly Lys Glu Gln Ala Ser Pro Lys Asn Val Lys Met Glu
2180 2185 2190

Ile Gly Lys Thr Glu Thr Phe Ser Asp Val Pro Val Lys Thr Asn
2195 2200 2205

Ile Glu Val Cys Ser Thr Tyr Ser Lys Asp Ser Glu Asn Tyr Phe
2210 2215 2220

Glu Thr Glu Ala Val Glu Ile Ala Lys Ala Phe Met Glu Asp Asp
2225 2230 2235

Glu Leu Thr Asp Ser Lys Leu Pro Ser His Ala Thr His Ser Leu
2240 2245 2250

Phe Thr Cys Pro Glu Asn Glu Glu Met Val Leu Ser Asn Ser Arg
2255 2260 2265

Ile Gly Lys Arg Arg Gly Glu Pro Leu Ile Leu Val Gly Glu Pro
2270 2275 2280

Ser Ile Lys Arg Asn Leu Leu Asn Glu Phe Asp Arg Ile Ile Glu
2285 2290 2295

Asn Gln Glu Lys Ser Leu Lys Ala Ser Lys Ser Thr Pro Asp Gly
2300 2305 2310

Thr Ile Lys Asp Arg Arg Leu Phe Met His His Val Ser Leu Glu
2315 2320 2325

Pro Ile Thr Cys Val Pro Phe Arg Thr Thr Lys Glu Arg Gln Glu

2330 2335 2340

Ile Gln Asn Pro Asn Phe Thr Ala Pro Gly Gln Glu Phe Leu Ser
2345 2350 2355

Lys Ser His Leu Tyr Glu His Leu Thr Leu Glu Lys Ser Ser Ser
2360 2365 2370

Asn Leu Ala Val Ser Gly His Pro Phe Tyr Gln Val Ser Ala Thr
2375 2380 2385

Arg Asn Glu Lys Met Arg His Leu Ile Thr Thr Gly Arg Pro Thr
2390 2395 2400

Lys Val Phe Val Pro Pro Phe Lys Thr Lys Ser His Phe His Arg
2405 2410 2415

Val Glu Gln Cys Val Arg Asn Ile Asn Leu Glu Glu Asn Arg Gln
2420 2425 2430

Lys Gln Asn Ile Asp Gly His Gly Ser Asp Asp Ser Lys Asn Lys
2435 2440 2445

Ile Asn Asp Asn Glu Ile His Gln Phe Asn Lys Asn Asn Ser Asn
2450 2455 2460

Gln Ala Val Ala Val Thr Phe Thr Lys Cys Glu Glu Glu Pro Leu
2465 2470 2475

Asp Leu Ile Thr Ser Leu Gln Asn Ala Arg Asp Ile Gln Asp Met
2480 2485 2490

Arg Ile Lys Lys Lys Gln Arg Gln Arg Val Phe Pro Gln Pro Gly
2495 2500 2505

Ser Leu Tyr Leu Ala Lys Thr Ser Thr Leu Pro Arg Ile Ser Leu
2510 2515 2520

Lys Ala Ala Val Gly Gly Gln Val Pro Ser Ala Cys Ser His Lys
2525 2530 2535

Gln Leu Tyr Thr Tyr Gly Val Ser Lys His Cys Ile Lys Ile Asn
2540 2545 2550

```
Ser Lys  Asn Ala Glu Ser Phe  Gln Phe His Thr Glu  Asp Tyr Phe
    2555                 2560                 2565

Gly Lys  Glu Ser Leu Trp Thr  Gly Lys Gly Ile Gln  Leu Ala Asp
    2570                 2575                 2580

Gly Gly  Trp Leu Ile Pro Ser  Asn Asp Gly Lys Ala  Gly Lys Glu
    2585                 2590                 2595

Glu Phe  Tyr Arg Ala Leu Cys  Asp Thr Pro Gly Val  Asp Pro Lys
    2600                 2605                 2610

Leu Ile  Ser Arg Ile Trp Val  Tyr Asn His Tyr Arg  Trp Ile Ile
    2615                 2620                 2625

Trp Lys  Leu Ala Ala Met Glu  Cys Ala Phe Pro Lys  Glu Phe Ala
    2630                 2635                 2640

Asn Arg  Cys Leu Ser Pro Glu  Arg Val Leu Leu Gln  Leu Lys Tyr
    2645                 2650                 2655

Arg Tyr  Asp Thr Glu Ile Asp  Arg Ser Arg Arg Ser  Ala Ile Lys
    2660                 2665                 2670

Lys Ile  Met Glu Arg Asp Asp  Thr Ala Ala Lys Thr  Leu Val Leu
    2675                 2680                 2685

Cys Val  Ser Asp Ile Ile Ser  Leu Ser Ala Asn Ile  Ser Glu Thr
    2690                 2695                 2700

Ser Ser  Asn Lys Thr Ser Ser  Ala Asp Thr Gln Lys  Val Ala Ile
    2705                 2710                 2715

Ile Glu  Leu Thr Asp Gly Trp  Tyr Ala Val Lys Ala  Gln Leu Asp
    2720                 2725                 2730

Pro Pro  Leu Leu Ala Val Leu  Lys Asn Gly Arg Leu  Thr Val Gly
    2735                 2740                 2745

Gln Lys  Ile Ile Leu His Gly  Ala Glu Leu Val Gly  Ser Pro Asp
    2750                 2755                 2760
```

```
Ala Cys  Thr Pro Leu Glu Ala  Pro Glu Ser Leu Met  Leu Lys Ile
    2765                2770                2775

Ser Ala  Asn Ser Thr Arg Pro  Ala Arg Trp Tyr Thr  Lys Leu Gly
    2780                2785                2790

Phe Phe  Pro Asp Pro Arg Pro  Phe Pro Leu Pro Leu  Ser Ser Leu
    2795                2800                2805

Phe Ser  Asp Gly Gly Asn Val  Gly Cys Val Asp Val  Ile Ile Gln
    2810                2815                2820

Arg Ala  Tyr Pro Ile Gln Trp  Met Glu Lys Thr Ser  Ser Gly Leu
    2825                2830                2835

Tyr Ile  Phe Arg Asn Glu Arg  Glu Glu Glu Lys Glu  Ala Ala Lys
    2840                2845                2850

Tyr Val  Glu Ala Gln Gln Lys  Arg Leu Glu Ala Leu  Phe Thr Lys
    2855                2860                2865

Ile Gln  Glu Glu Phe Glu Glu  His Glu Glu Asn Thr  Thr Lys Pro
    2870                2875                2880

Tyr Leu  Pro Ser Arg Ala Leu  Thr Arg Gln Gln Val  Arg Ala Leu
    2885                2890                2895

Gln Asp  Gly Ala Glu Leu Tyr  Glu Ala Val Lys Asn  Ala Ala Asp
    2900                2905                2910

Pro Ala  Tyr Leu Glu Gly Tyr  Phe Ser Glu Glu Gln  Leu Arg Ala
    2915                2920                2925

Leu Asn  Asn His Arg Gln Met  Leu Asn Asp Lys Lys  Gln Ala Gln
    2930                2935                2940

Ile Gln  Leu Glu Ile Arg Lys  Ala Met Glu Ser Ala  Glu Gln Lys
    2945                2950                2955

Glu Gln  Gly Leu Ser Arg Asp  Val Thr Thr Val Trp  Lys Leu Arg
    2960                2965                2970
```

Ile Val Ser Tyr Ser Lys Lys Glu Lys Asp Ser Val Ile Leu Ser
2975 2980 2985

Ile Trp Arg Pro Ser Ser Asp Leu Tyr Ser Leu Leu Thr Glu Gly
2990 2995 3000

Lys Arg Tyr Arg Ile Tyr His Leu Ala Thr Ser Lys Ser Lys Ser
3005 3010 3015

Lys Ser Glu Arg Ala Asn Ile Gln Leu Ala Ala Thr Lys Lys Thr
3020 3025 3030

Gln Tyr Gln Gln Leu Pro Val Ser Asp Glu Ile Leu Phe Gln Ile
3035 3040 3045

Tyr Gln Pro Arg Glu Pro Leu His Phe Ser Lys Phe Leu Asp Pro
3050 3055 3060

Asp Phe Gln Pro Ser Cys Ser Glu Val Asp Leu Ile Gly Phe Val
3065 3070 3075

Val Ser Val Val Lys Lys Thr Gly Leu Ala Pro Phe Val Tyr Leu
3080 3085 3090

Ser Asp Glu Cys Tyr Asn Leu Leu Ala Ile Lys Phe Trp Ile Asp
3095 3100 3105

Leu Asn Glu Asp Ile Ile Lys Pro His Met Leu Ile Ala Ala Ser
3110 3115 3120

Asn Leu Gln Trp Arg Pro Glu Ser Lys Ser Gly Leu Leu Thr Leu
3125 3130 3135

Phe Ala Gly Asp Phe Ser Val Phe Ser Ala Ser Pro Lys Glu Gly
3140 3145 3150

His Phe Gln Glu Thr Phe Asn Lys Met Lys Asn Thr Val Glu Asn
3155 3160 3165

Ile Asp Ile Leu Cys Asn Glu Ala Glu Asn Lys Leu Met His Ile
3170 3175 3180

Leu His Ala Asn Asp Pro Lys Trp Ser Thr Pro Thr Lys Asp Cys

3185 3190 3195

Thr Ser Gly Pro Tyr Thr Ala Gln Ile Ile Pro Gly Thr Gly Asn
3200 3205 3210

Lys Leu Leu Met Ser Ser Pro Asn Cys Glu Ile Tyr Tyr Gln Ser
3215 3220 3225

Pro Leu Ser Leu Cys Met Ala Lys Arg Lys Ser Val Ser Thr Pro
3230 3235 3240

Val Ser Ala Gln Met Thr Ser Lys Ser Cys Lys Gly Glu Lys Glu
3245 3250 3255

Ile Asp Asp Gln Lys Asn Cys Lys Lys Arg Arg Ala Leu Asp Phe
3260 3265 3270

Leu Ser Arg Leu Pro Leu Pro Pro Pro Val Ser Pro Ile Cys Thr
3275 3280 3285

Phe Val Ser Pro Ala Ala Gln Lys Ala Phe Gln Pro Pro Arg Ser
3290 3295 3300

Cys Gly Thr Lys Tyr Glu Thr Pro Ile Lys Lys Lys Glu Leu Asn
3305 3310 3315

Ser Pro Gln Met Thr Pro Phe Lys Lys Phe Asn Glu Ile Ser Leu
3320 3325 3330

Leu Glu Ser Asn Ser Ile Ala Asp Glu Glu Leu Ala Leu Ile Asn
3335 3340 3345

Thr Gln Ala Leu Leu Ser Gly Ser Thr Gly Glu Lys Gln Phe Ile
3350 3355 3360

Ser Val Ser Glu Ser Thr Arg Thr Ala Pro Thr Ser Ser Glu Asp
3365 3370 3375

Tyr Leu Arg Leu Lys Arg Arg Cys Thr Thr Ser Leu Ile Lys Glu
3380 3385 3390

Gln Glu Ser Ser Gln Ala Ser Thr Glu Glu Cys Glu Lys Asn Lys
3395 3400 3405

```
Gln Asp  Thr Ile Thr Thr Lys  Lys Tyr Ile
    3410                3415


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<400> 9582
Ser Ser Gly Leu Tyr Ile Phe Arg Asn Glu Arg Glu Glu Glu Lys Glu
1               5                  10                  15


Ala Ala Lys Tyr Val Glu Ala Gln Gln Lys Arg Leu Glu Ala Leu Phe
            20                  25                  30


Thr Lys Ile Gln Glu Glu Phe Glu Glu His Glu Val Thr Ser Ser Thr
        35                  40                  45


Glu Val Leu Asn Pro Pro Lys Ser Ser Met Arg Val Gly Ile Asn Phe
    50                  55                  60


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<400> 9583
Xaa Ser Lys Ser Lys Ser Glu Arg Ala Asn Ile Gln Leu Ala Ala Thr
1 5 10 15

Lys Lys Thr Gln Tyr Gln Gln Leu Pro Val Ser Asp Glu Ile Leu Phe
20 25 30

Gln Ile Tyr Gln Pro Arg Glu Pro Leu His Phe Ser Lys Phe Leu Asp
35 40 45

Pro Asp Phe Gln Pro Ser Cys Ser Glu Val Asp Leu Ile Gly Phe Val
50 55 60

Val Ser Val Val Lys Lys Thr Gly Leu Ala Pro Phe Val Tyr Leu Ser
65 70 75 80

Asp Glu Cys Tyr Asn Leu Leu Ala Ile Lys Phe Trp Ile Asp Leu Asn
85 90 95

Glu Asp Ile Ile Lys Pro His Met Leu Ile Ala Ala Ser Asn Leu Gln
100 105 110

Trp Arg Pro Glu Ser Lys Ser Gly Leu Leu Thr Leu Phe Ala Gly Asp
115 120 125

Phe Ser Val Phe Ser Ala Ser Pro Lys Glu Gly His Phe Gln Glu Thr
130 135 140

Phe Asn Lys Met Lys Asn Thr Val Glu Arg Gln Ser Leu Ala Leu Ser
145 150 155 160

```
Pro Pro Gly Trp Ser Thr Ile Ala Gln Ser Arg Ile Thr Ala Val Ser
                165                 170                 175

Ala Ser Trp Ala Gln Ala Ile Leu Val Pro
            180                 185


<210> 9584
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Met Pro Ile Gly Ser Lys Glu Arg Pro Thr Phe Phe Glu Ile Phe Lys
1               5                   10                  15

Thr Arg Cys Asn Lys Ala Asp Leu Gly Pro Ile Ser Leu Asn Trp Phe
            20                  25                  30

Glu Glu Leu Ser Ser Glu Ala Pro Pro Tyr Asn Ser Glu Pro Ala Glu
        35                  40                  45

Glu Ser Glu His Lys Asn Asn Asn Tyr Glu Pro Asn Leu Phe Lys Thr
    50                  55                  60

Pro Gln Arg Lys Pro Ser Tyr Asn Gln Leu Ala Ser Thr Pro Ile Ile
65                  70                  75                  80

Phe Lys Glu Gln Gly Leu Thr Leu Pro Leu Tyr Gln Ser Pro Val Lys
                85                  90                  95
```

```
Glu Leu Asp Lys Phe Lys Leu Asp Leu Gly Arg Asn Val Pro Asn Ser
            100                 105                 110

Arg His Lys Ser Leu Arg Thr Val Lys Thr Lys Met Asp Gln Ala Asp
        115                 120                 125

Asp Val Ser Cys Pro Leu Leu Asn Ser Cys Leu Ser Glu Ser Pro Val
    130                 135                 140

Val Leu Gln Cys Thr His Val Thr Pro Gln Arg Asp Lys Ser Val Val
145                 150                 155                 160

Cys Gly Ser Leu Phe His Thr Pro Lys Phe Val Lys Gly Arg Gln Thr
                165                 170                 175

Pro Lys His Ile Ser Glu Ser Leu Gly Ala Glu Val Asp Pro Asp Met
            180                 185                 190

Ser Trp Ser Ser Ser Leu Ala Thr Pro Pro Thr Leu Ser Ser Thr Val
        195                 200                 205

Leu Ile Val Arg Asn Glu Glu Ala Ser Glu Thr Val Phe Pro His Asp
    210                 215                 220

Thr Thr Ala Asn Val Lys Ser Tyr Phe Ser Asn His Asp Glu Ser Leu
225                 230                 235                 240

Lys Lys Asn Asp Arg Phe Ile Ala Ser Val Thr Asp Ser Glu Asn Thr
                245                 250                 255

Asn Gln Arg Glu Ala Ala Ser His Gly Phe Gly Lys Thr Ser Gly Asn
            260                 265                 270

Ser Phe Lys Val Asn Ser Cys Lys Asp His Ile Gly Lys Ser Met Pro
        275                 280                 285

Asn Val Leu Glu Asp Glu Val Tyr Glu Thr Val Val Asp Thr Ser Glu
    290                 295                 300

Glu Asp Ser Phe Ser Leu Cys Phe Ser Lys Cys Arg Thr Lys Asn Leu
305                 310                 315                 320
```

```
Gln Lys Val Arg Thr Ser Lys Thr Arg Lys Lys Ile Phe His Glu Ala
                325                 330                 335

Asn Ala Asp Glu Cys Glu Lys Ser Lys Asn Gln Val Lys Glu Lys Tyr
            340                 345                 350

Ser Phe Val Ser Glu Val Glu Pro Asn Asp Thr Asp Pro Leu Asp Ser
        355                 360                 365

Asn Val Ala Asn Gln Lys Pro Phe Glu Ser Gly Ser Asp Lys Ile Ser
    370                 375                 380

Lys Glu Val Val Pro Ser Leu Ala Cys Glu Trp Ser Gln Leu Thr Leu
385                 390                 395                 400

Ser Gly Leu Asn Gly Ala Gln Met Glu Lys Ile Pro Leu Leu His Ile
                405                 410                 415

Ser Ser Cys Asp Gln Asn Ile Ser Glu Lys Asp Leu Leu Asp Thr Glu
            420                 425                 430

Asn Lys Arg Lys Lys Asp Phe Leu Thr Ser Glu Asn Ser Leu Pro Arg
        435                 440                 445

Ile Ser Ser Leu Pro Lys Ser Glu Lys Pro Leu Asn Glu Glu Thr Val
    450                 455                 460

Val Asn Lys Arg Asp Glu Glu Gln His Leu Glu Ser His Thr Asp Cys
465                 470                 475                 480

Ile Leu Ala Val Lys Gln Ala Ile Ser Gly Thr Ser Pro Val Ala Ser
                485                 490                 495

Ser Phe Gln Gly Ile Lys Lys Ser Ile Phe Arg Ile Arg Glu Ser Pro
            500                 505                 510

Lys Glu Thr Phe Asn Ala Ser Phe Ser Gly His Met Thr Asp Pro Asn
        515                 520                 525

Phe Lys Lys Glu Thr Glu Ala Ser Glu Ser Gly Leu Glu Ile His Thr
    530                 535                 540
```

```
Val Cys Ser Gln Lys Glu Asp Ser Leu Cys Pro Asn Leu Ile Asp Asn
545                 550                 555                 560

Gly Ser Trp Pro Ala Thr Thr Thr Gln Asn Ser Val Ala Leu Lys Asn
                565                 570                 575

Ala Gly Leu Ile Ser Thr Leu Lys Lys Lys Thr Asn Lys Phe Ile Tyr
            580                 585                 590

Ala Ile His Asp Glu Thr Ser Tyr Lys Gly Lys Lys Ile Pro Lys Asp
        595                 600                 605

Gln Lys Ser Glu Leu Ile Asn Cys Ser Ala Gln Phe Glu Ala Asn Ala
    610                 615                 620

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

Ser Ser Val Lys Arg Ser Cys Ser Gln Asn Asp Ser Glu Glu Pro Thr
                645                 650                 655

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

Asn Glu Thr Cys Ser Asn Asn Thr Val Ile Ser Gln Asp Leu Asp Tyr
        675                 680                 685

Lys Glu Ala Lys Cys Asn Lys Glu Lys Leu Gln Leu Phe Ile Thr Pro
    690                 695                 700

Glu Ala Asp Ser Leu Ser Cys Leu Gln Glu Gly Gln Cys Glu Asn Asp
705                 710                 715                 720

Pro Lys Ser Lys Lys Val Ser Asp Ile Lys Glu Glu Val Leu Ala Ala
                725                 730                 735

Ala Cys His Pro Val Gln His Ser Lys Val Glu Tyr Ser Asp Thr Asp
            740                 745                 750

Phe Gln Ser Gln Lys Ser Leu Leu Tyr Asp His Glu Asn Ala Ser Thr
        755                 760                 765

Leu Ile Leu Thr Pro Thr Ser Lys Asp Val Leu Ser Asn Leu Val Met
```

770 775 780

Ile Ser Arg Gly Lys Glu Ser Tyr Lys Met Ser Asp Lys Leu Lys Gly
785 790 795 800

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

Lys Asn Gln Asp Val Cys Ala Leu Asn Glu Asn Tyr Lys Asn Val Glu
820 825 830

Leu Leu Pro Pro Glu Lys Tyr Met Arg Val Ala Ser Pro Ser Arg Lys
835 840 845

Val Gln Phe Asn Gln Asn Thr Asn Leu Arg Val Ile Gln Lys Asn Gln
850 855 860

Glu Glu Thr Thr Ser Ile Ser Lys Ile Thr Val Asn Pro Asp Ser Glu
865 870 875 880

Glu Leu Phe Ser Asp Asn Glu Asn Asn Phe Val Phe Gln Val Ala Asn
885 890 895

Glu Arg Asn Asn Leu Ala Leu Gly Asn Thr Lys Glu Leu His Glu Thr
900 905 910

Asp Leu Thr Cys Val Asn Glu Pro Ile Phe Lys Asn Ser Thr Met Val
915 920 925

Leu Tyr Gly Asp Thr Gly Asp Lys Gln Ala Thr Gln Val Ser Ile Lys
930 935 940

Lys Asp Leu Val Tyr Val Leu Ala Glu Glu Asn Lys Asn Ser Val Lys
945 950 955 960

Gln His Ile Lys Met Thr Leu Gly Gln Asp Leu Lys Ser Asp Ile Ser
965 970 975

Leu Asn Ile Asp Lys Ile Pro Glu Lys Asn Asn Asp Tyr Met Asn Lys
980 985 990

Trp Ala Gly Leu Leu Gly Pro Ile Ser Asn His Ser Phe Gly Gly
Ser

995 1000 1005

Phe Arg Thr Ala Ser Asn Lys Glu Ile Lys Leu Ser Glu His Asn
1010 1015 1020

Ile Lys Lys Ser Lys Met Phe Phe Lys Asp Ile Glu Glu Gln Tyr
1025 1030 1035

Pro Thr Ser Leu Ala Cys Val Glu Ile Val Asn Thr Leu Ala Leu
1040 1045 1050

Asp Asn Gln Lys Lys Leu Ser Lys Pro Gln Ser Ile Asn Thr Val
1055 1060 1065

Ser Ala His Leu Gln Ser Ser Val Val Val Ser Asp Cys Lys Asn
1070 1075 1080

Ser His Ile Thr Pro Gln Met Leu Phe Ser Lys Gln Asp Phe Asn
1085 1090 1095

Ser Asn His Asn Leu Thr Pro Ser Gln Lys Ala Glu Ile Thr Glu
1100 1105 1110

Leu Ser Thr Ile Leu Glu Glu Ser Gly Ser Gln Phe Glu Phe Thr
1115 1120 1125

Gln Phe Arg Lys Pro Ser Tyr Ile Leu Gln Lys Ser Thr Phe Glu
1130 1135 1140

Val Pro Glu Asn Gln Met Thr Ile Leu Lys Thr Thr Ser Glu Glu
1145 1150 1155

Cys Arg Asp Ala Asp Leu His Val Ile Met Asn Ala Pro Ser Ile
1160 1165 1170

Gly Gln Val Asp Ser Ser Lys Gln Phe Glu Gly Thr Val Glu Ile
1175 1180 1185

Lys Arg Lys Phe Ala Gly Leu Leu Lys Asn Asp Cys Asn Lys Ser
1190 1195 1200

Ala Ser Gly Tyr Leu Thr Asp Glu Asn Glu Val Gly Phe Arg Gly
1205 1210 1215

```
Phe Tyr  Ser Ala His Gly Thr  Lys Leu Asn Val Ser  Thr Glu Ala
    1220                 1225                 1230

Leu Gln  Lys Ala Val Lys Leu  Phe Ser Asp Ile Glu  Asn Ile Ser
    1235                 1240                 1245

Glu Glu  Thr Ser Ala Glu Val  His Pro Ile Ser Leu  Ser Ser Ser
    1250                 1255                 1260

Lys Cys  His Asp Ser Val Val  Ser Met Phe Lys Ile  Glu Asn His
    1265                 1270                 1275

Asn Asp  Lys Thr Val Ser Glu  Lys Asn Asn Lys Cys  Gln Leu Ile
    1280                 1285                 1290

Leu Gln  Asn Asn Ile Glu Met  Thr Thr Gly Thr Phe  Val Glu Glu
    1295                 1300                 1305

Ile Thr  Glu Asn Tyr Lys Arg  Asn Thr Glu Asn Glu  Asp Asn Lys
    1310                 1315                 1320

Tyr Thr  Ala Ala Ser Arg Asn  Ser His Asn Leu Glu  Phe Asp Gly
    1325                 1330                 1335

Ser Asp  Ser Ser Lys Asn Asp  Thr Val Cys Ile His  Lys Asp Glu
    1340                 1345                 1350

Thr Asp  Leu Leu Phe Thr Asp  Gln His Asn Ile Cys  Leu Lys Leu
    1355                 1360                 1365

Ser Gly  Gln Phe Met Lys Glu  Gly Asn Thr Gln Ile  Lys Glu Asp
    1370                 1375                 1380

Leu Ser  Asp Leu Thr Phe Leu  Glu Val Ala Lys Ala  Gln Glu Ala
    1385                 1390                 1395

Cys His  Gly Asn Thr Ser Asn  Lys Glu Gln Leu Thr  Ala Thr Lys
    1400                 1405                 1410

Thr Glu  Gln Asn Ile Lys Asp  Phe Glu Thr Ser Asp  Thr Phe Phe
    1415                 1420                 1425
```

```
Gln Thr  Ala Ser Gly Lys Asn  Ile Ser Val Ala Lys  Glu Ser Phe
    1430                1435                1440

Asn Lys  Ile Val Asn Phe Phe  Asp Gln Lys Pro Glu  Glu Leu His
    1445                1450                1455

Asn Phe  Ser Leu Asn Ser Glu  Leu His Ser Asp Ile  Arg Lys Asn
    1460                1465                1470

Lys Met  Asp Ile Leu Ser Tyr  Glu Glu Thr Asp Ile  Val Lys His
    1475                1480                1485

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

Val Thr  Phe Gln Gly Gln Pro  Glu Arg Asp Glu Lys  Ile Lys Glu
    1505                1510                1515

Pro Thr  Leu Leu Gly Phe His  Thr Ala Ser Gly Lys  Lys Val Lys
    1520                1525                1530

Ile Ala  Lys Glu Ser Leu Asp  Lys Val Lys Asn Leu  Phe Asp Glu
    1535                1540                1545

Lys Glu  Gln Gly Thr Ser Glu  Ile Thr Ser Phe Ser  His Gln Trp
    1550                1555                1560

Ala Lys  Thr Leu Lys Tyr Arg  Glu Ala Cys Lys Asp  Leu Glu Leu
    1565                1570                1575

Ala Cys  Glu Thr Ile Glu Ile  Thr Ala Ala Pro Lys  Cys Lys Glu
    1580                1585                1590

Met Gln  Asn Ser Leu Asn Asn  Asp Lys Asn Leu Val  Ser Ile Glu
    1595                1600                1605

Thr Val  Val Pro Pro Lys Leu  Leu Ser Asp Asn Leu  Cys Arg Gln
    1610                1615                1620

Thr Glu  Asn Leu Lys Thr Ser  Lys Ser Ile Phe Leu  Lys Val Lys
    1625                1630                1635
```

Val His Glu Asn Val Glu Lys Glu Thr Ala Lys Ser Pro Ala Thr
1640 1645 1650

Cys Tyr Thr Asn Gln Ser Pro Tyr Ser Val Ile Glu Asn Ser Ala
1655 1660 1665

Leu Ala Phe Tyr Thr Ser Cys Ser Arg Lys Thr Ser Val Ser Gln
1670 1675 1680

Thr Ser Leu Leu Glu Ala Lys Lys Trp Leu Arg Glu Gly Ile Phe
1685 1690 1695

Asp Gly Gln Pro Glu Arg Ile Asn Thr Ala Asp Tyr Val Gly Asn
1700 1705 1710

Tyr Leu Tyr Glu Asn Asn Ser Asn Ser Thr Ile Ala Glu Asn Asp
1715 1720 1725

Lys Asn His Leu Ser Glu Lys Gln Asp Thr Tyr Leu Ser Asn Ser
1730 1735 1740

Ser Met Ser Asn Ser Tyr Ser Tyr His Ser Asp Glu Val Tyr Asn
1745 1750 1755

Asp Ser Gly Tyr Leu Ser Lys Asn Lys Leu Asp Ser Gly Ile Glu
1760 1765 1770

Pro Val Leu Lys Asn Val Glu Asp Gln Lys Asn Thr Ser Phe Ser
1775 1780 1785

Lys Val Ile Ser Asn Val Lys Asp Ala Asn Ala Tyr Pro Gln Thr
1790 1795 1800

Val Asn Glu Asp Ile Cys Val Glu Glu Leu Val Thr Ser Ser Ser
1805 1810 1815

Pro Cys Lys Asn Lys Asn Ala Ala Ile Lys Leu Ser Ile Ser Asn
1820 1825 1830

Ser Asn Asn Phe Glu Val Gly Pro Pro Ala Phe Arg Ile Ala Ser
1835 1840 1845

Gly Lys Ile Val Cys Val Ser His Glu Thr Ile Lys Lys Val Lys

1850 1855 1860

Asp Ile Phe Thr Asp Ser Phe Ser Lys Val Ile Lys Glu Asn Asn
1865 1870 1875

Glu Asn Lys Ser Lys Ile Cys Gln Thr Lys Ile Met Ala Gly Cys
1880 1885 1890

Tyr Glu Ala Leu Asp Asp Ser Glu Asp Ile Leu His Asn Ser Leu
1895 1900 1905

Asp Asn Asp Glu Cys Ser Thr His Ser His Lys Val Phe Ala Asp
1910 1915 1920

Ile Gln Ser Glu Glu Ile Leu Gln His Asn Gln Asn Met Ser Gly
1925 1930 1935

Leu Glu Lys Val Ser Lys Ile Ser Pro Cys Asp Val Ser Leu Glu
1940 1945 1950

Thr Ser Asp Ile Cys Lys Cys Ser Ile Gly Lys Leu His Lys Ser
1955 1960 1965

Val Ser Ser Ala Asn Thr Cys Gly Ile Phe Ser Thr Ala Ser Gly
1970 1975 1980

Lys Ser Val Gln Val Ser Asp Ala Ser Leu Gln Asn Ala Arg Gln
1985 1990 1995

Val Phe Ser Glu Ile Glu Asp Ser Thr Lys Gln Val Phe Ser Lys
2000 2005 2010

Val Leu Phe Lys Ser Asn Glu His Ser Asp Gln Leu Thr Arg Glu
2015 2020 2025

Glu Asn Thr Ala Ile Arg Thr Pro Glu His Leu Ile Ser Gln Lys
2030 2035 2040

Gly Phe Ser Tyr Asn Val Val Asn Ser Ser Ala Phe Ser Gly Phe
2045 2050 2055

Ser Thr Ala Ser Gly Lys Gln Val Ser Ile Leu Glu Ser Ser Leu
2060 2065 2070

```
His Lys  Val Lys Gly Val Leu  Glu Glu Phe Asp Leu  Ile Arg Thr
    2075                2080                2085

Glu His  Ser Leu His Tyr Ser  Pro Thr Ser Arg Gln  Asn Val Ser
    2090                2095                2100

Lys Ile  Leu Pro Arg Val Asp  Lys Arg Asn Pro Glu  His Cys Val
    2105                2110                2115

Asn Ser  Glu Met Glu Lys Thr  Cys Ser Lys Glu Phe  Lys Leu Ser
    2120                2125                2130

Asn Asn  Leu Asn Val Glu Gly  Gly Ser Ser Glu Asn  Asn His Ser
    2135                2140                2145

Ile Lys  Val Ser Pro Tyr Leu  Ser Gln Phe Gln Gln  Asp Lys Gln
    2150                2155                2160

Gln Leu  Val Leu Gly Thr Lys  Val Ser Leu Val Glu  Asn Ile His
    2165                2170                2175

Val Leu  Gly Lys Glu Gln Ala  Ser Pro Lys Asn Val  Lys Met Glu
    2180                2185                2190

Ile Gly  Lys Thr Glu Thr Phe  Ser Asp Val Pro Val  Lys Thr Asn
    2195                2200                2205

Ile Glu  Val Cys Ser Thr Tyr  Ser Lys Asp Ser Glu  Asn Tyr Phe
    2210                2215                2220

Glu Thr  Glu Ala Val Glu Ile  Ala Lys Ala Phe Met  Glu Asp Asp
    2225                2230                2235

Glu Leu  Thr Asp Ser Lys Leu  Pro Ser His Ala Thr  His Ser Leu
    2240                2245                2250

Phe Thr  Cys Pro Glu Asn Glu  Glu Met Val Leu Ser  Asn Ser Arg
    2255                2260                2265

Ile Gly  Lys Arg Arg Gly Glu  Pro Leu Ile Leu Val  Gly Glu Pro
    2270                2275                2280
```

```
Ser Ile  Lys Arg Asn Leu Leu  Asn Glu Phe Asp Arg  Ile Ile Glu
    2285                2290                2295

Asn Gln  Glu Lys Ser Leu Lys  Ala Ser Lys Ser Thr  Pro Asp Gly
    2300                2305                2310

Thr Ile  Lys Asp Arg Arg Leu  Phe Met His His Val  Ser Leu Glu
    2315                2320                2325

Pro Ile  Thr Cys Val Pro Phe  Arg Thr Thr Lys Glu  Arg Gln Glu
    2330                2335                2340

Ile Gln  Asn Pro Asn Phe Thr  Ala Pro Gly Gln Glu  Phe Leu Ser
    2345                2350                2355

Lys Ser  His Leu Tyr Glu His  Leu Thr Leu Glu Lys  Ser Ser Ser
    2360                2365                2370

Asn Leu  Ala Val Ser Gly His  Pro Phe Tyr Gln Val  Ser Ala Thr
    2375                2380                2385

Arg Asn  Glu Lys Met Arg His  Leu Ile Thr Thr Gly  Arg Pro Thr
    2390                2395                2400

Lys Val  Phe Val Pro Pro Phe  Lys Thr Lys Ser His  Phe His Arg
    2405                2410                2415

Val Glu  Gln Cys Val Arg Asn  Ile Asn Leu Glu Glu  Asn Arg Gln
    2420                2425                2430

Lys Gln  Asn Ile Asp Gly His  Gly Ser Asp Asp Ser  Lys Asn Lys
    2435                2440                2445

Ile Asn  Asp Asn Glu Ile His  Gln Phe Asn Lys Asn  Asn Ser Asn
    2450                2455                2460

Gln Ala  Val Ala Val Thr Phe  Thr Lys Cys Glu Glu  Glu Pro Leu
    2465                2470                2475

Asp Leu  Ile Thr Ser Leu Gln  Asn Ala Arg Asp Ile  Gln Asp Met
    2480                2485                2490
```

Arg Ile Lys Lys Lys Gln Arg Gln Arg Val Phe Pro Gln Pro Gly
2495 2500 2505

Ser Leu Tyr Leu Ala Lys Thr Ser Thr Leu Pro Arg Ile Ser Leu
2510 2515 2520

Lys Ala Ala Val Gly Gly Gln Val Pro Ser Ala Cys Ser His Lys
2525 2530 2535

Gln Leu Tyr Thr Tyr Gly Val Ser Lys His Cys Ile Lys Ile Asn
2540 2545 2550

Ser Lys Asn Ala Glu Ser Phe Gln Phe His Thr Glu Asp Tyr Phe
2555 2560 2565

Gly Lys Glu Ser Leu Trp Thr Gly Lys Gly Ile Gln Leu Ala Asp
2570 2575 2580

Gly Gly Trp Leu Ile Pro Ser Asn Asp Gly Lys Ala Gly Lys Glu
2585 2590 2595

Glu Phe Tyr Arg Ala Leu Cys Asp Thr Pro Gly Val Asp Pro Lys
2600 2605 2610

Leu Ile Ser Arg Ile Trp Val Tyr Asn His Tyr Arg Trp Ile Ile
2615 2620 2625

Trp Lys Leu Ala Ala Met Glu Cys Ala Phe Pro Lys Glu Phe Ala
2630 2635 2640

Asn Arg Cys Leu Ser Pro Glu Arg Val Leu Leu Gln Leu Lys Tyr
2645 2650 2655

Arg Tyr Asp Thr Glu Ile Asp Arg Ser Arg Arg Ser Ala Ile Lys
2660 2665 2670

Lys Ile Met Glu Arg Asp Asp Thr Ala Ala Lys Thr Leu Val Leu
2675 2680 2685

Cys Val Ser Asp Ile Ile Ser Leu Ser Ala Asn Ile Ser Glu Thr
2690 2695 2700

Ser Ser Asn Lys Thr Ser Ser Ala Asp Thr Gln Lys Val Ala Ile

2705 2710 2715

Ile Glu Leu Thr Asp Gly Trp Tyr Ala Val Lys Ala Gln Leu Asp
2720 2725 2730

Pro Pro Leu Leu Ala Val Leu Lys Asn Gly Arg Leu Thr Val Gly
2735 2740 2745

Gln Lys Ile Ile Leu His Gly Ala Glu Leu Val Gly Ser Pro Asp
2750 2755 2760

Ala Cys Thr Pro Leu Glu Ala Pro Glu Ser Leu Met Leu Lys Ile
2765 2770 2775

Ser Ala Asn Ser Thr Arg Pro Ala Arg Trp Tyr Thr Lys Leu Gly
2780 2785 2790

Phe Phe Pro Asp Pro Arg Pro Phe Pro Leu Pro Leu Ser Ser Leu
2795 2800 2805

Phe Ser Asp Gly Gly Asn Val Gly Cys Val Asp Val Ile Ile Gln
2810 2815 2820

Arg Ala Tyr Pro Ile Gln Trp Met Glu Lys Thr Ser Ser Gly Leu
2825 2830 2835

Tyr Ile Phe Arg Asn Glu Arg Glu Glu Glu Lys Glu Ala Ala Lys
2840 2845 2850

Tyr Val Glu Ala Gln Gln Lys Arg Leu Glu Ala Leu Phe Thr Lys
2855 2860 2865

Ile Gln Glu Glu Phe Glu Glu His Glu Glu Asn Thr Thr Lys Pro
2870 2875 2880

Tyr Leu Pro Ser Arg Ala Leu Thr Arg Gln Gln Val Arg Ala Leu
2885 2890 2895

Gln Asp Gly Ala Glu Leu Tyr Glu Ala Val Lys Asn Ala Ala Asp
2900 2905 2910

Pro Ala Tyr Leu Glu Gly Tyr Phe Ser Glu Glu Gln Leu Arg Ala
2915 2920 2925

```
Leu Asn  Asn His Arg Gln Met  Leu Asn Asp Lys Lys  Gln Ala Gln
    2930                2935                2940

Ile Gln  Leu Glu Ile Arg Lys  Ala Met Glu Ser Ala  Glu Gln Lys
    2945                2950                2955

Glu Gln  Gly Leu Ser Arg Asp  Val Thr Thr Val Trp  Lys Leu Arg
    2960                2965                2970

Ile Val  Ser Tyr Ser Lys Lys  Glu Lys Asp Ser Val  Ile Leu Ser
    2975                2980                2985

Ile Trp  Arg Pro Ser Ser Asp  Leu Tyr Ser Leu Leu  Thr Glu Gly
    2990                2995                3000

Lys Arg  Tyr Arg Ile Tyr His  Leu Ala Thr Ser Lys  Ser Lys Ser
    3005                3010                3015

Lys Ser  Glu Arg Ala Asn Ile  Gln Leu Ala Ala Thr  Lys Lys Thr
    3020                3025                3030

Gln Tyr  Gln Gln Leu Pro Val  Ser Asp Glu Ile Leu  Phe Gln Ile
    3035                3040                3045

Tyr Gln  Pro Arg Glu Pro Leu  His Phe Ser Lys Phe  Leu Asp Pro
    3050                3055                3060

Asp Phe  Gln Pro Ser Cys Ser  Glu Val Asp Leu Ile  Gly Phe Val
    3065                3070                3075

Val Ser  Val Val Lys Lys Thr  Gly Leu Ala Pro Phe  Val Tyr Leu
    3080                3085                3090

Ser Asp  Glu Cys Tyr Asn Leu  Leu Ala Ile Lys Phe  Trp Ile Asp
    3095                3100                3105

Leu Asn  Glu Asp Ile Ile Lys  Pro His Met Leu Ile  Ala Ala Ser
    3110                3115                3120

Asn Leu  Gln Trp Arg Pro Glu  Ser Lys Ser Gly Leu  Leu Thr Leu
    3125                3130                3135
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```
Phe Ala  Gly Asp Phe Ser Val  Phe Ser Ala Ser Pro  Lys Glu Gly
    3140                3145                3150

His Phe  Gln Glu Thr Phe Asn  Lys Met Lys Asn Thr  Val Glu Asn
    3155                3160                3165

Ile Asp  Ile Leu Cys Asn Glu  Ala Glu Asn Lys Leu  Met His Ile
    3170                3175                3180

Leu His  Ala Asn Asp Pro Lys  Trp Ser Thr Pro Thr  Lys Asp Cys
    3185                3190                3195

Thr Ser  Gly Pro Tyr Thr Ala  Gln Ile Ile Pro Gly  Thr Gly Asn
    3200                3205                3210

Lys Leu  Leu Met Ser Ser Pro  Asn Cys Glu Ile Tyr  Tyr Gln Ser
    3215                3220                3225

Pro Leu  Ser Leu Cys Met Ala  Lys Arg Lys Ser Val  Ser Thr Pro
    3230                3235                3240

Val Ser  Ala Gln Met Thr Ser  Lys Ser Cys Lys Gly  Glu Lys Glu
    3245                3250                3255

Ile Asp  Asp Gln Lys Asn Cys  Lys Lys Arg Arg Ala  Leu Asp Phe
    3260                3265                3270

Leu Ser  Arg Leu Pro Leu Pro  Pro Pro Val Ser Pro  Ile Cys Thr
    3275                3280                3285

Phe Val  Ser Pro Ala Ala Gln  Lys Ala Phe Gln Pro  Pro Arg Ser
    3290                3295                3300

Cys Gly  Thr Lys Tyr Glu Thr  Pro Ile Lys Lys Lys  Glu Leu Asn
    3305                3310                3315

Ser Pro  Gln Met Thr Pro Phe  Lys Lys Phe Asn Glu  Ile Ser Leu
    3320                3325                3330

Leu Glu  Ser Asn Ser Ile Ala  Asp Glu Glu Leu Ala  Leu Ile Asn
    3335                3340                3345
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Thr Gln  Ala Leu Leu Ser Gly  Ser Thr Gly Glu Lys  Gln Phe Ile
    3350                 3355                 3360


Ser Val  Ser Glu Ser Thr Arg  Thr Ala Pro Thr Ser  Ser Glu Asp
    3365                 3370                 3375


Tyr Leu  Arg Leu Lys Arg Arg  Cys Thr Thr Ser Leu  Ile Lys Glu
    3380                 3385                 3390


Gln Glu  Ser Ser Gln Ala Ser  Thr Glu Glu Cys Glu  Lys Asn Lys
    3395                 3400                 3405


Gln Asp  Thr Ile Thr Thr Lys  Lys Tyr Ile
    3410                 3415


<210> 9585
<211> 870
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="Uniprot ID:  P56945; "

<220>
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<223> /note="ENSP ID: ENSP00000162330"

<400> 9585
Met Asn His Leu Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn Val Ala
1               5                  10                  15


Glu Ser Pro Asp Glu Leu Ser Phe Arg Lys Gly Asp Ile Met Thr Val
            20                  25                  30


Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys Ser Leu
        35                  40                  45
```

```
His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys Ile Leu Val
    50                  55                  60

Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly Pro Pro Ala
65                  70                  75                  80

Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala Pro Pro Ala
                85                  90                  95

Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro Gln Pro Asp
            100                 105                 110

Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln Gly Leu Tyr
        115                 120                 125

Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro Ala Lys Gln
    130                 135                 140

Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe Pro Ser Pro
145                 150                 155                 160

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

Asp Ile Tyr Gln Val Pro Pro Ser Ala Gly Met Gly His Asp Ile Tyr
            180                 185                 190

Gln Val Pro Pro Ser Met Asp Thr Arg Ser Trp Glu Gly Thr Lys Pro
        195                 200                 205

Pro Ala Lys Val Val Val Pro Thr Arg Val Gly Gln Gly Tyr Val Tyr
    210                 215                 220

Glu Ala Ala Gln Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg His Leu
225                 230                 235                 240

Leu Ala Pro Gly Pro Gln Asp Ile Tyr Asp Val Pro Pro Val Arg Gly
                245                 250                 255

Leu Leu Pro Ser Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro Pro Met
            260                 265                 270
```

```
Ala Val Lys Gly Pro Asn Gly Arg Asp Pro Leu Leu Glu Val Tyr Asp
        275                 280                 285

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

Val Tyr Asp Val Pro Pro Ser Val Ser Lys Asp Val Pro Asp Gly Pro
305                 310                 315                 320

Leu Leu Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala Lys Ala
                325                 330                 335

Lys Pro Phe Asp Pro Ala Arg Thr Pro Leu Val Leu Ala Ala Pro Pro
            340                 345                 350

Pro Asp Ser Pro Pro Ala Glu Asp Val Tyr Asp Val Pro Pro Pro Ala
        355                 360                 365

Pro Asp Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg Pro Gly Pro Gly
    370                 375                 380

Thr Leu Tyr Asp Val Pro Arg Glu Arg Val Leu Pro Pro Glu Val Ala
385                 390                 395                 400

Asp Gly Gly Val Val Asp Ser Gly Val Tyr Ala Val Pro Pro Pro Ala
                405                 410                 415

Glu Arg Glu Ala Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser Ser Thr
            420                 425                 430

Gly Ser Thr Arg Ser Ser Gln Ser Ala Ser Ser Leu Glu Val Ala Gly
        435                 440                 445

Pro Gly Arg Glu Pro Leu Glu Leu Glu Val Ala Val Glu Ala Leu Ala
    450                 455                 460

Arg Leu Gln Gln Gly Val Ser Ala Thr Val Ala His Leu Leu Asp Leu
465                 470                 475                 480

Ala Gly Ser Ala Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser Glu Pro
                485                 490                 495
```

```
Gln Glu Pro Leu Val Gln Asp Leu Gln Ala Ala Val Ala Ala Val Gln
            500                 505                 510

Ser Ala Val His Glu Leu Leu Glu Phe Ala Arg Ser Ala Val Gly Asn
        515                 520                 525

Ala Ala His Thr Ser Asp Arg Ala Leu His Ala Lys Leu Ser Arg Gln
    530                 535                 540

Leu Gln Lys Met Glu Asp Val His Gln Thr Leu Val Ala His Gly Gln
545                 550                 555                 560

Ala Leu Asp Ala Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu Asp Leu
                565                 570                 575

Asp Arg Leu Val Ala Cys Ser Arg Ala Val Pro Glu Asp Ala Lys Gln
            580                 585                 590

Leu Ala Ser Phe Leu His Gly Asn Ala Ser Leu Leu Phe Arg Arg Thr
        595                 600                 605

Lys Ala Thr Ala Pro Gly Pro Glu Gly Gly Gly Thr Leu His Pro Asn
    610                 615                 620

Pro Thr Asp Lys Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro Ser Pro
625                 630                 635                 640

Pro Lys Phe Thr Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu Asn Ser
                645                 650                 655

Glu Gly Gly Trp Met Glu Asp Tyr Asp Tyr Val His Leu Gln Gly Lys
            660                 665                 670

Glu Glu Phe Glu Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly Ser Ile
        675                 680                 685

Thr Arg Gln Gly Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys Gln Phe
    690                 695                 700

Glu Arg Leu Glu Gln Glu Val Ser Arg Pro Ile Asp His Asp Leu Ala
705                 710                 715                 720

Asn Trp Thr Pro Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly Gly Leu
```

```
                725                 730                 735

Gly Pro Ser Asp Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln Cys Glu
            740                 745                 750

Ala Asn Leu Thr Thr Leu Thr Asn Ala Val Asp Ala Phe Phe Thr Ala
        755                 760                 765

Val Ala Thr Asn Gln Pro Pro Lys Ile Phe Val Ala His Ser Lys Phe
    770                 775                 780

Val Ile Leu Ser Ala His Lys Leu Val Phe Ile Gly Asp Thr Leu Ser
785                 790                 795                 800

Arg Gln Ala Lys Ala Ala Asp Val Arg Ser Gln Val Thr His Tyr Ser
                805                 810                 815

Asn Leu Leu Cys Asp Leu Leu Arg Gly Ile Val Ala Thr Thr Lys Ala
            820                 825                 830

Ala Ala Leu Gln Tyr Pro Ser Pro Ser Ala Ala Gln Asp Met Val Glu
        835                 840                 845

Arg Val Lys Glu Leu Gly His Ser Thr Gln Gln Phe Arg Arg Val Leu
    850                 855                 860

Gly Gln Leu Ala Ala Ala
865                 870


<210> 9586
<211> 888
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1952; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
      breast cancer anti-estrogen resistance 1; "
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<220>
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<223> /note="Uniprot ID: P56945; "

<220>
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Met Asn His Leu Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn Val Ala
1   5   10   15

Glu Ser Pro Asp Glu Leu Ser Phe Arg Lys Gly Asp Ile Met Thr Val
            20   25   30

Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys Ser Leu
        35   40   45

His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys Ile Leu Val
    50   55   60

Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly Pro Pro Ala
65   70   75   80

Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala Pro Pro Ala
                85   90   95

Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro Gln Pro Asp
            100   105   110

Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln Gly Leu Tyr
        115   120   125

Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro Ala Lys Gln
    130   135   140

Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe Pro Ser Pro
145   150   155   160

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

Asp Ile Tyr Gln Val Pro Pro Ser Ala Gly Met Gly His Asp Ile Tyr
            180   185   190

```
Gln Val Pro Pro Ser Met Asp Thr Arg Ser Trp Glu Gly Thr Lys Pro
        195                 200                 205

Pro Ala Lys Val Val Val Pro Thr Arg Val Gly Gln Gly Tyr Val Tyr
    210                 215                 220

Glu Ala Ala Gln Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg His Leu
225                 230                 235                 240

Leu Ala Pro Gly Pro Gln Asp Ile Tyr Asp Val Pro Pro Val Arg Gly
                245                 250                 255

Leu Leu Pro Ser Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro Pro Met
            260                 265                 270

Ala Val Lys Gly Pro Asn Gly Arg Asp Pro Leu Leu Glu Val Tyr Asp
        275                 280                 285

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

Val Ser Lys Cys Gln Gly Asn Ala Arg Ala Arg Leu Arg Leu Trp Gly
305                 310                 315                 320

Val Trp Val Tyr Asp Val Pro Pro Ser Val Ser Lys Asp Val Pro Asp
                325                 330                 335

Gly Pro Leu Leu Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala
            340                 345                 350

Lys Ala Lys Pro Phe Asp Pro Ala Arg Thr Pro Leu Val Leu Ala Ala
        355                 360                 365

Pro Pro Pro Asp Ser Pro Pro Ala Glu Asp Val Tyr Asp Val Pro Pro
    370                 375                 380

Pro Ala Pro Asp Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg Pro Gly
385                 390                 395                 400

Pro Gly Thr Leu Tyr Asp Val Pro Arg Glu Arg Val Leu Pro Pro Glu
                405                 410                 415

Val Ala Asp Gly Gly Val Val Asp Ser Gly Val Tyr Ala Val Pro Pro
```

```
            420                 425                 430

Pro Ala Glu Arg Glu Ala Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser
        435                 440                 445

Ser Thr Gly Ser Thr Arg Ser Ser Gln Ser Ala Ser Ser Leu Glu Val
    450                 455                 460

Ala Gly Pro Gly Arg Glu Pro Leu Glu Leu Glu Val Ala Val Glu Ala
465                 470                 475                 480

Leu Ala Arg Leu Gln Gln Gly Val Ser Ala Thr Val Ala His Leu Leu
                485                 490                 495

Asp Leu Ala Gly Ser Ala Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser
            500                 505                 510

Glu Pro Gln Glu Pro Leu Val Gln Asp Leu Gln Ala Ala Val Ala Ala
        515                 520                 525

Val Gln Ser Ala Val His Glu Leu Leu Glu Phe Ala Arg Ser Ala Val
    530                 535                 540

Gly Asn Ala Ala His Thr Ser Asp Arg Ala Leu His Ala Lys Leu Ser
545                 550                 555                 560

Arg Gln Leu Gln Lys Met Glu Asp Val His Gln Thr Leu Val Ala His
                565                 570                 575

Gly Gln Ala Leu Asp Ala Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu
            580                 585                 590

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

Lys Gln Leu Ala Ser Phe Leu His Gly Asn Ala Ser Leu Leu Phe Arg
    610                 615                 620

Arg Thr Lys Ala Thr Ala Pro Gly Pro Glu Gly Gly Gly Thr Leu His
625                 630                 635                 640

Pro Asn Pro Thr Asp Lys Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro
                645                 650                 655
```

```
Ser Pro Pro Lys Phe Thr Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu
            660                 665                 670

Asn Ser Glu Gly Gly Trp Met Glu Asp Tyr Asp Tyr Val His Leu Gln
        675                 680                 685

Gly Lys Glu Glu Phe Glu Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly
    690                 695                 700

Ser Ile Thr Arg Gln Gly Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys
705                 710                 715                 720

Gln Phe Glu Arg Leu Glu Gln Glu Val Ser Arg Pro Ile Asp His Asp
                725                 730                 735

Leu Ala Asn Trp Thr Pro Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly
            740                 745                 750

Gly Leu Gly Pro Ser Asp Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln
        755                 760                 765

Cys Glu Ala Asn Leu Thr Thr Leu Thr Asn Ala Val Asp Ala Phe Phe
    770                 775                 780

Thr Ala Val Ala Thr Asn Gln Pro Pro Lys Ile Phe Val Ala His Ser
785                 790                 795                 800

Lys Phe Val Ile Leu Ser Ala His Lys Leu Val Phe Ile Gly Asp Thr
                805                 810                 815

Leu Ser Arg Gln Ala Lys Ala Ala Asp Val Arg Ser Gln Val Thr His
            820                 825                 830

Tyr Ser Asn Leu Leu Cys Asp Leu Leu Arg Gly Ile Val Ala Thr Thr
        835                 840                 845

Lys Ala Ala Ala Leu Gln Tyr Pro Ser Pro Ser Ala Ala Gln Asp Met
    850                 855                 860

Val Glu Arg Val Lys Glu Leu Gly His Ser Thr Gln Gln Phe Arg Arg
865                 870                 875                 880
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Val Leu Gly Gln Leu Ala Ala Ala
885

<210> 9587
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<212> PRT
<213> Homo sapiens

<220>
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<220>
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breast cancer anti-estrogen resistance 1; "

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<400> 9587
Met His Cys Pro Gly Glu Ala Pro Leu Ala Ala Pro Arg Pro Thr Pro
1 5 10 15

Lys Asp Pro Cys Leu Arg Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn
20 25 30

Val Ala Glu Ser Pro Asp Glu Leu Ser Phe Arg Lys Gly Asp Ile Met
35 40 45

Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys
50 55 60

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

Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly Pro
85 90 95

Pro Ala Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala Pro

```
            100                 105                 110

Pro Ala Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro Gln
        115                 120                 125

Pro Asp Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln Gly
    130                 135                 140

Leu Tyr Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro Ala
145                 150                 155                 160

Lys Gln Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe Pro
                165                 170                 175

Ser Pro Ala Thr Asp Leu Tyr Gln Val Pro Pro Gly Pro Gly Gly Pro
            180                 185                 190

Ala Gln Asp Ile Tyr Gln Val Pro Pro Ser Ala Gly Met Gly His Asp
        195                 200                 205

Ile Tyr Gln Val Pro Pro Ser Met Asp Thr Arg Ser Trp Glu Gly Thr
    210                 215                 220

Lys Pro Pro Ala Lys Val Val Val Pro Thr Arg Val Gly Gln Gly Tyr
225                 230                 235                 240

Val Tyr Glu Ala Ala Gln Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg
                245                 250                 255

His Leu Leu Ala Pro Gly Pro Gln Asp Ile Tyr Asp Val Pro Pro Val
            260                 265                 270

Arg Gly Leu Leu Pro Ser Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro
        275                 280                 285

Pro Met Ala Val Lys Gly Pro Asn Gly Arg Asp Pro Leu Leu Glu Val
    290                 295                 300

Tyr Asp Val Pro Pro Ser Val Glu Lys Gly Leu Pro Pro Ser Asn His
305                 310                 315                 320

His Ala Val Tyr Asp Val Pro Pro Ser Val Ser Lys Asp Val Pro Asp
                325                 330                 335
```

```
Gly Pro Leu Leu Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala
            340                 345                 350

Lys Ala Lys Pro Phe Asp Pro Ala Arg Thr Pro Leu Val Leu Ala Ala
        355                 360                 365

Pro Pro Pro Asp Ser Pro Pro Ala Glu Asp Val Tyr Asp Val Pro Pro
    370                 375                 380

Pro Ala Pro Asp Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg Pro Gly
385                 390                 395                 400

Pro Gly Thr Leu Tyr Asp Val Pro Arg Glu Arg Val Leu Pro Pro Glu
                405                 410                 415

Val Ala Asp Gly Gly Val Val Asp Ser Gly Val Tyr Ala Val Pro Pro
            420                 425                 430

Pro Ala Glu Arg Glu Ala Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser
        435                 440                 445

Ser Thr Gly Ser Thr Arg Ser Ser Gln Ser Ala Ser Ser Leu Glu Val
    450                 455                 460

Ala Gly Pro Gly Arg Glu Pro Leu Glu Leu Glu Val Ala Val Glu Ala
465                 470                 475                 480

Leu Ala Arg Leu Gln Gln Gly Val Ser Ala Thr Val Ala His Leu Leu
                485                 490                 495

Asp Leu Ala Gly Ser Ala Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser
            500                 505                 510

Glu Pro Gln Glu Pro Leu Val Gln Asp Leu Gln Ala Ala Val Ala Ala
        515                 520                 525

Val Gln Ser Ala Val His Glu Leu Leu Glu Phe Ala Arg Ser Ala Val
    530                 535                 540

Gly Asn Ala Ala His Thr Ser Asp Arg Ala Leu His Ala Lys Leu Ser
545                 550                 555                 560
```

```
Arg Gln Leu Gln Lys Met Glu Asp Val His Gln Thr Leu Val Ala His
                565                 570                 575

Gly Gln Ala Leu Asp Ala Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu
            580                 585                 590

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

Lys Gln Leu Ala Ser Phe Leu His Gly Asn Ala Ser Leu Leu Phe Arg
    610                 615                 620

Arg Thr Lys Ala Thr Ala Pro Gly Pro Glu Gly Gly Gly Thr Leu His
625                 630                 635                 640

Pro Asn Pro Thr Asp Lys Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro
                645                 650                 655

Ser Pro Pro Lys Phe Thr Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu
            660                 665                 670

Asn Ser Glu Gly Gly Trp Met Glu Asp Tyr Asp Tyr Val His Leu Gln
        675                 680                 685

Gly Lys Glu Glu Phe Glu Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly
    690                 695                 700

Ser Ile Thr Arg Gln Gly Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys
705                 710                 715                 720

Gln Phe Glu Arg Leu Glu Gln Glu Val Ser Arg Pro Ile Asp His Asp
                725                 730                 735

Leu Ala Asn Trp Thr Pro Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly
            740                 745                 750

Gly Leu Gly Pro Ser Asp Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln
        755                 760                 765

Cys Glu Ala Asn Leu Thr Thr Leu Thr Asn Ala Val Asp Ala Phe Phe
    770                 775                 780
```

```
Thr Ala Val Ala Thr Asn Gln Pro Pro Lys Ile Phe Val Ala His Ser
785                 790                 795                 800

Lys Phe Val Ile Leu Ser Ala His Lys Leu Val Phe Ile Gly Asp Thr
                805                 810                 815

Leu Ser Arg Gln Ala Lys Ala Ala Asp Val Arg Ser Gln Val Thr His
            820                 825                 830

Tyr Ser Asn Leu Leu Cys Asp Leu Leu Arg Gly Ile Val Ala Thr Thr
        835                 840                 845

Lys Ala Ala Ala Leu Gln Tyr Pro Ser Pro Ser Ala Ala Gln Asp Met
    850                 855                 860

Val Glu Arg Val Lys Glu Leu Gly His Ser Thr Gln Gln Phe Arg Arg
865                 870                 875                 880

Val Leu Gly Gln Leu Ala Ala Ala
                885


<210> 9588
<211> 916
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="Uniprot ID:  P56945; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391669"

<400> 9588
Met Pro Ala Lys Pro Phe Leu Ser Ser Val Leu Leu Ser Trp Lys Val
1               5                   10                  15
```

```
Leu Asp Phe Ser Gly Pro Gly Pro Gln Gly Thr Gly Gln Pro Cys Ser
            20                  25                  30

Cys Gly His Trp Ala Glu Gly Gln Gly Gly Pro Pro Glu Pro Ala Gly
        35                  40                  45

Gly Pro Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn Val Ala Glu Ser
    50                  55                  60

Pro Asp Glu Leu Ser Phe Arg Lys Gly Asp Ile Met Thr Val Leu Glu
65                  70                  75                  80

Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys Ser Leu His Gly
                85                  90                  95

Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys Ile Leu Val Gly Met
            100                 105                 110

Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly Pro Pro Ala Thr Pro
        115                 120                 125

Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala Pro Pro Ala Ser Gln
    130                 135                 140

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

Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln Gly Leu Tyr Gln Val
                165                 170                 175

Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro Ala Lys Gln Thr Ser
            180                 185                 190

Thr Phe Ser Lys Gln Thr Pro His His Pro Phe Pro Ser Pro Ala Thr
        195                 200                 205

Asp Leu Tyr Gln Val Pro Pro Gly Pro Gly Gly Pro Ala Gln Asp Ile
    210                 215                 220

Tyr Gln Val Pro Pro Ser Ala Gly Met Gly His Asp Ile Tyr Gln Val
225                 230                 235                 240
```

```
Pro Pro Ser Met Asp Thr Arg Ser Trp Glu Gly Thr Lys Pro Pro Ala
                245                 250                 255

Lys Val Val Val Pro Thr Arg Val Gly Gln Gly Tyr Val Tyr Glu Ala
            260                 265                 270

Ala Gln Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg His Leu Leu Ala
        275                 280                 285

Pro Gly Pro Gln Asp Ile Tyr Asp Val Pro Pro Val Arg Gly Leu Leu
    290                 295                 300

Pro Ser Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro Pro Met Ala Val
305                 310                 315                 320

Lys Gly Pro Asn Gly Arg Asp Pro Leu Leu Glu Val Tyr Asp Val Pro
                325                 330                 335

Pro Ser Val Glu Lys Gly Leu Pro Pro Ser Asn His His Ala Val Tyr
            340                 345                 350

Asp Val Pro Pro Ser Val Ser Lys Asp Val Pro Asp Gly Pro Leu Leu
        355                 360                 365

Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala Lys Ala Lys Pro
    370                 375                 380

Phe Asp Pro Ala Arg Thr Pro Leu Val Leu Ala Ala Pro Pro Pro Asp
385                 390                 395                 400

Ser Pro Pro Ala Glu Asp Val Tyr Asp Val Pro Pro Pro Ala Pro Asp
                405                 410                 415

Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg Pro Gly Pro Gly Thr Leu
            420                 425                 430

Tyr Asp Val Pro Arg Glu Arg Val Leu Pro Pro Glu Val Ala Asp Gly
        435                 440                 445

Gly Val Val Asp Ser Gly Val Tyr Ala Val Pro Pro Pro Ala Glu Arg
    450                 455                 460
```

```
Glu Ala Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser Ser Thr Gly Ser
465                 470                 475                 480

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

Arg Glu Pro Leu Glu Leu Glu Val Ala Val Glu Ala Leu Ala Arg Leu
            500                 505                 510

Gln Gln Gly Val Ser Ala Thr Val Ala His Leu Leu Asp Leu Ala Gly
        515                 520                 525

Ser Ala Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser Glu Pro Gln Glu
    530                 535                 540

Pro Leu Val Gln Asp Leu Gln Ala Ala Val Ala Ala Val Gln Ser Ala
545                 550                 555                 560

Val His Glu Leu Leu Glu Phe Ala Arg Ser Ala Val Gly Asn Ala Ala
                565                 570                 575

His Thr Ser Asp Arg Ala Leu His Ala Lys Leu Ser Arg Gln Leu Gln
            580                 585                 590

Lys Met Glu Asp Val His Gln Thr Leu Val Ala His Gly Gln Ala Leu
        595                 600                 605

Asp Ala Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu Asp Leu Asp Arg
    610                 615                 620

Leu Val Ala Cys Ser Arg Ala Val Pro Glu Asp Ala Lys Gln Leu Ala
625                 630                 635                 640

Ser Phe Leu His Gly Asn Ala Ser Leu Leu Phe Arg Arg Thr Lys Ala
                645                 650                 655

Thr Ala Pro Gly Pro Glu Gly Gly Gly Thr Leu His Pro Asn Pro Thr
            660                 665                 670

Asp Lys Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro Ser Pro Pro Lys
        675                 680                 685

Phe Thr Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu Asn Ser Glu Gly
```

690 695 700

Gly Trp Met Glu Asp Tyr Asp Tyr Val His Leu Gln Gly Lys Glu Glu
705 710 715 720

Phe Glu Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly Ser Ile Thr Arg
725 730 735

Gln Gly Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys Gln Phe Glu Arg
740 745 750

Leu Glu Gln Glu Val Ser Arg Pro Ile Asp His Asp Leu Ala Asn Trp
755 760 765

Thr Pro Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly Gly Leu Gly Pro
770 775 780

Ser Asp Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln Cys Glu Ala Asn
785 790 795 800

Leu Thr Thr Leu Thr Asn Ala Val Asp Ala Phe Phe Thr Ala Val Ala
805 810 815

Thr Asn Gln Pro Pro Lys Ile Phe Val Ala His Ser Lys Phe Val Ile
820 825 830

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

Ala Lys Ala Ala Asp Val Arg Ser Gln Val Thr His Tyr Ser Asn Leu
850 855 860

Leu Cys Asp Leu Leu Arg Gly Ile Val Ala Thr Thr Lys Ala Ala Ala
865 870 875 880

Leu Gln Tyr Pro Ser Pro Ser Ala Ala Gln Asp Met Val Glu Arg Val
885 890 895

Lys Glu Leu Gly His Ser Thr Gln Gln Phe Arg Arg Val Leu Gly Gln
900 905 910

Leu Ala Ala Ala
915

<210> 9589
<211> 888
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
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<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="Uniprot ID: P56945; "

<220>
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<223> /note="ENSP ID: ENSP00000392708"

<400> 9589
Met Leu Thr His Arg Pro Gln Glu Ala Glu Gln Arg Gly Arg Thr Pro
1   5   10   15

Gly Pro Ser Phe Glu Trp Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn
            20   25   30

Val Ala Glu Ser Pro Asp Glu Leu Ser Phe Arg Lys Gly Asp Ile Met
        35   40   45

Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys
    50   55   60

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

Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly Pro
                85   90   95

Pro Ala Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala Pro
            100   105   110

```
Pro Ala Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro Gln
        115                 120                 125

Pro Asp Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln Gly
    130                 135                 140

Leu Tyr Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro Ala
145                 150                 155                 160

Lys Gln Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe Pro
                165                 170                 175

Ser Pro Ala Thr Asp Leu Tyr Gln Val Pro Pro Gly Pro Gly Gly Pro
            180                 185                 190

Ala Gln Asp Ile Tyr Gln Val Pro Pro Ser Ala Gly Met Gly His Asp
        195                 200                 205

Ile Tyr Gln Val Pro Pro Ser Met Asp Thr Arg Ser Trp Glu Gly Thr
    210                 215                 220

Lys Pro Pro Ala Lys Val Val Val Pro Thr Arg Val Gly Gln Gly Tyr
225                 230                 235                 240

Val Tyr Glu Ala Ala Gln Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg
                245                 250                 255

His Leu Leu Ala Pro Gly Pro Gln Asp Ile Tyr Asp Val Pro Pro Val
            260                 265                 270

Arg Gly Leu Leu Pro Ser Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro
        275                 280                 285

Pro Met Ala Val Lys Gly Pro Asn Gly Arg Asp Pro Leu Leu Glu Val
    290                 295                 300

Tyr Asp Val Pro Pro Ser Val Glu Lys Gly Leu Pro Pro Ser Asn His
305                 310                 315                 320

His Ala Val Tyr Asp Val Pro Pro Ser Val Ser Lys Asp Val Pro Asp
                325                 330                 335

Gly Pro Leu Leu Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala
```

```
            340                 345                 350

Lys Ala Lys Pro Phe Asp Pro Ala Arg Thr Pro Leu Val Leu Ala Ala
        355                 360                 365

Pro Pro Pro Asp Ser Pro Pro Ala Glu Asp Val Tyr Asp Val Pro Pro
    370                 375                 380

Pro Ala Pro Asp Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg Pro Gly
385                 390                 395                 400

Pro Gly Thr Leu Tyr Asp Val Pro Arg Glu Arg Val Leu Pro Pro Glu
                405                 410                 415

Val Ala Asp Gly Gly Val Val Asp Ser Gly Val Tyr Ala Val Pro Pro
            420                 425                 430

Pro Ala Glu Arg Glu Ala Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser
        435                 440                 445

Ser Thr Gly Ser Thr Arg Ser Ser Gln Ser Ala Ser Ser Leu Glu Val
    450                 455                 460

Ala Gly Pro Gly Arg Glu Pro Leu Glu Leu Glu Val Ala Val Glu Ala
465                 470                 475                 480

Leu Ala Arg Leu Gln Gln Gly Val Ser Ala Thr Val Ala His Leu Leu
                485                 490                 495

Asp Leu Ala Gly Ser Ala Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser
            500                 505                 510

Glu Pro Gln Glu Pro Leu Val Gln Asp Leu Gln Ala Ala Val Ala Ala
        515                 520                 525

Val Gln Ser Ala Val His Glu Leu Leu Glu Phe Ala Arg Ser Ala Val
    530                 535                 540

Gly Asn Ala Ala His Thr Ser Asp Arg Ala Leu His Ala Lys Leu Ser
545                 550                 555                 560

Arg Gln Leu Gln Lys Met Glu Asp Val His Gln Thr Leu Val Ala His
                565                 570                 575
```

```
Gly Gln Ala Leu Asp Ala Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu
            580                 585                 590

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

Lys Gln Leu Ala Ser Phe Leu His Gly Asn Ala Ser Leu Leu Phe Arg
    610                 615                 620

Arg Thr Lys Ala Thr Ala Pro Gly Pro Glu Gly Gly Gly Thr Leu His
625                 630                 635                 640

Pro Asn Pro Thr Asp Lys Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro
                645                 650                 655

Ser Pro Pro Lys Phe Thr Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu
            660                 665                 670

Asn Ser Glu Gly Gly Trp Met Glu Asp Tyr Asp Tyr Val His Leu Gln
        675                 680                 685

Gly Lys Glu Glu Phe Glu Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly
    690                 695                 700

Ser Ile Thr Arg Gln Gly Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys
705                 710                 715                 720

Gln Phe Glu Arg Leu Glu Gln Glu Val Ser Arg Pro Ile Asp His Asp
                725                 730                 735

Leu Ala Asn Trp Thr Pro Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly
            740                 745                 750

Gly Leu Gly Pro Ser Asp Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln
        755                 760                 765

Cys Glu Ala Asn Leu Thr Thr Leu Thr Asn Ala Val Asp Ala Phe Phe
    770                 775                 780

Thr Ala Val Ala Thr Asn Gln Pro Pro Lys Ile Phe Val Ala His Ser
785                 790                 795                 800
```

```
Lys Phe Val Ile Leu Ser Ala His Lys Leu Val Phe Ile Gly Asp Thr
                805                 810                 815

Leu Ser Arg Gln Ala Lys Ala Ala Asp Val Arg Ser Gln Val Thr His
            820                 825                 830

Tyr Ser Asn Leu Leu Cys Asp Leu Leu Arg Gly Ile Val Ala Thr Thr
        835                 840                 845

Lys Ala Ala Ala Leu Gln Tyr Pro Ser Pro Ser Ala Ala Gln Asp Met
    850                 855                 860

Val Glu Arg Val Lys Glu Leu Gly His Ser Thr Gln Gln Phe Arg Arg
865                 870                 875                 880

Val Leu Gly Gln Leu Ala Ala Ala
                885


<210> 9590
<211> 722
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="Uniprot ID:  P56945; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440370"

<400> 9590
Met Gln Gly Lys Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn Val Ala
1               5                   10                  15

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

20 25 30

Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys Ser Leu
35 40 45

His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys Ile Leu Val
50 55 60

Val Val Pro Thr Arg Val Gly Gln Gly Tyr Val Tyr Glu Ala Ala Gln
65 70 75 80

Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg His Leu Leu Ala Pro Gly
85 90 95

Pro Gln Asp Ile Tyr Asp Val Pro Pro Val Arg Gly Leu Leu Pro Ser
100 105 110

Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro Pro Met Ala Val Lys Gly
115 120 125

Pro Asn Gly Arg Asp Pro Leu Leu Glu Val Tyr Asp Val Pro Pro Ser
130 135 140

Val Glu Lys Gly Leu Pro Pro Ser Asn His His Ala Val Tyr Asp Val
145 150 155 160

Pro Pro Ser Val Ser Lys Asp Val Pro Asp Gly Pro Leu Leu Arg Glu
165 170 175

Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala Lys Ala Lys Pro Phe Asp
180 185 190

Pro Ala Arg Thr Pro Leu Val Leu Ala Ala Pro Pro Pro Asp Ser Pro
195 200 205

Pro Ala Glu Asp Val Tyr Asp Val Pro Pro Pro Ala Pro Asp Leu Tyr
210 215 220

Asp Val Pro Pro Gly Leu Arg Arg Pro Gly Pro Gly Thr Leu Tyr Asp
225 230 235 240

Val Pro Arg Glu Arg Val Leu Pro Pro Glu Val Ala Asp Gly Gly Val
245 250 255

```
Val Asp Ser Gly Val Tyr Ala Val Pro Pro Pro Ala Glu Arg Glu Ala
            260                 265                 270

Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser Ser Thr Gly Ser Thr Arg
        275                 280                 285

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

Pro Leu Glu Leu Glu Val Ala Val Glu Ala Leu Ala Arg Leu Gln Gln
305                 310                 315                 320

Gly Val Ser Ala Thr Val Ala His Leu Leu Asp Leu Ala Gly Ser Ala
                325                 330                 335

Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser Glu Pro Gln Glu Pro Leu
            340                 345                 350

Val Gln Asp Leu Gln Ala Ala Val Ala Ala Val Gln Ser Ala Val His
        355                 360                 365

Glu Leu Leu Glu Phe Ala Arg Ser Ala Val Gly Asn Ala Ala His Thr
    370                 375                 380

Ser Asp Arg Ala Leu His Ala Lys Leu Ser Arg Gln Leu Gln Lys Met
385                 390                 395                 400

Glu Asp Val His Gln Thr Leu Val Ala His Gly Gln Ala Leu Asp Ala
                405                 410                 415

Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu Asp Leu Asp Arg Leu Val
            420                 425                 430

Ala Cys Ser Arg Ala Val Pro Glu Asp Ala Lys Gln Leu Ala Ser Phe
        435                 440                 445

Leu His Gly Asn Ala Ser Leu Leu Phe Arg Arg Thr Lys Ala Thr Ala
    450                 455                 460

Pro Gly Pro Glu Gly Gly Gly Thr Leu His Pro Asn Pro Thr Asp Lys
465                 470                 475                 480
```

Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro Ser Pro Pro Lys Phe Thr
485 490 495

Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu Asn Ser Glu Gly Gly Trp
500 505 510

Met Glu Asp Tyr Asp Tyr Val His Leu Gln Gly Lys Glu Glu Phe Glu
515 520 525

Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly Ser Ile Thr Arg Gln Gly
530 535 540

Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys Gln Phe Glu Arg Leu Glu
545 550 555 560

Gln Glu Val Ser Arg Pro Ile Asp His Asp Leu Ala Asn Trp Thr Pro
565 570 575

Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly Gly Leu Gly Pro Ser Asp
580 585 590

Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln Cys Glu Ala Asn Leu Thr
595 600 605

Thr Leu Thr Asn Ala Val Asp Ala Phe Phe Thr Ala Val Ala Thr Asn
610 615 620

Gln Pro Pro Lys Ile Phe Val Ala His Ser Lys Phe Val Ile Leu Ser
625 630 635 640

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

Ala Ala Asp Val Arg Ser Gln Val Thr His Tyr Ser Asn Leu Leu Cys
660 665 670

Asp Leu Leu Arg Gly Ile Val Ala Thr Thr Lys Ala Ala Ala Leu Gln
675 680 685

Tyr Pro Ser Pro Ser Ala Ala Gln Asp Met Val Glu Arg Val Lys Glu
690 695 700

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

Ala Ala

<210> 9591
<211> 868
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1952; "

<220>
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<223> /note="Gene Symbol: BCAR1; "

<220>
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<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
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<223> /note="Uniprot ID: P56945; "

<220>
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<223> /note="ENSP ID: ENSP00000440415"

<400> 9591
Met Glu Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn Val Ala Glu Ser
1 5 10 15

Pro Asp Glu Leu Ser Phe Arg Lys Gly Asp Ile Met Thr Val Leu Glu
20 25 30

Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys Ser Leu His Gly
35 40 45

Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys Ile Leu Val Gly Met
50 55 60

Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly Pro Pro Ala Thr Pro
65 70 75 80

Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala Pro Pro Ala Ser Gln
85 90 95

```
Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro Gln Pro Asp Ser Val
            100                 105                 110

Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln Gly Leu Tyr Gln Val
        115                 120                 125

Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro Ala Lys Gln Thr Ser
    130                 135                 140

Thr Phe Ser Lys Gln Thr Pro His His Pro Phe Pro Ser Pro Ala Thr
145                 150                 155                 160

Asp Leu Tyr Gln Val Pro Pro Gly Pro Gly Gly Pro Ala Gln Asp Ile
                165                 170                 175

Tyr Gln Val Pro Pro Ser Ala Gly Met Gly His Asp Ile Tyr Gln Val
            180                 185                 190

Pro Pro Ser Met Asp Thr Arg Ser Trp Glu Gly Thr Lys Pro Pro Ala
        195                 200                 205

Lys Val Val Val Pro Thr Arg Val Gly Gln Gly Tyr Val Tyr Glu Ala
    210                 215                 220

Ala Gln Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg His Leu Leu Ala
225                 230                 235                 240

Pro Gly Pro Gln Asp Ile Tyr Asp Val Pro Pro Val Arg Gly Leu Leu
                245                 250                 255

Pro Ser Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro Pro Met Ala Val
            260                 265                 270

Lys Gly Pro Asn Gly Arg Asp Pro Leu Leu Glu Val Tyr Asp Val Pro
        275                 280                 285

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

Asp Val Pro Pro Ser Val Ser Lys Asp Val Pro Asp Gly Pro Leu Leu
305                 310                 315                 320
```

```
Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala Lys Ala Lys Pro
                325                 330                 335

Phe Asp Pro Ala Arg Thr Pro Leu Val Leu Ala Ala Pro Pro Pro Asp
            340                 345                 350

Ser Pro Pro Ala Glu Asp Val Tyr Asp Val Pro Pro Pro Ala Pro Asp
        355                 360                 365

Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg Pro Gly Pro Gly Thr Leu
    370                 375                 380

Tyr Asp Val Pro Arg Glu Arg Val Leu Pro Pro Glu Val Ala Asp Gly
385                 390                 395                 400

Gly Val Val Asp Ser Gly Val Tyr Ala Val Pro Pro Pro Ala Glu Arg
                405                 410                 415

Glu Ala Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser Ser Thr Gly Ser
            420                 425                 430

Thr Arg Ser Ser Gln Ser Ala Ser Ser Leu Glu Val Ala Gly Pro Gly
        435                 440                 445

Arg Glu Pro Leu Glu Leu Glu Val Ala Val Glu Ala Leu Ala Arg Leu
    450                 455                 460

Gln Gln Gly Val Ser Ala Thr Val Ala His Leu Leu Asp Leu Ala Gly
465                 470                 475                 480

Ser Ala Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser Glu Pro Gln Glu
                485                 490                 495

Pro Leu Val Gln Asp Leu Gln Ala Ala Val Ala Ala Val Gln Ser Ala
            500                 505                 510

Val His Glu Leu Leu Glu Phe Ala Arg Ser Ala Val Gly Asn Ala Ala
        515                 520                 525

His Thr Ser Asp Arg Ala Leu His Ala Lys Leu Ser Arg Gln Leu Gln
    530                 535                 540
```

```
Lys Met Glu Asp Val His Gln Thr Leu Val Ala His Gly Gln Ala Leu
545                 550                 555                 560

Asp Ala Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu Asp Leu Asp Arg
                565                 570                 575

Leu Val Ala Cys Ser Arg Ala Val Pro Glu Asp Ala Lys Gln Leu Ala
            580                 585                 590

Ser Phe Leu His Gly Asn Ala Ser Leu Leu Phe Arg Arg Thr Lys Ala
        595                 600                 605

Thr Ala Pro Gly Pro Glu Gly Gly Gly Thr Leu His Pro Asn Pro Thr
    610                 615                 620

Asp Lys Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro Ser Pro Pro Lys
625                 630                 635                 640

Phe Thr Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu Asn Ser Glu Gly
                645                 650                 655

Gly Trp Met Glu Asp Tyr Asp Tyr Val His Leu Gln Gly Lys Glu Glu
            660                 665                 670

Phe Glu Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly Ser Ile Thr Arg
        675                 680                 685

Gln Gly Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys Gln Phe Glu Arg
    690                 695                 700

Leu Glu Gln Glu Val Ser Arg Pro Ile Asp His Asp Leu Ala Asn Trp
705                 710                 715                 720

Thr Pro Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly Gly Leu Gly Pro
                725                 730                 735

Ser Asp Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln Cys Glu Ala Asn
            740                 745                 750

Leu Thr Thr Leu Thr Asn Ala Val Asp Ala Phe Phe Thr Ala Val Ala
        755                 760                 765

Thr Asn Gln Pro Pro Lys Ile Phe Val Ala His Ser Lys Phe Val Ile
```

```
    770                 775                 780

Leu Ser Ala His Lys Leu Val Phe Ile Gly Asp Thr Leu Ser Arg Gln
785                 790                 795                 800

Ala Lys Ala Ala Asp Val Arg Ser Gln Val Thr His Tyr Ser Asn Leu
                805                 810                 815

Leu Cys Asp Leu Leu Arg Gly Ile Val Ala Thr Thr Lys Ala Ala Ala
            820                 825                 830

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

Lys Glu Leu Gly His Ser Thr Gln Gln Phe Arg Arg Val Leu Gly Gln
    850                 855                 860

Leu Ala Ala Ala
865
```

<210> 9592
<211> 57
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442161"

<400> 9592

```
Met Pro Ala Lys Pro Phe Leu Ser Ser Val Leu Leu Ser Trp Lys Val
1               5                   10                  15

Leu Asp Phe Ser Gly Pro Gly Pro Gln Gly Thr Gly Gln Pro Cys Ser
            20                  25                  30
```

```
Cys Gly His Trp Ala Glu Gly Gln Gly Gly Pro Pro Glu Pro Ala Gly
        35                  40                  45


Gly Pro Val Ser Gln Gly Ser Ser Asp
    50                  55


<210> 9593
<211> 870
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="Uniprot ID:  P56945; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443841"

<400> 9593
Met Ser Val Pro Asn Val Leu Ala Lys Ala Leu Tyr Asp Asn Val Ala
1               5                   10                  15


Glu Ser Pro Asp Glu Leu Ser Phe Arg Lys Gly Asp Ile Met Thr Val
            20                  25                  30


Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu Cys Ser Leu
        35                  40                  45


His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys Ile Leu Val
    50                  55                  60


Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly Pro Pro Ala
65                  70                  75                  80


Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala Pro Pro Ala
```

```
                85                  90                  95

Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro Gln Pro Asp
            100                 105                 110

Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln Gly Leu Tyr
        115                 120                 125

Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro Ala Lys Gln
    130                 135                 140

Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe Pro Ser Pro
145                 150                 155                 160

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

Asp Ile Tyr Gln Val Pro Pro Ser Ala Gly Met Gly His Asp Ile Tyr
            180                 185                 190

Gln Val Pro Pro Ser Met Asp Thr Arg Ser Trp Glu Gly Thr Lys Pro
        195                 200                 205

Pro Ala Lys Val Val Val Pro Thr Arg Val Gly Gln Gly Tyr Val Tyr
    210                 215                 220

Glu Ala Ala Gln Pro Glu Gln Asp Glu Tyr Asp Ile Pro Arg His Leu
225                 230                 235                 240

Leu Ala Pro Gly Pro Gln Asp Ile Tyr Asp Val Pro Pro Val Arg Gly
                245                 250                 255

Leu Leu Pro Ser Gln Tyr Gly Gln Glu Val Tyr Asp Thr Pro Pro Met
            260                 265                 270

Ala Val Lys Gly Pro Asn Gly Arg Asp Pro Leu Leu Glu Val Tyr Asp
        275                 280                 285

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

Val Tyr Asp Val Pro Pro Ser Val Ser Lys Asp Val Pro Asp Gly Pro
305                 310                 315                 320
```

```
Leu Leu Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala Phe Ala Lys Ala
                325                 330                 335

Lys Pro Phe Asp Pro Ala Arg Thr Pro Leu Val Leu Ala Ala Pro Pro
            340                 345                 350

Pro Asp Ser Pro Pro Ala Glu Asp Val Tyr Asp Val Pro Pro Pro Ala
        355                 360                 365

Pro Asp Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg Pro Gly Pro Gly
    370                 375                 380

Thr Leu Tyr Asp Val Pro Arg Glu Arg Val Leu Pro Pro Glu Val Ala
385                 390                 395                 400

Asp Gly Gly Val Val Asp Ser Gly Val Tyr Ala Val Pro Pro Pro Ala
                405                 410                 415

Glu Arg Glu Ala Pro Ala Glu Gly Lys Arg Leu Ser Ala Ser Ser Thr
            420                 425                 430

Gly Ser Thr Arg Ser Ser Gln Ser Ala Ser Ser Leu Glu Val Ala Gly
        435                 440                 445

Pro Gly Arg Glu Pro Leu Glu Leu Glu Val Ala Val Glu Ala Leu Ala
    450                 455                 460

Arg Leu Gln Gln Gly Val Ser Ala Thr Val Ala His Leu Leu Asp Leu
465                 470                 475                 480

Ala Gly Ser Ala Gly Ala Thr Gly Ser Trp Arg Ser Pro Ser Glu Pro
                485                 490                 495

Gln Glu Pro Leu Val Gln Asp Leu Gln Ala Ala Val Ala Ala Val Gln
            500                 505                 510

Ser Ala Val His Glu Leu Leu Glu Phe Ala Arg Ser Ala Val Gly Asn
        515                 520                 525

Ala Ala His Thr Ser Asp Arg Ala Leu His Ala Lys Leu Ser Arg Gln
    530                 535                 540
```

```
Leu Gln Lys Met Glu Asp Val His Gln Thr Leu Val Ala His Gly Gln
545                 550                 555                 560

Ala Leu Asp Ala Gly Arg Gly Gly Ser Gly Ala Thr Leu Glu Asp Leu
                565                 570                 575

Asp Arg Leu Val Ala Cys Ser Arg Ala Val Pro Glu Asp Ala Lys Gln
            580                 585                 590

Leu Ala Ser Phe Leu His Gly Asn Ala Ser Leu Leu Phe Arg Arg Thr
        595                 600                 605

Lys Ala Thr Ala Pro Gly Pro Glu Gly Gly Gly Thr Leu His Pro Asn
    610                 615                 620

Pro Thr Asp Lys Thr Ser Ser Ile Gln Ser Arg Pro Leu Pro Ser Pro
625                 630                 635                 640

Pro Lys Phe Thr Ser Gln Asp Ser Pro Asp Gly Gln Tyr Glu Asn Ser
                645                 650                 655

Glu Gly Gly Trp Met Glu Asp Tyr Asp Tyr Val His Leu Gln Gly Lys
            660                 665                 670

Glu Glu Phe Glu Lys Thr Gln Lys Glu Leu Leu Glu Lys Gly Ser Ile
        675                 680                 685

Thr Arg Gln Gly Lys Ser Gln Leu Glu Leu Gln Gln Leu Lys Gln Phe
    690                 695                 700

Glu Arg Leu Glu Gln Glu Val Ser Arg Pro Ile Asp His Asp Leu Ala
705                 710                 715                 720

Asn Trp Thr Pro Ala Gln Pro Leu Ala Pro Gly Arg Thr Gly Gly Leu
                725                 730                 735

Gly Pro Ser Asp Arg Gln Leu Leu Leu Phe Tyr Leu Glu Gln Cys Glu
            740                 745                 750

Ala Asn Leu Thr Thr Leu Thr Asn Ala Val Asp Ala Phe Phe Thr Ala
        755                 760                 765
```

```
Val Ala Thr Asn Gln Pro Pro Lys Ile Phe Val Ala His Ser Lys Phe
    770                 775                 780

Val Ile Leu Ser Ala His Lys Leu Val Phe Ile Gly Asp Thr Leu Ser
785                 790                 795                 800

Arg Gln Ala Lys Ala Ala Asp Val Arg Ser Gln Val Thr His Tyr Ser
                805                 810                 815

Asn Leu Leu Cys Asp Leu Leu Arg Gly Ile Val Ala Thr Thr Lys Ala
            820                 825                 830

Ala Ala Leu Gln Tyr Pro Ser Pro Ser Ala Ala Gln Asp Met Val Glu
        835                 840                 845

Arg Val Lys Glu Leu Gly His Ser Thr Gln Gln Phe Arg Arg Val Leu
    850                 855                 860

Gly Gln Leu Ala Ala Ala
865                 870


<210> 9594
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454702"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9594
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Xaa Pro Gln Phe Gln Ser Pro Pro Ala Lys Gln Thr Ser Thr Phe Ser
1 5 10 15

Lys Gln Thr Pro His His Pro Phe Pro Ser Pro Ala Thr Asp Leu Tyr
20 25 30

Gln Val Pro Pro Gly Pro Gly Gly Pro Ala Gln Asp Ile Tyr Gln Val
35 40 45

Pro Pro Ser Ala Gly Met Gly His Asp Ile Tyr Gln Val Pro Pro Ser
50 55 60

Met Asp Thr Arg Ser Trp Glu Gly Thr Lys Pro Pro Ala Lys Val Val
65 70 75 80

Val Pro Thr Arg Val Gly Gln Gly Tyr Val Tyr Glu Ala Ala Gln Pro
85 90 95

Glu Gln Asp Glu Tyr Asp Ile Pro Arg His Leu Leu Ala Pro Gly Pro
100 105 110

Gln Asp Ile Tyr Asp Val Pro Pro Val Arg Gly Leu Leu Pro Ser Gln
115 120 125

Tyr Gly Gln Glu Val Tyr Asp Val Pro Pro Ser Val Ser Lys Asp Val
130 135 140

Pro Asp Gly Pro Leu Leu Arg Glu Glu Thr Tyr Asp Val Pro Pro Ala
145 150 155 160

Phe Ala Lys Ala Lys Pro Phe Asp Pro Ala Arg Thr Pro Leu Val Leu
165 170 175

Ala Ala Pro Pro Pro Asp Ser Pro Pro Ala Glu Asp Val Tyr Asp Val
180 185 190

Pro Pro Pro Ala Pro Asp Leu Tyr Asp Val Pro Pro Gly Leu Arg Arg
195 200 205

Pro Gly Pro Gly Thr Leu Tyr Asp Val Pro Arg Glu Arg Val Leu Pro
210 215 220

Pro Glu Val Ala Asp Gly Gly Val Val Asp Ser Gly Val Tyr

225 230 235

<210> 9595
<211> 57
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455166"

<400> 9595
Met Pro Ala Lys Pro Phe Leu Ser Ser Val Leu Leu Ser Trp Lys Val
1 5 10 15

Leu Asp Phe Ser Gly Pro Gly Pro Gln Gly Thr Gly Gln Pro Cys Ser
20 25 30

Cys Gly His Trp Ala Glu Gly Gln Gly Gly Pro Pro Glu Pro Ala Gly
35 40 45

Gly Pro Val Ser Gln Gly Ser Ser Asp
50 55

<210> 9596
<211> 133
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source

<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455810"

<400> 9596
Met Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu
1 5 10 15

Cys Ser Leu His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys
20 25 30

Ile Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly
35 40 45

Pro Pro Ala Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala
50 55 60

Pro Pro Ala Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro
65 70 75 80

Gln Pro Asp Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln
85 90 95

Gly Leu Tyr Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro
100 105 110

Ala Lys Gln Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe
115 120 125

Pro Ser Pro Ala Thr
130

<210> 9597
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456625"

<400> 9597
Met Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu
1 5 10 15

Cys Ser Leu His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys
20 25 30

Ile Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly
35 40 45

Pro Pro Ala Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala
50 55 60

Pro Pro Ala Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro
65 70 75 80

Gln Pro Asp Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln
85 90 95

Gly Leu Tyr Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro
100 105 110

Ala Lys Gln Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe
115 120 125

Pro Ser Pro Ala Thr Asp Leu
130 135

<210> 9598
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source

<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456929"

<400> 9598
Met Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu
1 5 10 15

Cys Ser Leu His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys
20 25 30

Ile Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly
35 40 45

Pro Pro Ala Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala
50 55 60

Pro Pro Ala Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro
65 70 75 80

Gln Pro Asp Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln
85 90 95

Gly Leu Tyr Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro
100 105 110

Ala Lys Gln Thr Ser Thr Phe Ser Lys Gln Thr Pro His His Pro Phe
115 120 125

<210> 9599
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457097"

<400> 9599
Met Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu
1 5 10 15

Cys Ser Leu His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys
20 25 30

Ile Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly
35 40 45

Pro Pro Ala Thr Pro Ala Gln Pro Gln Pro
50 55

<210> 9600
<211> 50
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457231"

<400> 9600
Met Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu
1 5 10 15

Cys Ser Leu His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys
20 25 30

Ile Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly
35 40 45

Pro Pro
50

<210> 9601
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457457"

<400> 9601
Met Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu
1 5 10 15

Cys Ser Leu His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys
20 25 30

Ile Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly
35 40 45

Pro Pro Ala Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala
50 55 60

Pro Pro Ala Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro
65 70 75 80

<210> 9602
<211> 120
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 1952; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458088"

<400> 9602
Met Thr Val Leu Glu Gln Asp Thr Gln Gly Leu Asp Gly Trp Trp Leu
1 5 10 15

Cys Ser Leu His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Leu Lys
20 25 30

Ile Leu Val Gly Met Tyr Asp Lys Lys Pro Ala Gly Pro Gly Pro Gly
35 40 45

Pro Pro Ala Thr Pro Ala Gln Pro Gln Pro Gly Leu His Ala Pro Ala
50 55 60

Pro Pro Ala Ser Gln Tyr Thr Pro Met Leu Pro Asn Thr Tyr Gln Pro
65 70 75 80

Gln Pro Asp Ser Val Tyr Leu Val Pro Thr Pro Ser Lys Ala Gln Gln
85 90 95

Gly Leu Tyr Gln Val Pro Gly Pro Ser Pro Gln Phe Gln Ser Pro Pro
100 105 110

Ala Lys Gln Thr Ser Thr Phe Ser
115 120

<210> 9603
<211> 825
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1953; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR3; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 3; "

<220>
<221> source
<223> /note="Uniprot ID: O75815; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260502"

<400> 9603
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Met Ala Ala Gly Lys Phe Ala Ser Leu Pro Arg Asn Met Pro Val Asn
1               5                  10                  15

His Gln Phe Pro Leu Ala Ser Ser Met Asp Leu Leu Ser Ser Arg Ser
            20                  25                  30

Pro Leu Ala Glu His Arg Pro Asp Ala Tyr Gln Asp Val Ser Ile His
        35                  40                  45

Gly Thr Leu Pro Arg Lys Lys Lys Gly Pro Pro Pro Ile Arg Ser Cys
    50                  55                  60

Asp Asp Phe Ser His Met Gly Thr Leu Pro His Ser Lys Ser Pro Arg
65                  70                  75                  80

Gln Asn Ser Pro Val Thr Gln Asp Gly Ile Gln Glu Ser Pro Trp Gln
                85                  90                  95

Asp Arg His Gly Glu Thr Phe Thr Phe Arg Asp Pro His Leu Leu Asp
            100                 105                 110

Pro Thr Val Glu Tyr Val Lys Phe Ser Lys Glu Arg His Ile Met Asp
        115                 120                 125

Arg Thr Pro Glu Lys Leu Lys Lys Glu Leu Glu Glu Glu Leu Leu Leu
    130                 135                 140

Ser Ser Glu Asp Leu Arg Ser His Ala Trp Tyr His Gly Arg Ile Pro
145                 150                 155                 160
```

```
Arg Gln Val Ser Glu Asn Leu Val Gln Arg Asp Gly Asp Phe Leu Val
                165                 170                 175

Arg Asp Ser Leu Ser Ser Pro Gly Asn Phe Val Leu Thr Cys Gln Trp
            180                 185                 190

Lys Asn Leu Ala Gln His Phe Lys Ile Asn Arg Thr Val Leu Arg Leu
        195                 200                 205

Ser Glu Ala Tyr Ser Arg Val Gln Tyr Gln Phe Glu Met Glu Ser Phe
    210                 215                 220

Asp Ser Ile Pro Gly Leu Val Arg Cys Tyr Val Gly Asn Arg Arg Pro
225                 230                 235                 240

Ile Ser Gln Gln Ser Gly Ala Ile Ile Phe Gln Pro Ile Asn Arg Thr
                245                 250                 255

Val Pro Leu Arg Cys Leu Glu Glu His Tyr Gly Thr Ser Pro Gly Gln
            260                 265                 270

Ala Arg Glu Gly Ser Leu Thr Lys Gly Arg Pro Asp Val Ala Lys Arg
        275                 280                 285

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

Arg Gly Asn Leu Leu Arg Asn Lys Glu Lys Ser Gly Ser Gln Pro Ala
305                 310                 315                 320

Cys Leu Asp His Met Gln Asp Arg Arg Ala Leu Ser Leu Lys Ala His
                325                 330                 335

Gln Ser Glu Ser Tyr Leu Pro Ile Gly Cys Lys Leu Pro Pro Gln Ser
            340                 345                 350

Ser Gly Val Asp Thr Ser Pro Cys Pro Asn Ser Pro Val Phe Arg Thr
        355                 360                 365

Gly Ser Glu Pro Ala Leu Ser Pro Ala Val Val Arg Arg Val Ser Ser
    370                 375                 380
```

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

Pro Lys Pro Pro Pro Lys Pro Cys Lys Val Pro Phe Leu Lys Val Pro
                405                 410                 415

Ser Ser Pro Ser Ala Trp Leu Asn Ser Glu Ala Asn Tyr Cys Glu Leu
            420                 425                 430

Asn Pro Ala Phe Ala Thr Gly Cys Gly Arg Gly Ala Lys Leu Pro Ser
        435                 440                 445

Cys Ala Gln Gly Ser His Thr Glu Leu Leu Thr Ala Lys Gln Asn Glu
    450                 455                 460

Ala Pro Gly Pro Arg Asn Ser Gly Val Asn Tyr Leu Ile Leu Asp Asp
465                 470                 475                 480

Asp Asp Arg Glu Arg Pro Trp Glu Pro Ala Ala Ala Gln Met Glu Lys
                485                 490                 495

Gly Gln Trp Asp Lys Gly Glu Phe Val Thr Pro Leu Leu Glu Thr Val
            500                 505                 510

Ser Ser Phe Arg Pro Asn Glu Phe Glu Ser Lys Phe Leu Pro Pro Glu
        515                 520                 525

Asn Lys Pro Leu Glu Thr Ala Met Leu Lys Arg Ala Lys Glu Leu Phe
    530                 535                 540

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

Cys Arg Val Ala Arg Ile Leu Gly Val Ser Glu Glu Met Arg Arg Asn
                565                 570                 575

Met Gly Val Ser Ser Gly Leu Glu Leu Ile Thr Leu Pro His Gly His
            580                 585                 590

Gln Leu Arg Leu Asp Ile Ile Glu Arg His Asn Thr Met Ala Ile Gly
        595                 600                 605
```

```
Ile Ala Val Asp Ile Leu Gly Cys Thr Gly Thr Leu Glu Asp Arg Ala
    610                 615                 620

Ala Thr Leu Ser Lys Ile Ile Gln Val Ala Val Glu Leu Lys Asp Ser
625                 630                 635                 640

Met Gly Asp Leu Tyr Ser Phe Ser Ala Leu Met Lys Ala Leu Glu Met
                645                 650                 655

Pro Gln Ile Thr Arg Leu Glu Lys Thr Trp Thr Ala Leu Arg His Gln
            660                 665                 670

Tyr Thr Gln Thr Ala Ile Leu Tyr Glu Lys Gln Leu Lys Pro Phe Ser
        675                 680                 685

Lys Leu Leu His Glu Gly Arg Glu Ser Thr Cys Val Pro Pro Asn Asn
    690                 695                 700

Val Ser Val Pro Leu Leu Met Pro Leu Val Thr Leu Met Glu Arg Gln
705                 710                 715                 720

Ala Val Thr Phe Glu Gly Thr Asp Met Trp Glu Lys Asn Asp Gln Ser
                725                 730                 735

Cys Glu Ile Met Leu Asn His Leu Ala Thr Ala Arg Phe Met Ala Glu
            740                 745                 750

Ala Ala Asp Ser Tyr Arg Met Asn Ala Glu Arg Ile Leu Ala Gly Phe
        755                 760                 765

Gln Pro Asp Glu Glu Met Asn Glu Ile Cys Lys Thr Glu Phe Gln Met
    770                 775                 780

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

Tyr Glu Lys Phe Asn Gln Ile Leu Thr Ala Leu Ser Arg Lys Leu Glu
                805                 810                 815

Pro Pro Pro Val Lys Gln Ala Glu Leu
            820                 825
```

<210> 9604

<211> 825
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1953; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR3; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 3; "

<220>
<221> source
<223> /note="Uniprot ID: O75815; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359263"

<400> 9604
Met Ala Ala Gly Lys Phe Ala Ser Leu Pro Arg Asn Met Pro Val Asn
1   5   10   15

His Gln Phe Pro Leu Ala Ser Ser Met Asp Leu Leu Ser Ser Arg Ser
            20   25   30

Pro Leu Ala Glu His Arg Pro Asp Ala Tyr Gln Asp Val Ser Ile His
        35   40   45

Gly Thr Leu Pro Arg Lys Lys Lys Gly Pro Pro Pro Ile Arg Ser Cys
    50   55   60

Asp Asp Phe Ser His Met Gly Thr Leu Pro His Ser Lys Ser Pro Arg
65   70   75   80

Gln Asn Ser Pro Val Thr Gln Asp Gly Ile Gln Glu Ser Pro Trp Gln
                85   90   95

Asp Arg His Gly Glu Thr Phe Thr Phe Arg Asp Pro His Leu Leu Asp
            100   105   110

Pro Thr Val Glu Tyr Val Lys Phe Ser Lys Glu Arg His Ile Met Asp
        115   120   125

```
Arg Thr Pro Glu Lys Leu Lys Lys Glu Leu Glu Glu Glu Leu Leu Leu
    130                 135                 140

Ser Ser Glu Asp Leu Arg Ser His Ala Trp Tyr His Gly Arg Ile Pro
145                 150                 155                 160

Arg Gln Val Ser Glu Asn Leu Val Gln Arg Asp Gly Asp Phe Leu Val
                165                 170                 175

Arg Asp Ser Leu Ser Ser Pro Gly Asn Phe Val Leu Thr Cys Gln Trp
            180                 185                 190

Lys Asn Leu Ala Gln His Phe Lys Ile Asn Arg Thr Val Leu Arg Leu
        195                 200                 205

Ser Glu Ala Tyr Ser Arg Val Gln Tyr Gln Phe Glu Met Glu Ser Phe
    210                 215                 220

Asp Ser Ile Pro Gly Leu Val Arg Cys Tyr Val Gly Asn Arg Arg Pro
225                 230                 235                 240

Ile Ser Gln Gln Ser Gly Ala Ile Ile Phe Gln Pro Ile Asn Arg Thr
                245                 250                 255

Val Pro Leu Arg Cys Leu Glu Glu His Tyr Gly Thr Ser Pro Gly Gln
            260                 265                 270

Ala Arg Glu Gly Ser Leu Thr Lys Gly Arg Pro Asp Val Ala Lys Arg
        275                 280                 285

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

Arg Gly Asn Leu Leu Arg Asn Lys Glu Lys Ser Gly Ser Gln Pro Ala
305                 310                 315                 320

Cys Leu Asp His Met Gln Asp Arg Arg Ala Leu Ser Leu Lys Ala His
                325                 330                 335

Gln Ser Glu Ser Tyr Leu Pro Ile Gly Cys Lys Leu Pro Pro Gln Ser
            340                 345                 350
```

```
Ser Gly Val Asp Thr Ser Pro Cys Pro Asn Ser Pro Val Phe Arg Thr
        355                 360                 365

Gly Ser Glu Pro Ala Leu Ser Pro Ala Val Val Arg Arg Val Ser Ser
    370                 375                 380

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

Pro Lys Pro Pro Pro Lys Pro Cys Lys Val Pro Phe Leu Lys Val Pro
                405                 410                 415

Ser Ser Pro Ser Ala Trp Leu Asn Ser Glu Ala Asn Tyr Cys Glu Leu
            420                 425                 430

Asn Pro Ala Phe Ala Thr Gly Cys Gly Arg Gly Ala Lys Leu Pro Ser
        435                 440                 445

Cys Ala Gln Gly Ser His Thr Glu Leu Leu Thr Ala Lys Gln Asn Glu
    450                 455                 460

Ala Pro Gly Pro Arg Asn Ser Gly Val Asn Tyr Leu Ile Leu Asp Asp
465                 470                 475                 480

Asp Asp Arg Glu Arg Pro Trp Glu Pro Ala Ala Ala Gln Met Glu Lys
                485                 490                 495

Gly Gln Trp Asp Lys Gly Glu Phe Val Thr Pro Leu Leu Glu Thr Val
            500                 505                 510

Ser Ser Phe Arg Pro Asn Glu Phe Glu Ser Lys Phe Leu Pro Pro Glu
        515                 520                 525

Asn Lys Pro Leu Glu Thr Ala Met Leu Lys Arg Ala Lys Glu Leu Phe
    530                 535                 540

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

Cys Arg Val Ala Arg Ile Leu Gly Val Ser Glu Glu Met Arg Arg Asn
                565                 570                 575

Met Gly Val Ser Ser Gly Leu Glu Leu Ile Thr Leu Pro His Gly His
```

580 585 590

Gln Leu Arg Leu Asp Ile Ile Glu Arg His Asn Thr Met Ala Ile Gly
595 600 605

Ile Ala Val Asp Ile Leu Gly Cys Thr Gly Thr Leu Glu Asp Arg Ala
610 615 620

Ala Thr Leu Ser Lys Ile Ile Gln Val Ala Val Glu Leu Lys Asp Ser
625 630 635 640

Met Gly Asp Leu Tyr Ser Phe Ser Ala Leu Met Lys Ala Leu Glu Met
645 650 655

Pro Gln Ile Thr Arg Leu Glu Lys Thr Trp Thr Ala Leu Arg His Gln
660 665 670

Tyr Thr Gln Thr Ala Ile Leu Tyr Glu Lys Gln Leu Lys Pro Phe Ser
675 680 685

Lys Leu Leu His Glu Gly Arg Glu Ser Thr Cys Val Pro Pro Asn Asn
690 695 700

Val Ser Val Pro Leu Leu Met Pro Leu Val Thr Leu Met Glu Arg Gln
705 710 715 720

Ala Val Thr Phe Glu Gly Thr Asp Met Trp Glu Lys Asn Asp Gln Ser
725 730 735

Cys Glu Ile Met Leu Asn His Leu Ala Thr Ala Arg Phe Met Ala Glu
740 745 750

Ala Ala Asp Ser Tyr Arg Met Asn Ala Glu Arg Ile Leu Ala Gly Phe
755 760 765

Gln Pro Asp Glu Glu Met Asn Glu Ile Cys Lys Thr Glu Phe Gln Met
770 775 780

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

Tyr Glu Lys Phe Asn Gln Ile Leu Thr Ala Leu Ser Arg Lys Leu Glu
805 810 815

Pro Pro Pro Val Lys Gln Ala Glu Leu
820 825

<210> 9605
<211> 825
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1953; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR3; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 3; "

<220>
<221> source
<223> /note="Uniprot ID: O75815; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359264"

<400> 9605
Met Ala Ala Gly Lys Phe Ala Ser Leu Pro Arg Asn Met Pro Val Asn
1 5 10 15

His Gln Phe Pro Leu Ala Ser Ser Met Asp Leu Leu Ser Ser Arg Ser
20 25 30

Pro Leu Ala Glu His Arg Pro Asp Ala Tyr Gln Asp Val Ser Ile His
35 40 45

Gly Thr Leu Pro Arg Lys Lys Lys Gly Pro Pro Pro Ile Arg Ser Cys
50 55 60

Asp Asp Phe Ser His Met Gly Thr Leu Pro His Ser Lys Ser Pro Arg
65 70 75 80

Gln Asn Ser Pro Val Thr Gln Asp Gly Ile Gln Glu Ser Pro Trp Gln
85 90 95

```
Asp Arg His Gly Glu Thr Phe Thr Phe Arg Asp Pro His Leu Leu Asp
            100                 105                 110

Pro Thr Val Glu Tyr Val Lys Phe Ser Lys Glu Arg His Ile Met Asp
        115                 120                 125

Arg Thr Pro Glu Lys Leu Lys Lys Glu Leu Glu Glu Glu Leu Leu Leu
    130                 135                 140

Ser Ser Glu Asp Leu Arg Ser His Ala Trp Tyr His Gly Arg Ile Pro
145                 150                 155                 160

Arg Gln Val Ser Glu Asn Leu Val Gln Arg Asp Gly Asp Phe Leu Val
                165                 170                 175

Arg Asp Ser Leu Ser Ser Pro Gly Asn Phe Val Leu Thr Cys Gln Trp
            180                 185                 190

Lys Asn Leu Ala Gln His Phe Lys Ile Asn Arg Thr Val Leu Arg Leu
        195                 200                 205

Ser Glu Ala Tyr Ser Arg Val Gln Tyr Gln Phe Glu Met Glu Ser Phe
    210                 215                 220

Asp Ser Ile Pro Gly Leu Val Arg Cys Tyr Val Gly Asn Arg Arg Pro
225                 230                 235                 240

Ile Ser Gln Gln Ser Gly Ala Ile Ile Phe Gln Pro Ile Asn Arg Thr
                245                 250                 255

Val Pro Leu Arg Cys Leu Glu Glu His Tyr Gly Thr Ser Pro Gly Gln
            260                 265                 270

Ala Arg Glu Gly Ser Leu Thr Lys Gly Arg Pro Asp Val Ala Lys Arg
        275                 280                 285

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

Arg Gly Asn Leu Leu Arg Asn Lys Glu Lys Ser Gly Ser Gln Pro Ala
305                 310                 315                 320

Cys Leu Asp His Met Gln Asp Arg Arg Ala Leu Ser Leu Lys Ala His
```

```
                325                 330                 335

Gln Ser Glu Ser Tyr Leu Pro Ile Gly Cys Lys Leu Pro Pro Gln Ser
            340                 345                 350

Ser Gly Val Asp Thr Ser Pro Cys Pro Asn Ser Pro Val Phe Arg Thr
        355                 360                 365

Gly Ser Glu Pro Ala Leu Ser Pro Ala Val Val Arg Arg Val Ser Ser
    370                 375                 380

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

Pro Lys Pro Pro Pro Lys Pro Cys Lys Val Pro Phe Leu Lys Val Pro
                405                 410                 415

Ser Ser Pro Ser Ala Trp Leu Asn Ser Glu Ala Asn Tyr Cys Glu Leu
            420                 425                 430

Asn Pro Ala Phe Ala Thr Gly Cys Gly Arg Gly Ala Lys Leu Pro Ser
        435                 440                 445

Cys Ala Gln Gly Ser His Thr Glu Leu Leu Thr Ala Lys Gln Asn Glu
    450                 455                 460

Ala Pro Gly Pro Arg Asn Ser Gly Val Asn Tyr Leu Ile Leu Asp Asp
465                 470                 475                 480

Asp Asp Arg Glu Arg Pro Trp Glu Pro Ala Ala Ala Gln Met Glu Lys
                485                 490                 495

Gly Gln Trp Asp Lys Gly Glu Phe Val Thr Pro Leu Leu Glu Thr Val
            500                 505                 510

Ser Ser Phe Arg Pro Asn Glu Phe Glu Ser Lys Phe Leu Pro Pro Glu
        515                 520                 525

Asn Lys Pro Leu Glu Thr Ala Met Leu Lys Arg Ala Lys Glu Leu Phe
    530                 535                 540

Thr Asn Asn Asp Pro Lys Val Ile Ala Gln His Val Leu Ser Met Asp
545                 550                 555                 560
```

```
Cys Arg Val Ala Arg Ile Leu Gly Val Ser Glu Glu Met Arg Arg Asn
                565                 570                 575

Met Gly Val Ser Ser Gly Leu Glu Leu Ile Thr Leu Pro His Gly His
            580                 585                 590

Gln Leu Arg Leu Asp Ile Ile Glu Arg His Asn Thr Met Ala Ile Gly
        595                 600                 605

Ile Ala Val Asp Ile Leu Gly Cys Thr Gly Thr Leu Glu Asp Arg Ala
    610                 615                 620

Ala Thr Leu Ser Lys Ile Ile Gln Val Ala Val Glu Leu Lys Asp Ser
625                 630                 635                 640

Met Gly Asp Leu Tyr Ser Phe Ser Ala Leu Met Lys Ala Leu Glu Met
                645                 650                 655

Pro Gln Ile Thr Arg Leu Glu Lys Thr Trp Thr Ala Leu Arg His Gln
            660                 665                 670

Tyr Thr Gln Thr Ala Ile Leu Tyr Glu Lys Gln Leu Lys Pro Phe Ser
        675                 680                 685

Lys Leu Leu His Glu Gly Arg Glu Ser Thr Cys Val Pro Pro Asn Asn
    690                 695                 700

Val Ser Val Pro Leu Leu Met Pro Leu Val Thr Leu Met Glu Arg Gln
705                 710                 715                 720

Ala Val Thr Phe Glu Gly Thr Asp Met Trp Glu Lys Asn Asp Gln Ser
                725                 730                 735

Cys Glu Ile Met Leu Asn His Leu Ala Thr Ala Arg Phe Met Ala Glu
            740                 745                 750

Ala Ala Asp Ser Tyr Arg Met Asn Ala Glu Arg Ile Leu Ala Gly Phe
        755                 760                 765

Gln Pro Asp Glu Glu Met Asn Glu Ile Cys Lys Thr Glu Phe Gln Met
    770                 775                 780
```

```
Arg Leu Leu Trp Gly Ser Lys Gly Ala Gln Val Asn Gln Thr Glu Arg
785                 790                 795                 800


Tyr Glu Lys Phe Asn Gln Ile Leu Thr Ala Leu Ser Arg Lys Leu Glu
                805                 810                 815


Pro Pro Pro Val Lys Gln Ala Glu Leu
            820                 825


<210> 9606
<211> 734
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1953; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR3; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer anti-estrogen resistance 3; "

<220>
<221> source
<223> /note="Uniprot ID:  O75815; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359267"

<400> 9606
Met Pro Lys Glu Cys Ser Ala Phe His Ala Leu Ser Ala Ala Leu Cys
1               5                   10                  15


Cys Phe Tyr His Arg Lys Ser Phe Ile Gly Val Lys Phe Ser Lys Glu
            20                  25                  30


Arg His Ile Met Asp Arg Thr Pro Glu Lys Leu Lys Lys Glu Leu Glu
        35                  40                  45


Glu Glu Leu Leu Leu Ser Ser Glu Asp Leu Arg Ser His Ala Trp Tyr
    50                  55                  60


His Gly Arg Ile Pro Arg Gln Val Ser Glu Asn Leu Val Gln Arg Asp
```

65 70 75 80

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

Leu Thr Cys Gln Trp Lys Asn Leu Ala Gln His Phe Lys Ile Asn Arg
100 105 110

Thr Val Leu Arg Leu Ser Glu Ala Tyr Ser Arg Val Gln Tyr Gln Phe
115 120 125

Glu Met Glu Ser Phe Asp Ser Ile Pro Gly Leu Val Arg Cys Tyr Val
130 135 140

Gly Asn Arg Arg Pro Ile Ser Gln Gln Ser Gly Ala Ile Ile Phe Gln
145 150 155 160

Pro Ile Asn Arg Thr Val Pro Leu Arg Cys Leu Glu Glu His Tyr Gly
165 170 175

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

Asp Val Ala Lys Arg Leu Ser Leu Thr Met Gly Gly Val Gln Ala Arg
195 200 205

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

Gly Ser Gln Pro Ala Cys Leu Asp His Met Gln Asp Arg Arg Ala Leu
225 230 235 240

Ser Leu Lys Ala His Gln Ser Glu Ser Tyr Leu Pro Ile Gly Cys Lys
245 250 255

Leu Pro Pro Gln Ser Ser Gly Val Asp Thr Ser Pro Cys Pro Asn Ser
260 265 270

Pro Val Phe Arg Thr Gly Ser Glu Pro Ala Leu Ser Pro Ala Val Val
275 280 285

Arg Arg Val Ser Ser Asp Ala Arg Ala Gly Glu Ala Leu Arg Gly Ser
290 295 300

Asp Ser Gln Leu Cys Pro Lys Pro Pro Pro Lys Pro Cys Lys Val Pro
305 310 315 320

Phe Leu Lys Val Pro Ser Ser Pro Ser Ala Trp Leu Asn Ser Glu Ala
325 330 335

Asn Tyr Cys Glu Leu Asn Pro Ala Phe Ala Thr Gly Cys Gly Arg Gly
340 345 350

Ala Lys Leu Pro Ser Cys Ala Gln Gly Ser His Thr Glu Leu Leu Thr
355 360 365

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

Leu Ile Leu Asp Asp Asp Asp Arg Glu Arg Pro Trp Glu Pro Ala Ala
385 390 395 400

Ala Gln Met Glu Lys Gly Gln Trp Asp Lys Gly Glu Phe Val Thr Pro
405 410 415

Leu Leu Glu Thr Val Ser Ser Phe Arg Pro Asn Glu Phe Glu Ser Lys
420 425 430

Phe Leu Pro Pro Glu Asn Lys Pro Leu Glu Thr Ala Met Leu Lys Arg
435 440 445

Ala Lys Glu Leu Phe Thr Asn Asn Asp Pro Lys Val Ile Ala Gln His
450 455 460

Val Leu Ser Met Asp Cys Arg Val Ala Arg Ile Leu Gly Val Ser Glu
465 470 475 480

Glu Met Arg Arg Asn Met Gly Val Ser Ser Gly Leu Glu Leu Ile Thr
485 490 495

Leu Pro His Gly His Gln Leu Arg Leu Asp Ile Ile Glu Arg His Asn
500 505 510

Thr Met Ala Ile Gly Ile Ala Val Asp Ile Leu Gly Cys Thr Gly Thr
515 520 525

```
Leu Glu Asp Arg Ala Ala Thr Leu Ser Lys Ile Ile Gln Val Ala Val
    530                 535                 540

Glu Leu Lys Asp Ser Met Gly Asp Leu Tyr Ser Phe Ser Ala Leu Met
545                 550                 555                 560

Lys Ala Leu Glu Met Pro Gln Ile Thr Arg Leu Glu Lys Thr Trp Thr
                565                 570                 575

Ala Leu Arg His Gln Tyr Thr Gln Thr Ala Ile Leu Tyr Glu Lys Gln
            580                 585                 590

Leu Lys Pro Phe Ser Lys Leu Leu His Glu Gly Arg Glu Ser Thr Cys
        595                 600                 605

Val Pro Pro Asn Asn Val Ser Val Pro Leu Leu Met Pro Leu Val Thr
    610                 615                 620

Leu Met Glu Arg Gln Ala Val Thr Phe Glu Gly Thr Asp Met Trp Glu
625                 630                 635                 640

Lys Asn Asp Gln Ser Cys Glu Ile Met Leu Asn His Leu Ala Thr Ala
                645                 650                 655

Arg Phe Met Ala Glu Ala Ala Asp Ser Tyr Arg Met Asn Ala Glu Arg
            660                 665                 670

Ile Leu Ala Gly Phe Gln Pro Asp Glu Glu Met Asn Glu Ile Cys Lys
        675                 680                 685

Thr Glu Phe Gln Met Arg Leu Leu Trp Gly Ser Lys Gly Ala Gln Val
    690                 695                 700

Asn Gln Thr Glu Arg Tyr Glu Lys Phe Asn Gln Ile Leu Thr Ala Leu
705                 710                 715                 720

Ser Arg Lys Leu Glu Pro Pro Pro Val Lys Gln Ala Glu Leu
                725                 730
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<210> 9607
<211> 501
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1953; "

<220>
<221> source
<223> /note="Gene Symbol: BCAR3; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer anti-estrogen resistance 3; "

<220>
<221> source
<223> /note="Uniprot ID: O75815; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441343"

<400> 9607
Met Gln Asp Arg Arg Ala Leu Ser Leu Lys Ala His Gln Ser Glu Ser
1   5   10   15

Tyr Leu Pro Ile Gly Cys Lys Leu Pro Pro Gln Ser Ser Gly Val Asp
            20   25   30

Thr Ser Pro Cys Pro Asn Ser Pro Val Phe Arg Thr Gly Ser Glu Pro
        35   40   45

Ala Leu Ser Pro Ala Val Val Arg Arg Val Ser Ser Asp Ala Arg Ala
    50   55   60

Gly Glu Ala Leu Arg Gly Ser Asp Ser Gln Leu Cys Pro Lys Pro Pro
65   70   75   80

Pro Lys Pro Cys Lys Val Pro Phe Leu Lys Val Pro Ser Ser Pro Ser
                85   90   95

Ala Trp Leu Asn Ser Glu Ala Asn Tyr Cys Glu Leu Asn Pro Ala Phe
            100   105   110

Ala Thr Gly Cys Gly Arg Gly Ala Lys Leu Pro Ser Cys Ala Gln Gly
        115   120   125

Ser His Thr Glu Leu Leu Thr Ala Lys Gln Asn Glu Ala Pro Gly Pro
    130   135   140

```
Arg Asn Ser Gly Val Asn Tyr Leu Ile Leu Asp Asp Asp Asp Arg Glu
145                 150                 155                 160

Arg Pro Trp Glu Pro Ala Ala Ala Gln Met Glu Lys Gly Gln Trp Asp
                165                 170                 175

Lys Gly Glu Phe Val Thr Pro Leu Leu Glu Thr Val Ser Ser Phe Arg
            180                 185                 190

Pro Asn Glu Phe Glu Ser Lys Phe Leu Pro Pro Glu Asn Lys Pro Leu
        195                 200                 205

Glu Thr Ala Met Leu Lys Arg Ala Lys Glu Leu Phe Thr Asn Asn Asp
    210                 215                 220

Pro Lys Val Ile Ala Gln His Val Leu Ser Met Asp Cys Arg Val Ala
225                 230                 235                 240

Arg Ile Leu Gly Val Ser Glu Glu Met Arg Arg Asn Met Gly Val Ser
                245                 250                 255

Ser Gly Leu Glu Leu Ile Thr Leu Pro His Gly His Gln Leu Arg Leu
            260                 265                 270

Asp Ile Ile Glu Arg His Asn Thr Met Ala Ile Gly Ile Ala Val Asp
        275                 280                 285

Ile Leu Gly Cys Thr Gly Thr Leu Glu Asp Arg Ala Ala Thr Leu Ser
    290                 295                 300

Lys Ile Ile Gln Val Ala Val Glu Leu Lys Asp Ser Met Gly Asp Leu
305                 310                 315                 320

Tyr Ser Phe Ser Ala Leu Met Lys Ala Leu Glu Met Pro Gln Ile Thr
                325                 330                 335

Arg Leu Glu Lys Thr Trp Thr Ala Leu Arg His Gln Tyr Thr Gln Thr
            340                 345                 350

Ala Ile Leu Tyr Glu Lys Gln Leu Lys Pro Phe Ser Lys Leu Leu His
        355                 360                 365
```

```
Glu Gly Arg Glu Ser Thr Cys Val Pro Pro Asn Asn Val Ser Val Pro
    370                 375                 380

Leu Leu Met Pro Leu Val Thr Leu Met Glu Arg Gln Ala Val Thr Phe
385                 390                 395                 400

Glu Gly Thr Asp Met Trp Glu Lys Asn Asp Gln Ser Cys Glu Ile Met
                405                 410                 415

Leu Asn His Leu Ala Thr Ala Arg Phe Met Ala Glu Ala Ala Asp Ser
            420                 425                 430

Tyr Arg Met Asn Ala Glu Arg Ile Leu Ala Gly Phe Gln Pro Asp Glu
        435                 440                 445

Glu Met Asn Glu Ile Cys Lys Thr Glu Phe Gln Met Arg Leu Leu Trp
    450                 455                 460

Gly Ser Lys Gly Ala Gln Val Asn Gln Thr Glu Arg Tyr Glu Lys Phe
465                 470                 475                 480

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

Lys Gln Ala Glu Leu
            500


<210> 9608
<211> 246
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1954; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer metastasis suppressor 1; "

<220>
<221> source
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<223> /note="Uniprot ID: Q9HCU9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000353042"

<400> 9608

```
Met Pro Val Gln Pro Pro Ser Lys Asp Thr Glu Glu Met Glu Ala Glu
1               5                  10                  15

Gly Asp Ser Ala Ala Glu Met Asn Gly Glu Glu Glu Glu Ser Glu Glu
            20                  25                  30

Glu Arg Ser Gly Ser Gln Thr Glu Ser Glu Glu Glu Ser Ser Glu Met
        35                  40                  45

Asp Asp Glu Asp Tyr Glu Arg Arg Arg Ser Glu Cys Val Ser Glu Met
    50                  55                  60

Leu Asp Leu Glu Lys Gln Phe Ser Glu Leu Lys Glu Lys Leu Phe Arg
65                  70                  75                  80

Glu Arg Leu Ser Gln Leu Arg Leu Arg Leu Glu Glu Val Gly Ala Glu
                85                  90                  95

Arg Ala Pro Glu Tyr Thr Glu Pro Leu Gly Gly Leu Gln Arg Ser Leu
            100                 105                 110

Lys Ile Arg Ile Gln Val Ala Gly Ile Tyr Lys Gly Phe Cys Leu Asp
        115                 120                 125

Val Ile Arg Asn Lys Tyr Glu Cys Glu Leu Gln Gly Ala Lys Gln His
    130                 135                 140

Leu Glu Ser Glu Lys Leu Leu Leu Tyr Asp Thr Leu Gln Gly Glu Leu
145                 150                 155                 160

Gln Glu Arg Ile Gln Arg Leu Glu Glu Asp Arg Gln Ser Leu Asp Leu
                165                 170                 175

Ser Ser Glu Trp Trp Asp Asp Lys Leu His Ala Arg Gly Ser Ser Arg
            180                 185                 190

Ser Trp Asp Ser Leu Pro Pro Ser Lys Arg Lys Lys Ala Pro Leu Val
        195                 200                 205
```

```
Ser Gly Pro Tyr Ile Val Tyr Met Leu Gln Glu Ile Asp Ile Leu Glu
    210                 215                 220

Asp Trp Thr Ala Ile Lys Lys Ala Arg Ala Ala Val Ser Pro Gln Lys
225                 230                 235                 240

Arg Lys Ser Asp Gly Pro
                245

<210> 9609
<211> 290
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1954; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer metastasis suppressor 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396052"

<400> 9609
Met Pro Val Gln Pro Pro Ser Lys Asp Thr Glu Glu Met Glu Ala Glu
1               5                   10                  15

Gly Asp Ser Ala Ala Glu Met Asn Gly Glu Glu Glu Glu Ser Glu Glu
            20                  25                  30

Glu Arg Ser Gly Ser Gln Thr Glu Ser Glu Glu Glu Ser Ser Glu Met
        35                  40                  45

Asp Asp Glu Asp Tyr Glu Arg Arg Arg Ser Glu Cys Val Ser Glu Met
    50                  55                  60

Leu Asp Leu Glu Lys Gln Phe Ser Glu Leu Lys Glu Lys Leu Phe Arg
65                  70                  75                  80
```

Glu Arg Leu Ser Gln Leu Arg Leu Arg Leu Glu Glu Val Gly Ala Glu
85 90 95

Arg Ala Pro Glu Tyr Thr Glu Pro Leu Gly Gly Leu Gln Arg Ser Leu
100 105 110

Lys Ile Arg Ile Gln Val Ala Gly Ile Tyr Lys Gly Phe Cys Leu Asp
115 120 125

Val Ile Arg Asn Lys Tyr Glu Cys Glu Leu Gln Gly Ala Lys Gln His
130 135 140

Leu Glu Ser Glu Lys Leu Leu Leu Tyr Asp Thr Leu Gln Gly Glu Leu
145 150 155 160

Gln Glu Arg Ile Gln Arg Leu Glu Glu Asp Arg Gln Ser Leu Asp Leu
165 170 175

Ser Ser Glu Trp Trp Asp Asp Lys Leu His Ala Arg Gly Ser Ser Arg
180 185 190

Ser Trp Asp Ser Leu Pro Pro Ser Lys Arg Lys Lys Ala Pro Leu Val
195 200 205

Ser Gly Pro Tyr Ile Val Tyr Met Leu Gln Glu Ile Asp Ile Leu Glu
210 215 220

Asp Trp Thr Ala Ile Lys Lys Ala Arg Ala Ala Val Ser Pro Gln Lys
225 230 235 240

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

Ala Arg Leu Leu Trp Cys Cys Trp Ala Leu Pro Leu His Leu Ala Leu
260 265 270

Ala Trp Thr Pro Pro Leu Pro Ser Ser Arg Pro Ala Gln Leu Trp Pro
275 280 285

Trp Ser
290

<210> 9610

<211> 267
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1954; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer metastasis suppressor 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431510"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9610
Xaa Thr Glu Ser Glu Glu Glu Ser Ser Glu Met Asp Asp Glu Asp Tyr
1 5 10 15

Glu Arg Arg Arg Ser Glu Cys Val Ser Glu Met Leu Asp Leu Glu Lys
20 25 30

Gln Phe Ser Glu Leu Lys Glu Lys Leu Phe Arg Glu Arg Leu Ser Gln
35 40 45

Leu Arg Leu Arg Leu Glu Glu Val Gly Ala Glu Arg Ala Pro Glu Tyr
50 55 60

Thr Glu Pro Leu Gly Gly Leu Gln Arg Ser Leu Lys Ile Arg Ile Gln
65 70 75 80

Val Ala Gly Ile Tyr Lys Gly Phe Cys Leu Asp Val Ile Arg Asn Lys
85 90 95

Tyr Glu Cys Glu Leu Gln Gly Ala Lys Gln His Leu Glu Ser Glu Lys
100 105 110

Leu Leu Leu Tyr Asp Thr Leu Gln Gly Glu Leu Gln Glu Arg Ile Gln

```
        115                 120                 125

Arg Leu Glu Glu Asp Arg Gln Ser Leu Asp Leu Ser Ser Glu Trp Trp
    130                 135                 140

Asp Asp Lys Leu His Ala Arg Gly Ser Ser Arg Ser Trp Asp Ser Leu
145                 150                 155                 160

Pro Pro Ser Lys Arg Lys Lys Ala Pro Leu Val Ser Gly Pro Tyr Ile
                165                 170                 175

Val Tyr Met Leu Gln Glu Ile Asp Ile Leu Glu Asp Trp Thr Ala Ile
            180                 185                 190

Lys Lys Asp Leu Asp Pro Ala Val His Ser Gln Gly Asp Pro Gln Ser
        195                 200                 205

Ser Trp His Cys Thr Gln Asp Ser Arg Leu Pro Pro Ala Asp Arg Arg
    210                 215                 220

Thr His Arg Pro Leu Arg Val Cys Pro Ala Arg Leu Leu Trp Cys Cys
225                 230                 235                 240

Trp Ala Leu Pro Leu His Leu Ala Leu Ala Trp Thr Pro Pro Leu Pro
                245                 250                 255

Ser Ser Arg Pro Ala Gln Leu Trp Pro Trp Ser
            260                 265


<210> 9611
<211> 244
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1954; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer metastasis suppressor 1; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000433740"

<400> 9611
Met Pro Val Gln Pro Pro Ser Lys Asp Thr Glu Glu Met Glu Ala Glu
1   5   10   15

Gly Asp Ser Ala Ala Glu Met Asn Gly Glu Glu Glu Glu Ser Glu Glu
            20   25   30

Glu Arg Ser Gly Ser Gln Thr Glu Ser Glu Glu Glu Ser Ser Glu Met
        35   40   45

Asp Asp Glu Asp Tyr Glu Arg Arg Arg Ser Glu Cys Val Ser Glu Met
    50   55   60

Leu Asp Leu Glu Lys Gln Phe Ser Glu Leu Lys Glu Lys Leu Phe Arg
65   70   75   80

Glu Arg Leu Ser Gln Leu Arg Leu Arg Leu Glu Glu Val Gly Ala Glu
                85   90   95

Arg Ala Pro Glu Tyr Thr Glu Pro Leu Gly Gly Leu Gln Arg Ser Leu
            100   105   110

Lys Ile Arg Ile Gln Val Ala Gly Ile Tyr Lys Gly Phe Cys Leu Asp
        115   120   125

Val Ile Arg Asn Lys Tyr Glu Cys Glu Leu Gln Gly Ala Lys Gln His
    130   135   140

Leu Glu Ser Glu Lys Leu Leu Leu Tyr Asp Thr Leu Gln Gly Glu Leu
145   150   155   160

Gln Glu Arg Ile Gln Arg Leu Glu Glu Asp Arg Gln Ser Leu Asp Leu
                165   170   175

Ser Ser Glu Trp Trp Asp Asp Lys Leu His Ala Arg Gly Ser Ser Arg
            180   185   190

Ser Trp Asp Ser Leu Pro Pro Ser Lys Arg Lys Lys Ala Pro Leu Val
        195   200   205

```
Ser Gly Pro Tyr Ile Val Tyr Met Leu Gln Glu Ile Asp Ile Leu Glu
    210                 215                 220

Asp Trp Thr Ala Ile Lys Lys Ala Arg Ala Ala Val Ser Pro Gln Lys
225                 230                 235                 240

Arg Lys Ser Asp
```

<210> 9612
<211> 126
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1954; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer metastasis suppressor 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434591"

<400> 9612

```
Met Pro Val Gln Pro Pro Ser Lys Asp Thr Glu Glu Met Glu Ala Glu
1               5                   10                  15

Gly Asp Ser Ala Ala Glu Met Asn Gly Glu Glu Glu Glu Ser Glu Glu
            20                  25                  30

Glu Arg Ser Gly Ser Gln Thr Glu Ser Glu Glu Glu Ser Ser Glu Met
        35                  40                  45

Asp Asp Glu Asp Tyr Glu Arg Arg Arg Ser Glu Cys Val Ser Glu Met
    50                  55                  60

Leu Asp Leu Glu Lys Gln Phe Ser Glu Leu Lys Glu Lys Leu Phe Arg
65                  70                  75                  80

Glu Arg Leu Ser Gln Leu Arg Leu Arg Leu Glu Glu Val Gly Ala Glu
                85                  90                  95
```

```
Arg Ala Pro Glu Tyr Thr Glu Pro Leu Gly Gly Leu Gln Arg Ser Leu
            100                 105                 110

Lys Ile Arg Ile Gln Gly Ser Thr Arg Ala Ser Val Trp Met
        115                 120                 125


<210> 9613
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1955; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1L; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer metastasis-suppressor
      1-like; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5PSV4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000216807"

<400> 9613
Met Pro Val His Ser Arg Gly Asp Lys Lys Glu Thr Asn His His Asp
1               5                   10                  15

Glu Met Glu Val Asp Tyr Ala Glu Asn Glu Gly Ser Ser Ser Glu Asp
            20                  25                  30

Glu Asp Thr Glu Ser Ser Ser Val Ser Glu Asp Gly Asp Ser Ser Glu
        35                  40                  45

Met Asp Asp Glu Asp Cys Glu Arg Arg Arg Met Glu Cys Leu Asp Glu
    50                  55                  60

Met Ser Asn Leu Glu Lys Gln Phe Thr Asp Leu Lys Asp Gln Leu Tyr
65                  70                  75                  80
```

```
Lys Glu Arg Leu Ser Gln Val Asp Ala Lys Leu Gln Glu Val Ile Ala
                85                  90                  95

Gly Lys Ala Pro Glu Tyr Leu Glu Pro Leu Ala Thr Leu Gln Glu Asn
            100                 105                 110

Met Gln Ile Arg Thr Lys Val Ala Gly Ile Tyr Arg Glu Leu Cys Leu
        115                 120                 125

Glu Ser Val Lys Asn Lys Tyr Glu Cys Glu Ile Gln Ala Ser Arg Gln
    130                 135                 140

His Cys Glu Ser Glu Lys Leu Leu Leu Tyr Asp Thr Val Gln Ser Glu
145                 150                 155                 160

Leu Glu Glu Lys Ile Arg Arg Leu Glu Glu Asp Arg His Ser Ile Asp
                165                 170                 175

Ile Thr Ser Glu Leu Trp Asn Asp Glu Leu Gln Ser Arg Lys Lys Arg
            180                 185                 190

Lys Asp Pro Phe Ser Pro Asp Lys Lys Lys Pro Val Val Val Ser Gly
        195                 200                 205

Pro Tyr Ile Val Tyr Met Leu Gln Asp Leu Asp Ile Leu Glu Asp Trp
    210                 215                 220

Thr Thr Ile Arg Lys Ala Met Ala Thr Leu Gly Pro His Arg Val Lys
225                 230                 235                 240

Thr Glu Pro Pro Val Lys Leu Glu Lys His Leu His Ser Ala Arg Ser
                245                 250                 255

Glu Glu Gly Arg Leu Tyr Tyr Asp Gly Glu Trp Tyr Ile Arg Gly Gln
            260                 265                 270

Thr Ile Cys Ile Asp Lys Lys Asp Glu Cys Pro Thr Ser Ala Val Ile
        275                 280                 285

Thr Thr Ile Asn His Asp Glu Val Trp Phe Lys Arg Pro Asp Gly Ser
    290                 295                 300
```

```
Lys Ser Lys Leu Tyr Ile Ser Gln Leu Gln Lys Gly Lys Tyr Ser Ile
305                 310                 315                 320


Lys His Ser



<210> 9614
<211> 215
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1955; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1L; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer metastasis-suppressor
      1-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446826"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9614
Xaa Val Asp Ala Lys Leu Gln Glu Val Ile Ala Gly Lys Ala Pro Glu
1               5                   10                  15


Tyr Leu Glu Pro Leu Ala Thr Leu Gln Glu Asn Met Gln Ile Arg Thr
            20                  25                  30


Lys Val Ala Gly Ile Tyr Arg Glu Leu Cys Leu Glu Ser Val Lys Asn
        35                  40                  45


Lys Tyr Glu Cys Glu Ile Gln Ala Ser Arg Gln His Cys Glu Ser Glu
    50                  55                  60


Lys Leu Leu Leu Tyr Asp Thr Val Gln Ser Glu Leu Glu Glu Lys Ile
65                  70                  75                  80
```

```
Arg Arg Leu Glu Glu Asp Arg His Ser Ile Asp Ile Thr Ser Glu Leu
                85                  90                  95

Trp Asn Asp Glu Leu Gln Ser Arg Lys Lys Arg Lys Asp Pro Phe Ser
            100                 105                 110

Pro Asp Lys Lys Lys Pro Val Val Val Ser Gly Pro Tyr Ile Val Tyr
        115                 120                 125

Met Leu Gln Asp Leu Asp Ile Leu Glu Asp Trp Thr Thr Ile Arg Lys
    130                 135                 140

Ala Met Ala Thr Leu Gly Pro His Arg Val Lys Thr Glu Pro Pro Val
145                 150                 155                 160

Lys Leu Glu Lys His Leu His Ser Ala Arg Ser Glu Glu Gly Arg Leu
                165                 170                 175

Tyr Tyr Asp Gly Glu Trp Tyr Ile Arg Gly Gln Thr Ile Cys Ile Asp
            180                 185                 190

Lys Lys Asp Glu Cys Pro Thr Arg Ser Tyr Asn Ala Ala Tyr Val Tyr
        195                 200                 205

Pro Ile Gly Val Ile Met Lys
    210                 215


<210> 9615
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1955; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1L; "

<220>
<221> source
<223> /note="Gene Name:
      breast cancer metastasis-suppressor
      1-like; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000447022"

<400> 9615
Met Pro Val His Ser Arg Gly Asp Lys Lys Glu Thr Asn His His Asp
1   5   10   15

Glu Met Glu Val Asp Tyr Ala Glu Asn Glu Gly Ser Ser Ser Glu Asp
            20   25   30

Glu Asp Thr Glu Ser Ser Ser Val Ser Glu Asp Gly Asp Ser Ser Val
        35   40   45

<210> 9616
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1955; "

<220>
<221> source
<223> /note="Gene Symbol: BRMS1L; "

<220>
<221> source
<223> /note="Gene Name:
breast cancer metastasis-suppressor
1-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448615"

<400> 9616
Met Pro Val His Ser Arg Gly Asp Lys Lys Glu Thr Asn His His Asp
1   5   10   15

Glu Met Glu Val Asp Tyr Ala Glu Asn Glu Gly Ser Ser Ser Glu Asp
            20   25   30

Glu Asp Thr Glu Ser Ser Ser Val Ser Glu Asp Gly Asp Ser Ser Val
        35   40   45

<210> 9617
<211> 506
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1956; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS1; "

<220>
<221> source
<223> /note="Gene Name:
breast carcinoma amplified sequence 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360490"

<400> 9617

```
Met Gly Asn Gln Met Ser Val Pro Gln Arg Val Glu Asp Gln Glu Asn
1               5                  10                  15

Glu Pro Glu Ala Glu Thr Tyr Gln Asp Asn Ala Ser Ala Leu Asn Gly
            20                  25                  30

Val Pro Val Val Val Ser Thr His Thr Val Gln His Leu Glu Glu Val
        35                  40                  45

Asp Leu Gly Ile Ser Val Lys Thr Asp Asn Val Ala Thr Ser Ser Pro
    50                  55                  60

Glu Thr Thr Glu Ile Ser Ala Val Ala Asp Ala Asn Gly Lys Asn Leu
65                  70                  75                  80

Gly Lys Glu Ala Lys Pro Glu Ala Pro Ala Ala Lys Ser Arg Phe Phe
                85                  90                  95

Leu Met Leu Ser Arg Pro Val Pro Gly Arg Thr Gly Asp Gln Ala Ala
            100                 105                 110

Asp Ser Ser Leu Gly Ser Val Lys Leu Asp Val Ser Ser Asn Lys Ala
        115                 120                 125

Pro Ala Asn Lys Asp Pro Ser Glu Ser Trp Thr Leu Pro Val Ala Ala
    130                 135                 140

Gly Pro Gly Gln Asp Thr Asp Lys Thr Pro Gly His Ala Pro Ala Gln
145                 150                 155                 160
```

```
Asp Lys Val Leu Ser Ala Ala Arg Asp Pro Thr Leu Leu Pro Pro Glu
                165                 170                 175

Thr Gly Gly Ala Gly Gly Glu Ala Pro Ser Lys Pro Lys Asp Ser Ser
            180                 185                 190

Phe Phe Asp Lys Phe Phe Lys Leu Asp Lys Gly Gln Glu Lys Val Pro
        195                 200                 205

Gly Asp Ser Gln Gln Glu Ala Lys Arg Ala Glu His Gln Asp Lys Val
    210                 215                 220

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

Lys Asp Ile Val Asp Gly Lys Glu Lys Glu Gly Gln Glu Leu Gly Thr
                245                 250                 255

Ala Asp Cys Ser Val Pro Gly Asp Pro Glu Gly Leu Glu Thr Ala Lys
            260                 265                 270

Asp Asp Ser Gln Ala Ala Ala Ile Ala Glu Asn Asn Asn Ser Ile Met
        275                 280                 285

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

Asp Pro Glu Asp Thr Gly Ala Glu Lys Ser Pro Thr Thr Ser Ala Asp
305                 310                 315                 320

Leu Lys Ser Asp Lys Ala Asn Phe Thr Ser Gln Glu Thr Gln Gly Ala
                325                 330                 335

Gly Lys Asn Ser Lys Gly Cys Asn Pro Ser Gly His Thr Gln Ser Val
            340                 345                 350

Thr Thr Pro Glu Pro Ala Lys Glu Gly Thr Lys Glu Lys Ser Gly Pro
        355                 360                 365

Thr Ser Leu Pro Leu Gly Lys Leu Phe Trp Lys Lys Ser Val Lys Glu
    370                 375                 380
```

```
Asp Ser Val Pro Thr Gly Ala Glu Glu Asn Thr Ser Asp Ser Thr Glu
385                 390                 395                 400

Lys Thr Ile Thr Pro Pro Glu Pro Glu Pro Thr Gly Ala Pro Gln Lys
                405                 410                 415

Gly Lys Glu Gly Ser Ser Lys Asp Lys Lys Ser Ala Ala Glu Met Asn
            420                 425                 430

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

Glu Gln Ala Thr Val Asp Thr Asn Ser Leu Gln Asn Gly Asp Lys Leu
    450                 455                 460

Gln Lys Arg Pro Glu Lys Arg Gln Gln Ser Leu Gly Gly Phe Phe Lys
465                 470                 475                 480

Gly Leu Gly Pro Lys Arg Met Leu Asp Ala Gln Val Gln Thr Asp Pro
                485                 490                 495

Val Ser Ile Gly Pro Val Gly Lys Ser Lys
            500                 505


<210> 9618
<211> 384
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1956; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS1; "

<220>
<221> source
<223> /note="Gene Name:
      breast carcinoma amplified sequence 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360495"

<400> 9618
Met Ser Ala Pro Ile Lys Leu Gln Arg Thr Lys Thr Gln Val Arg Ala
1               5                   10                  15
```

```
Gly His Phe Arg Trp Gln Leu Asp Arg Gly Arg Thr Gln Ile Lys Pro
            20                  25                  30

Gln Gly Thr Pro Arg Pro Lys Thr Arg Ser Ser Leu Pro Pro Gly Ile
        35                  40                  45

Pro Arg Phe Ser His Leu Arg Gln Gly Glu Gln Glu Glu Lys Leu Pro
    50                  55                  60

Pro Ser Pro Arg Thr Pro Ala Phe Asp Lys Phe Phe Lys Leu Asp Lys
65                  70                  75                  80

Gly Gln Glu Lys Val Pro Gly Asp Ser Gln Gln Glu Ala Lys Arg Ala
                85                  90                  95

Glu His Gln Asp Lys Val Asp Glu Val Pro Gly Leu Ser Gly Gln Ser
            100                 105                 110

Asp Asp Val Pro Ala Gly Lys Asp Ile Val Asp Gly Lys Glu Lys Glu
        115                 120                 125

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

Gly Leu Glu Thr Ala Lys Asp Asp Ser Gln Ala Ala Ala Ile Ala Glu
145                 150                 155                 160

Asn Asn Asn Ser Ile Met Ser Phe Phe Lys Thr Leu Val Ser Pro Asn
                165                 170                 175

Lys Ala Glu Thr Lys Lys Asp Pro Glu Asp Thr Gly Ala Glu Lys Ser
            180                 185                 190

Pro Thr Thr Ser Ala Asp Leu Lys Ser Asp Lys Ala Asn Phe Thr Ser
        195                 200                 205

Gln Glu Thr Gln Gly Ala Gly Lys Asn Ser Lys Gly Cys Asn Pro Ser
    210                 215                 220

Gly His Thr Gln Ser Val Thr Thr Pro Glu Pro Ala Lys Glu Gly Thr
225                 230                 235                 240
```

```
Lys Glu Lys Ser Gly Pro Thr Ser Leu Pro Leu Gly Lys Leu Phe Trp
                245                 250                 255

Lys Lys Ser Val Lys Glu Asp Ser Val Pro Thr Gly Ala Glu Glu Asn
            260                 265                 270

Thr Ser Asp Ser Thr Glu Lys Thr Ile Thr Pro Pro Glu Pro Glu Pro
        275                 280                 285

Thr Gly Ala Pro Gln Lys Gly Lys Glu Gly Ser Ser Lys Asp Lys Lys
    290                 295                 300

Ser Ala Ala Glu Met Asn Lys Gln Lys Ser Asn Lys Gln Glu Ala Lys
305                 310                 315                 320

Glu Pro Ala Gln Cys Thr Glu Gln Ala Thr Val Asp Thr Asn Ser Leu
                325                 330                 335

Gln Asn Gly Asp Lys Leu Gln Lys Arg Pro Glu Lys Arg Gln Gln Ser
            340                 345                 350

Leu Gly Gly Phe Phe Lys Gly Leu Gly Pro Lys Arg Met Leu Asp Ala
        355                 360                 365

Gln Val Gln Thr Asp Pro Val Ser Ile Gly Pro Val Gly Lys Ser Lys
    370                 375                 380


<210> 9619
<211> 584
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1956; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS1; "

<220>
<221> source
<223> /note="Gene Name:
      breast carcinoma amplified sequence 1; "

<220>
<221> source
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<223> /note="Uniprot ID: O75363; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379290"

<400> 9619

```
Met Gly Asn Gln Met Ser Val Pro Gln Arg Val Glu Asp Gln Glu Asn
1               5                  10                  15

Glu Pro Glu Ala Glu Thr Tyr Gln Asp Asn Ala Ser Ala Leu Asn Gly
            20                  25                  30

Val Pro Val Val Val Ser Thr His Thr Val Gln His Leu Glu Glu Val
        35                  40                  45

Asp Leu Gly Ile Ser Val Lys Thr Asp Asn Val Ala Thr Ser Ser Pro
    50                  55                  60

Glu Thr Thr Glu Ile Ser Ala Val Ala Asp Ala Asn Gly Lys Asn Leu
65                  70                  75                  80

Gly Lys Glu Ala Lys Pro Glu Ala Pro Ala Ala Lys Ser Arg Phe Phe
                85                  90                  95

Leu Met Leu Ser Arg Pro Val Pro Gly Arg Thr Gly Asp Gln Ala Ala
            100                 105                 110

Asp Ser Ser Leu Gly Ser Val Lys Leu Asp Val Ser Ser Asn Lys Ala
        115                 120                 125

Pro Ala Asn Lys Asp Pro Ser Glu Ser Trp Thr Leu Pro Val Ala Ala
    130                 135                 140

Gly Pro Gly Gln Asp Thr Asp Lys Thr Pro Gly His Ala Pro Ala Gln
145                 150                 155                 160

Asp Lys Val Leu Ser Ala Ala Arg Asp Pro Thr Leu Leu Pro Pro Glu
                165                 170                 175

Thr Gly Gly Ala Gly Gly Glu Ala Pro Ser Lys Pro Lys Asp Ser Ser
            180                 185                 190

Phe Phe Asp Lys Phe Phe Lys Leu Asp Lys Gly Gln Glu Lys Val Pro
        195                 200                 205
```

```
Gly Asp Ser Gln Gln Glu Ala Lys Arg Ala Glu His Gln Asp Lys Val
    210                 215                 220

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

Lys Asp Ile Val Asp Gly Lys Glu Lys Glu Gly Gln Glu Leu Gly Thr
                245                 250                 255

Ala Asp Cys Ser Val Pro Gly Asp Pro Glu Gly Leu Glu Thr Ala Lys
            260                 265                 270

Asp Asp Ser Gln Ala Ala Ala Ile Ala Glu Asn Asn Asn Ser Ile Met
        275                 280                 285

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

Asp Pro Glu Asp Thr Gly Ala Glu Lys Ser Pro Thr Thr Ser Ala Asp
305                 310                 315                 320

Leu Lys Ser Asp Lys Ala Asn Phe Thr Ser Gln Glu Thr Gln Gly Ala
                325                 330                 335

Gly Lys Asn Ser Lys Gly Cys Asn Pro Ser Gly His Thr Gln Ser Val
            340                 345                 350

Thr Thr Pro Glu Pro Ala Lys Glu Gly Thr Lys Glu Lys Ser Gly Pro
        355                 360                 365

Thr Ser Leu Pro Leu Gly Lys Leu Phe Trp Lys Lys Ser Val Lys Glu
    370                 375                 380

Asp Ser Val Pro Thr Gly Ala Glu Glu Asn Val Val Cys Glu Ser Pro
385                 390                 395                 400

Val Glu Ile Ile Lys Ser Lys Glu Val Glu Ser Ala Leu Gln Thr Val
                405                 410                 415

Asp Leu Asn Glu Gly Asp Ala Ala Pro Glu Pro Thr Glu Ala Lys Leu
            420                 425                 430
```

```
Lys Arg Glu Glu Ser Lys Pro Arg Thr Ser Leu Met Ala Phe Leu Arg
        435                 440                 445

Gln Met Ser Val Lys Gly Asp Gly Gly Ile Thr His Ser Glu Glu Ile
    450                 455                 460

Asn Gly Lys Asp Ser Ser Cys Gln Thr Ser Asp Ser Thr Glu Lys Thr
465                 470                 475                 480

Ile Thr Pro Pro Glu Pro Glu Pro Thr Gly Ala Pro Gln Lys Gly Lys
                485                 490                 495

Glu Gly Ser Ser Lys Asp Lys Lys Ser Ala Ala Glu Met Asn Lys Gln
            500                 505                 510

Lys Ser Asn Lys Gln Glu Ala Lys Glu Pro Ala Gln Cys Thr Glu Gln
        515                 520                 525

Ala Thr Val Asp Thr Asn Ser Leu Gln Asn Gly Asp Lys Leu Gln Lys
    530                 535                 540

Arg Pro Glu Lys Arg Gln Gln Ser Leu Gly Gly Phe Phe Lys Gly Leu
545                 550                 555                 560

Gly Pro Lys Arg Met Leu Asp Ala Gln Val Gln Thr Asp Pro Val Ser
                565                 570                 575

Ile Gly Pro Val Gly Lys Ser Lys
            580


<210> 9620
<211> 476
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1956; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS1; "

<220>
<221> source
<223> /note="Gene Name:
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breast carcinoma amplified sequence 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396361"

<400> 9620

```
Thr Leu Pro Val Ala Ala Gly Pro Gly Gln Asp Thr Asp Lys Thr Pro
1               5                  10                  15

Gly His Ala Pro Ala Gln Asp Lys Val Leu Ser Ala Ala Arg Asp Pro
            20                  25                  30

Thr Leu Leu Pro Pro Glu Thr Gly Gly Ala Gly Gly Glu Ala Pro Ser
        35                  40                  45

Lys Pro Lys Asp Ser Ser Phe Phe Asp Lys Phe Phe Lys Leu Asp Lys
    50                  55                  60

Gly Gln Glu Lys Val Pro Gly Asp Ser Gln Gln Glu Ala Lys Arg Ala
65                  70                  75                  80

Glu His Gln Asp Lys Val Asp Glu Val Pro Gly Leu Ser Gly Gln Ser
                85                  90                  95

Asp Asp Val Pro Ala Gly Lys Asp Ile Val Asp Gly Lys Glu Lys Glu
            100                 105                 110

Gly Gln Glu Leu Gly Thr Ala Asp Cys Ser Val Pro Gly Asp Pro Glu
        115                 120                 125

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

Asn Asn Asn Ser Ile Met Ser Phe Phe Lys Thr Leu Val Ser Pro Asn
145                 150                 155                 160

Lys Ala Glu Thr Lys Lys Asp Pro Glu Asp Thr Ala Ser Lys Ala Glu
                165                 170                 175

Ser Val Cys Asp Gly Gln Ala Gly Gln Lys Thr Ser Glu Ile Gln Ala
            180                 185                 190

Arg Gly Thr Lys Lys Lys His Leu Asp Ser Pro Arg Leu Gly Leu Ala
        195                 200                 205
```

```
Phe Arg Lys Phe Phe Arg His Lys Gly Ala Glu Lys Ser Pro Thr Thr
    210                 215                 220

Ser Ala Asp Leu Lys Ser Asp Lys Ala Asn Phe Thr Ser Gln Glu Thr
225                 230                 235                 240

Gln Gly Ala Gly Lys Asn Ser Lys Gly Cys Asn Pro Ser Gly His Thr
                245                 250                 255

Gln Ser Val Thr Thr Pro Glu Pro Ala Lys Glu Gly Thr Lys Glu Lys
            260                 265                 270

Ser Gly Pro Thr Ser Leu Pro Leu Gly Lys Leu Phe Trp Lys Lys Val
        275                 280                 285

Val Cys Glu Ser Pro Val Glu Ile Ile Lys Ser Lys Glu Val Glu Ser
    290                 295                 300

Ala Leu Gln Thr Val Asp Leu Asn Glu Gly Asp Ala Ala Pro Glu Pro
305                 310                 315                 320

Thr Glu Ala Lys Leu Lys Arg Glu Glu Ser Lys Pro Arg Thr Ser Leu
                325                 330                 335

Met Ala Phe Leu Arg Gln Met Thr Ser Asp Ser Thr Glu Lys Thr Ile
            340                 345                 350

Thr Pro Pro Glu Pro Glu Pro Thr Gly Ala Pro Gln Lys Gly Lys Glu
        355                 360                 365

Gly Ser Ser Lys Asp Lys Lys Ser Ala Ala Glu Met Asn Lys Gln Lys
    370                 375                 380

Ser Asn Lys Gln Glu Ala Lys Glu Pro Ala Gln Cys Thr Glu Gln Ala
385                 390                 395                 400

Thr Val Asp Thr Asn Ser Leu Gln Asn Gly Asp Lys Leu Gln Lys Arg
                405                 410                 415

Pro Glu Lys Arg Gln Gln Ser Leu Gly Gly Phe Phe Lys Gly Leu Gly
            420                 425                 430
```

Pro Lys Arg Met Leu Asp Ala Gln Val Gln Thr Asp Pro Val Ser Ile
435 440 445

Gly Pro Val Gly Lys Ser Lys Tyr Thr Gly Lys Cys Val Phe Ser His
450 455 460

Val Lys Lys Lys Trp Pro Phe Gln Glu Trp Ser Tyr
465 470 475

<210> 9621
<211> 247
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1956; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS1; "

<220>
<221> source
<223> /note="Gene Name:
breast carcinoma amplified sequence 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399936"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9621
Xaa Asn Asn Asn Ser Ile Met Ser Phe Phe Lys Thr Leu Val Ser Pro
1 5 10 15

Asn Lys Ala Glu Thr Lys Lys Asp Pro Glu Asp Thr Gly Ala Glu Lys
20 25 30

Ser Pro Thr Thr Ser Ala Asp Leu Lys Ser Asp Lys Ala Asn Phe Thr
35 40 45

Ser Gln Glu Thr Gln Gly Ala Gly Lys Asn Ser Lys Gly Cys Asn Pro
50 55 60

```
Ser Gly His Thr Gln Ser Val Thr Thr Pro Glu Pro Ala Lys Glu Gly
65                  70                  75                  80

Thr Lys Glu Lys Ser Gly Pro Thr Ser Leu Pro Leu Gly Lys Leu Phe
                85                  90                  95

Trp Lys Lys Ser Val Lys Glu Asp Ser Val Pro Thr Gly Ala Glu Glu
            100                 105                 110

Asn Ser Val Lys Gly Asp Gly Gly Ile Thr His Ser Glu Glu Ile Asn
        115                 120                 125

Gly Lys Asp Ser Ser Cys Gln Thr Ser Asp Ser Thr Glu Lys Thr Ile
    130                 135                 140

Thr Pro Pro Glu Pro Glu Pro Thr Gly Ala Pro Gln Lys Gly Lys Glu
145                 150                 155                 160

Gly Ser Ser Lys Asp Lys Lys Ser Ala Ala Glu Met Asn Lys Gln Lys
                165                 170                 175

Ser Asn Lys Gln Glu Ala Lys Glu Pro Ala Gln Cys Thr Glu Gln Ala
            180                 185                 190

Thr Val Asp Thr Asn Ser Leu Gln Asn Gly Asp Lys Leu Gln Lys Arg
        195                 200                 205

Pro Glu Lys Arg Gln Gln Ser Leu Gly Gly Phe Phe Lys Gly Leu Gly
    210                 215                 220

Pro Lys Arg Met Leu Asp Ala Gln Val Gln Thr Asp Pro Val Ser Ile
225                 230                 235                 240

Gly Pro Val Gly Lys Ser Lys
                245


<210> 9622
<211> 225
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1957; "
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<220>
<221> source
<223> /note="Gene Symbol: BCAS2; "

<220>
<221> source
<223> /note="Gene Name:
breast carcinoma amplified sequence 2; "

<220>
<221> source
<223> /note="Uniprot ID: O75934; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358554"

<400> 9622
Met Ala Gly Thr Gly Leu Val Ala Gly Glu Val Val Val Asp Ala Leu
1   5   10   15

Pro Tyr Phe Asp Gln Gly Tyr Glu Ala Pro Gly Val Arg Glu Ala Ala
            20   25   30

Ala Ala Leu Val Glu Glu Glu Thr Arg Arg Tyr Arg Pro Thr Lys Asn
        35   40   45

Tyr Leu Ser Tyr Leu Thr Ala Pro Asp Tyr Ser Ala Phe Glu Thr Asp
    50   55   60

Ile Met Arg Asn Glu Phe Glu Arg Leu Ala Ala Arg Gln Pro Ile Glu
65   70   75   80

Leu Leu Ser Met Lys Arg Tyr Glu Leu Pro Ala Pro Ser Ser Gly Gln
                85   90   95

Lys Asn Asp Ile Thr Ala Trp Gln Glu Cys Val Asn Asn Ser Met Ala
            100   105   110

Gln Leu Glu His Gln Ala Val Arg Ile Glu Asn Leu Glu Leu Met Ser
        115   120   125

Gln His Gly Cys Asn Ala Trp Lys Val Tyr Asn Glu Asn Leu Val His
    130   135   140

Met Ile Glu His Ala Gln Lys Glu Leu Gln Lys Leu Arg Lys His Ile
145   150   155   160

```
Gln Asp Leu Asn Trp Gln Arg Lys Asn Met Gln Leu Thr Ala Gly Ser
                165                 170                 175

Lys Leu Arg Glu Met Glu Ser Asn Trp Val Ser Leu Val Ser Lys Asn
            180                 185                 190

Tyr Glu Ile Glu Arg Thr Ile Val Gln Leu Glu Asn Glu Ile Tyr Gln
        195                 200                 205

Ile Lys Gln Gln His Gly Glu Ala Asn Lys Glu Asn Ile Arg Gln Asp
    210                 215                 220

Phe
225
```

<210> 9623
<211> 928
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1958; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS3; "

<220>
<221> source
<223> /note="Gene Name:
breast carcinoma amplified sequence 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H6U6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375067"

<400> 9623

```
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1               5                   10                  15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
            20                  25                  30
```

```
Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Ala Tyr
        35                  40                  45

Ser Gly Thr Pro Leu Thr Glu Glu Lys Glu Lys Ile Val Trp Val Arg
    50                  55                  60

Phe Glu Asn Ala Asp Leu Asn Asp Thr Ser Arg Asn Leu Glu Phe His
65                  70                  75                  80

Glu Ile His Ser Thr Gly Asn Glu Pro Pro Leu Leu Ile Met Ile Gly
                85                  90                  95

Tyr Ser Asp Gly Met Gln Val Trp Ser Ile Pro Ile Ser Gly Glu Ala
            100                 105                 110

Gln Glu Leu Phe Ser Val Arg His Gly Pro Ile Arg Ala Ala Arg Ile
        115                 120                 125

Leu Pro Ala Pro Gln Phe Gly Ala Gln Lys Cys Asp Asn Phe Ala Glu
    130                 135                 140

Lys Arg Pro Leu Leu Gly Val Cys Lys Ser Ile Gly Ser Ser Gly Thr
145                 150                 155                 160

Ser Pro Pro Tyr Cys Cys Val Asp Leu Tyr Ser Leu Arg Thr Gly Glu
                165                 170                 175

Met Val Lys Ser Ile Gln Phe Lys Thr Pro Ile Tyr Asp Leu His Cys
            180                 185                 190

Asn Lys Arg Ile Leu Val Val Val Leu Gln Glu Lys Ile Ala Ala Phe
        195                 200                 205

Asp Ser Cys Thr Phe Thr Lys Lys Phe Phe Val Thr Ser Cys Tyr Pro
    210                 215                 220

Cys Pro Gly Pro Asn Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu
225                 230                 235                 240

Ala Tyr Ala Glu Asn Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly
                245                 250                 255

Ala Cys Gly Asp Asn Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala
```

```
            260                 265                 270

Ala Lys Thr Leu Lys Ser Gly Leu Thr Met Val Gly Lys Val Val Thr
        275                 280                 285

Gln Leu Thr Gly Thr Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala
    290                 295                 300

Ile His Ser Asn Ser Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr
305                 310                 315                 320

Val Ile Asp Thr Glu Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu
                325                 330                 335

Asp Ser Asp Ser Asp Gly Ile Val Ala His Phe Pro Ala His Glu Lys
            340                 345                 350

Pro Val Cys Cys Met Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr
        355                 360                 365

Thr Asp Thr Leu Gly His Asp Phe His Val Phe Gln Ile Leu Thr His
    370                 375                 380

Pro Trp Ser Ser Ser Gln Cys Ala Val His His Leu Tyr Thr Leu His
385                 390                 395                 400

Arg Gly Glu Thr Glu Ala Lys Val Gln Asp Ile Cys Phe Ser His Asp
                405                 410                 415

Cys Arg Trp Val Val Val Ser Thr Leu Arg Gly Thr Ser His Val Phe
            420                 425                 430

Pro Ile Asn Pro Tyr Gly Gly Gln Pro Cys Val Arg Thr His Met Ser
        435                 440                 445

Pro Arg Val Val Asn Arg Met Ser Arg Phe Gln Lys Ser Ala Gly Leu
    450                 455                 460

Glu Glu Ile Glu Gln Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys Ser
465                 470                 475                 480

Pro Val Pro Gly Leu Ser Ser Ser Pro Ser Gly Ser Pro Leu His Gly
                485                 490                 495
```

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

Gly Asn Pro Arg Leu Ser Pro Leu Pro Ser Leu Met Val Val Met Pro
515 520 525

Leu Ala Gln Ile Lys Gln Pro Met Thr Leu Gly Thr Ile Thr Lys Arg
530 535 540

Thr Gly Pro Tyr Leu Phe Gly Ala Gly Cys Phe Ser Ile Lys Ala Pro
545 550 555 560

Cys Lys Val Lys Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser Met Gly
565 570 575

Gly Glu Phe Cys Val Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp Phe
580 585 590

Ala Asn Asn Ala Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln Val
595 600 605

Val Val Glu Ser Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val Glu
610 615 620

His Met Met Glu Pro Arg Pro Leu Ser Thr Ala Pro Lys Ile Ser Asp
625 630 635 640

Asp Thr Pro Leu Glu Met Met Thr Ser Pro Arg Ala Ser Trp Thr Leu
645 650 655

Val Arg Thr Pro Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala Asn
660 665 670

His Pro Leu Leu Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe Leu
675 680 685

Leu Ala Gly Leu Val Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg His
690 695 700

Gly Ser Tyr Asp Ser Leu Ala Ser Asp His Ser Gly Gln Glu Asp Glu
705 710 715 720

```
Glu Trp Leu Ser Gln Val Glu Ile Val Thr His Thr Gly Pro His Arg
                725                 730                 735

Arg Leu Trp Met Gly Pro Gln Phe Gln Phe Lys Thr Ile His Pro Ser
            740                 745                 750

Gly Gln Thr Thr Val Ile Ser Ser Ser Ser Ser Val Leu Gln Ser His
        755                 760                 765

Gly Pro Ser Asp Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp Asp
    770                 775                 780

Leu Asp Leu Asn Ser Leu Arg Ile Gln Pro Val Arg Ser Asp Pro Val
785                 790                 795                 800

Ser Met Pro Gly Ser Ser Arg Pro Val Ser Asp Arg Arg Gly Val Ser
                805                 810                 815

Thr Val Ile Asp Ala Ala Ser Gly Thr Phe Asp Arg Ser Val Thr Leu
            820                 825                 830

Leu Glu Val Cys Gly Ser Trp Pro Glu Gly Phe Gly Leu Arg His Met
        835                 840                 845

Ser Ser Met Glu His Thr Glu Glu Gly Leu Arg Glu Arg Leu Ala Asp
    850                 855                 860

Ala Met Ala Glu Ser Pro Ser Arg Asp Val Val Gly Ser Gly Thr Glu
865                 870                 875                 880

Leu Gln Arg Glu Gly Ser Ile Glu Thr Leu Ser Asn Ser Ser Gly Ser
                885                 890                 895

Thr Ser Gly Ser Ile Pro Arg Asn Phe Asp Gly Tyr Arg Ser Pro Leu
            900                 905                 910

Pro Thr Asn Glu Ser Gln Pro Leu Ser Leu Phe Pro Thr Gly Phe Pro
        915                 920                 925
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<210> 9624
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<213> Homo sapiens

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<223> /note="Payload ID: 1958; "

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<220>
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<223> /note="Uniprot ID: Q9H6U6; "

<220>
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Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1   5   10   15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
            20   25   30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Ala Tyr
        35   40   45

Ser Gly Thr Pro Leu Thr Glu Glu Lys Glu Lys Ile Val Trp Val Arg
    50   55   60

Phe Glu Asn Ala Asp Leu Asn Asp Thr Ser Arg Asn Leu Glu Phe His
65   70   75   80

Glu Ile His Ser Thr Gly Asn Glu Pro Pro Leu Leu Ile Met Ile Gly
                85   90   95

Tyr Ser Asp Gly Met Gln Val Trp Ser Ile Pro Ile Ser Gly Glu Ala
            100   105   110

Gln Glu Leu Phe Ser Val Arg His Gly Pro Ile Arg Ala Ala Arg Ile
        115   120   125

Leu Pro Ala Pro Gln Phe Gly Ala Gln Lys Cys Asp Asn Phe Ala Glu
    130   135   140

```
Lys Arg Pro Leu Leu Gly Val Cys Lys Ser Ile Gly Ser Ser Gly Thr
145                 150                 155                 160

Ser Pro Pro Tyr Cys Cys Val Asp Leu Tyr Ser Leu Arg Thr Gly Glu
                165                 170                 175

Met Val Lys Ser Ile Gln Phe Lys Thr Pro Ile Tyr Asp Leu His Cys
            180                 185                 190

Asn Lys Arg Ile Leu Val Val Val Leu Gln Glu Lys Ile Ala Ala Phe
        195                 200                 205

Asp Ser Cys Thr Phe Thr Lys Lys Phe Phe Val Thr Ser Cys Tyr Pro
    210                 215                 220

Cys Pro Gly Pro Asn Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu
225                 230                 235                 240

Ala Tyr Ala Glu Asn Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly
                245                 250                 255

Ala Cys Gly Asp Asn Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala
            260                 265                 270

Ala Lys Thr Leu Lys Ser Gly Leu Thr Met Val Gly Lys Val Val Thr
        275                 280                 285

Gln Leu Thr Gly Thr Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala
    290                 295                 300

Ile His Ser Asn Ser Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr
305                 310                 315                 320

Val Ile Asp Thr Glu Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu
                325                 330                 335

Asp Ser Asp Ser Asp Gly Ile Val Ala His Phe Pro Ala His Glu Lys
            340                 345                 350

Pro Val Cys Cys Met Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr
        355                 360                 365
```

```
Thr Asp Thr Leu Gly His Asp Phe His Val Phe Gln Ile Leu Thr His
    370                 375                 380

Pro Trp Ser Ser Ser Gln Cys Ala Val His His Leu Tyr Thr Leu His
385                 390                 395                 400

Arg Gly Glu Thr Glu Ala Lys Val Gln Asp Ile Cys Phe Ser His Asp
                405                 410                 415

Cys Arg Trp Val Val Val Ser Thr Leu Arg Gly Thr Ser His Val Phe
            420                 425                 430

Pro Ile Asn Pro Tyr Gly Gly Gln Pro Cys Val Arg Thr His Met Ser
        435                 440                 445

Pro Arg Val Val Asn Arg Met Ser Arg Phe Gln Lys Ser Ala Gly Leu
    450                 455                 460

Glu Glu Ile Glu Gln Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys Ser
465                 470                 475                 480

Pro Val Pro Gly Leu Ser Ser Ser Pro Ser Gly Ser Pro Leu His Gly
                485                 490                 495

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

Gly Asn Pro Arg Leu Ser Pro Leu Pro Ser Leu Met Val Val Met Pro
        515                 520                 525

Leu Ala Gln Ile Lys Gln Pro Met Thr Leu Gly Thr Ile Thr Lys Arg
    530                 535                 540

Thr Gly Lys Val Lys Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser Met
545                 550                 555                 560

Gly Gly Glu Phe Cys Val Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp
                565                 570                 575

Phe Ala Asn Asn Ala Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln
            580                 585                 590
```

```
Val Val Val Glu Ser Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val
        595                 600                 605

Glu His Met Met Glu Pro Arg Pro Leu Ser Thr Ala Pro Lys Ile Ser
    610                 615                 620

Asp Asp Thr Pro Leu Glu Met Met Thr Ser Pro Arg Ala Ser Trp Thr
625                 630                 635                 640

Leu Val Arg Thr Pro Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala
                645                 650                 655

Asn His Pro Leu Leu Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe
            660                 665                 670

Leu Leu Ala Gly Leu Val Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg
        675                 680                 685

His Gly Ser Tyr Asp Ser Leu Ala Ser Asp His Ser Gly Gln Glu Asp
    690                 695                 700

Glu Glu Trp Leu Ser Gln Val Glu Ile Val Thr His Thr Gly Pro His
705                 710                 715                 720

Arg Arg Leu Trp Met Gly Pro Gln Phe Gln Phe Lys Thr Ile His Pro
                725                 730                 735

Ser Gly Gln Thr Thr Val Ile Ser Ser Ser Ser Ser Val Leu Gln Ser
            740                 745                 750

His Gly Pro Ser Asp Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp
        755                 760                 765

Asp Leu Asp Leu Asn Ser Leu Arg Ile Gln Pro Val Arg Ser Asp Pro
    770                 775                 780

Val Ser Met Pro Gly Ser Ser Arg Pro Val Ser Asp Arg Arg Gly Val
785                 790                 795                 800

Ser Thr Val Ile Asp Ala Ala Ser Gly Thr Phe Asp Arg Ser Val Thr
                805                 810                 815

Leu Leu Glu Val Cys Gly Ser Trp Pro Glu Gly Phe Gly Leu Arg His
```

820 825 830

Met Ser Ser Met Glu His Thr Glu Glu Gly Leu Arg Glu Arg Leu Ala
835 840 845

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

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

Ser Thr Ser Gly Ser Ile Pro Arg Asn Phe Asp Gly Tyr Arg Ser Pro
885 890 895

Leu Pro Thr Asn Glu Ser Gln Pro Leu Ser Leu Phe Pro Thr Gly Phe
900 905 910

Pro

<210> 9625
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<212> PRT
<213> Homo sapiens

<220>
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breast carcinoma amplified sequence 3; "

<220>
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<223> /note="Uniprot ID: Q9H6U6; "

<220>
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Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1 5 10 15

```
Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
            20                  25                  30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Ala Tyr
        35                  40                  45

Ser Gly Thr Pro Leu Thr Glu Glu Lys Glu Lys Ile Val Trp Val Arg
    50                  55                  60

Phe Glu Asn Ala Asp Leu Asn Asp Thr Ser Arg Asn Leu Glu Phe His
65                  70                  75                  80

Glu Ile His Ser Thr Gly Asn Glu Pro Pro Leu Leu Ile Met Ile Gly
                85                  90                  95

Tyr Ser Asp Gly Met Gln Val Trp Ser Ile Pro Ile Ser Gly Glu Ala
            100                 105                 110

Gln Glu Leu Phe Ser Val Arg His Gly Pro Ile Arg Ala Ala Arg Ile
        115                 120                 125

Leu Pro Ala Pro Gln Phe Gly Ala Gln Lys Cys Asp Asn Phe Ala Glu
    130                 135                 140

Lys Arg Pro Leu Leu Gly Val Cys Lys Ser Ile Gly Ser Ser Gly Thr
145                 150                 155                 160

Ser Pro Pro Tyr Cys Cys Val Asp Leu Tyr Ser Leu Arg Thr Gly Glu
                165                 170                 175

Met Val Lys Ser Ile Gln Phe Lys Thr Pro Ile Tyr Asp Leu His Cys
            180                 185                 190

Asn Lys Arg Ile Leu Val Val Val Leu Gln Glu Lys Ile Ala Ala Phe
        195                 200                 205

Asp Ser Cys Thr Phe Thr Lys Lys Phe Phe Val Thr Ser Cys Tyr Pro
    210                 215                 220

Cys Pro Gly Pro Asn Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu
225                 230                 235                 240
```

```
Ala Tyr Ala Glu Asn Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly
                245                 250                 255

Ala Cys Gly Asp Asn Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala
            260                 265                 270

Ala Lys Thr Leu Lys Ser Gly Leu Thr Met Val Gly Lys Val Val Thr
        275                 280                 285

Gln Leu Thr Gly Thr Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala
    290                 295                 300

Ile His Ser Asn Ser Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr
305                 310                 315                 320

Val Ile Asp Thr Glu Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu
                325                 330                 335

Asp Ser Asp Ser Asp Gly Ile Val Ala His Phe Pro Ala His Glu Lys
            340                 345                 350

Pro Val Cys Cys Met Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr
        355                 360                 365

Thr Asp Thr Leu Gly His Asp Phe His Val Phe Gln Ile Leu Thr His
    370                 375                 380

Pro Trp Ser Ser Ser Gln Cys Ala Val His His Leu Tyr Thr Leu His
385                 390                 395                 400

Arg Gly Glu Thr Glu Ala Lys Val Gln Asp Ile Cys Phe Ser His Asp
                405                 410                 415

Cys Arg Trp Val Val Val Ser Thr Leu Arg Gly Thr Ser His Val Phe
            420                 425                 430

Pro Ile Asn Pro Tyr Gly Gly Gln Pro Cys Val Arg Thr His Met Ser
        435                 440                 445

Pro Arg Val Val Asn Arg Met Ser Arg Phe Gln Lys Ser Ala Gly Leu
    450                 455                 460

Glu Glu Ile Glu Gln Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys Ser
```

```
465                 470                 475                 480

Pro Val Pro Gly Leu Ser Ser Ser Pro Ser Gly Ser Pro Leu His Gly
                485                 490                 495

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

Gly Asn Pro Arg Leu Ser Pro Leu Pro Ser Leu Met Val Val Met Pro
        515                 520                 525

Leu Ala Gln Ile Lys Gln Pro Met Thr Leu Gly Thr Ile Thr Lys Arg
    530                 535                 540

Thr Gly Lys Val Lys Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser Met
545                 550                 555                 560

Gly Gly Glu Phe Cys Val Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp
                565                 570                 575

Phe Ala Asn Asn Ala Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln
            580                 585                 590

Val Val Val Glu Ser Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val
        595                 600                 605

Glu His Met Met Glu Pro Arg Pro Leu Ser Thr Ala Pro Lys Ile Ser
    610                 615                 620

Asp Asp Thr Pro Leu Glu Met Met Thr Ser Pro Arg Ala Ser Trp Thr
625                 630                 635                 640

Leu Val Arg Thr Pro Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala
                645                 650                 655

Asn His Pro Leu Leu Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe
            660                 665                 670

Leu Leu Ala Gly Leu Val Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg
        675                 680                 685

His Gly Ser Tyr Asp Ser Leu Ala Ser Asp His Ser Gly Gln Glu Asp
    690                 695                 700
```

```
Glu Glu Trp Leu Ser Gln Val Glu Ile Val Thr His Thr Gly Pro His
705                 710                 715                 720

Arg Arg Leu Trp Met Gly Pro Gln Phe Gln Phe Lys Thr Ile His Pro
                725                 730                 735

Ser Gly Gln Thr Thr Val Ile Ser Ser Ser Ser Ser Val Leu Gln Ser
            740                 745                 750

His Gly Pro Ser Asp Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp
        755                 760                 765

Asp Leu Asp Leu Asn Ser Leu Arg Ile Gln Pro Val Arg Ser Asp Pro
    770                 775                 780

Val Ser Met Pro Gly Ser Ser Arg Pro Val Ser Asp Arg Arg Gly Val
785                 790                 795                 800

Ser Thr Val Ile Asp Ala Ala Ser Gly Thr Phe Asp Arg Ser Val Thr
                805                 810                 815

Leu Leu Glu Val Cys Gly Ser Trp Pro Glu Gly Phe Gly Leu Arg His
            820                 825                 830

Met Ser Ser Met Glu His Thr Glu Glu Gly Leu Arg Glu Arg Leu Ala
        835                 840                 845

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

Asp Thr Ala Leu Asp Val Ala Val Lys Thr Phe Pro Pro Glu Arg His
865                 870                 875                 880

Val Ala Val Lys Cys Phe Glu Leu Gln Arg Glu Gly Ser Ile Glu Thr
                885                 890                 895

Leu Ser Asn Ser Ser Gly Ser Thr Ser Gly Ser Ile Pro Arg Asn Phe
            900                 905                 910

Asp Gly Tyr Arg Ser Pro Leu Pro Thr Asn Glu Ser Gln Pro Leu Ser
        915                 920                 925
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Leu Phe Pro Thr Gly Phe Pro
    930                 935


<210> 9626
<211> 183
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<220>
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<223> /note="Gene Name:
      breast carcinoma amplified sequence 3; "

<220>
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<223> /note="ENSP ID: ENSP00000464711"

<400> 9626
Ser Ser Val Leu Gln Ser His Gly Pro Ser Asp Thr Pro Gln Pro Leu
1               5                   10                  15


Leu Asp Phe Asp Thr Asp Asp Leu Asp Leu Asn Ser Leu Arg Ile Gln
            20                  25                  30


Pro Val Arg Ser Asp Pro Val Ser Met Pro Gly Ser Ser Arg Pro Val
        35                  40                  45


Ser Asp Arg Arg Gly Val Ser Thr Val Ile Asp Ala Ala Ser Val Asp
    50                  55                  60


Ser Ser Thr Ala Leu Glu Trp Gly Thr Ser Arg Pro Ser His Ser Arg
65                  70                  75                  80


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


Lys Pro Gln Gly Leu Met Glu Thr Ile His Ser His Ser Arg Met Ser
            100                 105                 110


Gln His Cys Met Gln Pro Ala Met Ala Thr Gly Arg Arg Val Arg His
```

```
        115                 120                 125

Gly Pro Trp Ser Cys Arg Leu Thr Cys Pro Arg Leu Ser Gln Asp Arg
    130                 135                 140

Ala Gln Asp Leu Thr Glu Glu Ala Ser Gln Gln Gly Thr Phe Asp Arg
145                 150                 155                 160

Ser Val Thr Leu Leu Glu Val Cys Gly Ser Trp Pro Glu Gly Phe Gly
                165                 170                 175

Leu Arg His Met Ser Ser Met
            180


<210> 9627
<211> 684
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<213> Homo sapiens

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<223> /note="Uniprot ID:  Q9H6U6; "

<220>
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<400> 9627
Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu Ala Tyr Ala Glu Asn
1               5                   10                  15

Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly Ala Cys Gly Asp Asn
            20                  25                  30

Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala Ala Lys Thr Leu Lys
        35                  40                  45
```

```
Ser Gly Leu Thr Met Val Gly Lys Val Val Thr Gln Leu Thr Gly Thr
    50                  55                  60

Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala Ile His Ser Asn Ser
65                  70                  75                  80

Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr Val Ile Asp Thr Glu
                85                  90                  95

Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu Asp Ser Asp Ser Asp
            100                 105                 110

Gly Ile Val Ala His Phe Pro Ala His Glu Lys Pro Val Cys Cys Met
        115                 120                 125

Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr Thr Asp Thr Leu Gly
    130                 135                 140

His Asp Phe His Val Phe Gln Ile Leu Thr His Pro Trp Ser Ser Ser
145                 150                 155                 160

Gln Cys Ala Val His His Leu Tyr Thr Leu His Arg Gly Glu Thr Glu
                165                 170                 175

Ala Lys Val Gln Asp Ile Cys Phe Ser His Asp Cys Arg Trp Val Val
            180                 185                 190

Val Ser Thr Leu Arg Gly Thr Ser His Val Phe Pro Ile Asn Pro Tyr
        195                 200                 205

Gly Gly Gln Pro Cys Val Arg Thr His Met Ser Pro Arg Val Val Asn
    210                 215                 220

Arg Met Ser Arg Phe Gln Lys Ser Ala Gly Leu Glu Glu Ile Glu Gln
225                 230                 235                 240

Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys Ser Pro Val Pro Gly Leu
                245                 250                 255

Ser Ser Ser Pro Ser Gly Ser Pro Leu His Gly Lys Leu Asn Ser Gln
            260                 265                 270
```

```
Asp Ser Tyr Asn Asn Phe Thr Asn Asn Asn Pro Gly Asn Pro Arg Leu
        275                 280                 285

Ser Pro Leu Pro Ser Leu Met Val Val Met Pro Leu Ala Gln Ile Lys
    290                 295                 300

Gln Pro Met Thr Leu Gly Thr Ile Thr Lys Arg Thr Gly Lys Val Lys
305                 310                 315                 320

Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser Met Gly Gly Glu Phe Cys
                325                 330                 335

Val Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp Phe Ala Asn Asn Ala
            340                 345                 350

Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln Val Val Val Glu Ser
        355                 360                 365

Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val Glu His Met Met Glu
    370                 375                 380

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

Glu Met Met Thr Ser Pro Arg Ala Ser Trp Thr Leu Val Arg Thr Pro
                405                 410                 415

Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala Asn His Pro Leu Leu
            420                 425                 430

Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe Leu Leu Ala Gly Leu
        435                 440                 445

Val Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg His Gly Ser Tyr Asp
    450                 455                 460

Ser Leu Ala Ser Asp His Ser Gly Gln Glu Asp Glu Glu Trp Leu Ser
465                 470                 475                 480

Gln Val Glu Ile Val Thr His Thr Gly Pro His Arg Arg Leu Trp Met
                485                 490                 495

Gly Pro Gln Phe Gln Phe Lys Thr Ile His Pro Ser Gly Gln Thr Thr
```

```
            500                 505                 510

Val Ile Ser Ser Ser Ser Ser Val Leu Gln Ser His Gly Pro Ser Asp
        515                 520                 525

Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp Asp Leu Asp Leu Asn
    530                 535                 540

Ser Leu Arg Ile Gln Pro Val Arg Ser Asp Pro Val Ser Met Pro Gly
545                 550                 555                 560

Ser Ser Arg Pro Val Ser Asp Arg Arg Gly Val Ser Thr Val Ile Asp
                565                 570                 575

Ala Ala Ser Gly Thr Phe Asp Arg Ser Val Thr Leu Leu Glu Val Cys
            580                 585                 590

Gly Ser Trp Pro Glu Gly Phe Gly Leu Arg His Met Ser Ser Met Glu
        595                 600                 605

His Thr Glu Glu Gly Leu Arg Glu Arg Leu Ala Asp Ala Met Ala Glu
    610                 615                 620

Ser Pro Ser Arg Asp Val Val Gly Ser Gly Thr Glu Leu Gln Arg Glu
625                 630                 635                 640

Gly Ser Ile Glu Thr Leu Ser Asn Ser Ser Gly Ser Thr Ser Gly Ser
                645                 650                 655

Ile Pro Arg Asn Phe Asp Gly Tyr Arg Ser Pro Leu Pro Thr Asn Glu
            660                 665                 670

Ser Gln Pro Leu Ser Leu Phe Pro Thr Gly Phe Pro
        675                 680


<210> 9628
<211> 36
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: BCAS3; "

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<223> /note="Gene Name:
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<400> 9628
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1 5 10 15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Tyr Ile Lys Lys
20 25 30

Ser Gly Ile Ser
35

<210> 9629
<211> 178
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000465175"

<400> 9629
Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu Ala Tyr Ala Glu Asn
1 5 10 15

Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly Ala Cys Gly Asp Asn
20 25 30

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

```
        35                  40                  45

Ser Gly Leu Thr Met Val Gly Lys Val Val Thr Gln Leu Thr Gly Thr
    50                  55                  60

Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala Ile His Ser Asn Ser
65                  70                  75                  80

Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr Val Ile Asp Thr Glu
                85                  90                  95

Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu Asp Ser Asp Ser Asp
            100                 105                 110

Gly Ile Val Ala His Phe Pro Ala His Glu Lys Pro Val Cys Cys Met
        115                 120                 125

Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr Thr Asp Thr Leu Gly
    130                 135                 140

His Asp Phe His Val Phe Gln Ile Leu Thr His Pro Trp Ser Ser Ser
145                 150                 155                 160

Gln Cys Ala Val His His Leu Tyr Thr Leu His Arg Gly Glu Thr Glu
                165                 170                 175

Ala Lys
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<210> 9630
<211> 135
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000465328"

<400> 9630
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1   5   10   15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
            20   25   30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Ala Tyr
        35   40   45

Ser Gly Thr Pro Leu Thr Glu Glu Lys Glu Lys Ile Val Trp Val Arg
    50   55   60

Phe Glu Asn Ala Asp Leu Asn Asp Thr Ser Arg Asn Leu Glu Phe His
65   70   75   80

Glu Ile His Ser Thr Gly Asn Glu Pro Pro Leu Leu Ile Met Ile Gly
                85   90   95

Tyr Ser Asp Gly Met Gln Val Trp Ser Ile Pro Ile Ser Gly Glu Ala
            100   105   110

Gln Glu Leu Phe Ser Val Arg His Gly Pro Ile Arg Ala Ala Arg Ile
        115   120   125

Leu Pro Ala Pro Gln Phe Gly
    130   135

<210> 9631
<211> 53
<212> PRT
<213> Homo sapiens

<220>
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breast carcinoma amplified sequence 3; "

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<400> 9631
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1 5 10 15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
20 25 30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Lys Ser
35 40 45

Asn Val Ala Lys Glu
50

<210> 9632
<211> 145
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<400> 9632
Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu Ala Tyr Ala Glu Asn
1 5 10 15

Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly Ala Cys Gly Asp Asn
20 25 30

Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala Ala Lys Thr Leu Lys
35 40 45

Ser Gly Leu Thr Met Val Gly Lys Val Val Thr Gln Leu Thr Gly Thr
    50   55   60

Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala Ile His Ser Asn Ser
65   70   75   80

Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr Val Ile Asp Thr Glu
                85   90   95

Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu Asp Ser Asp Ser Asp
            100   105   110

Gly Ile Val Ala His Phe Pro Ala His Glu Lys Pro Val Cys Cys Met
        115   120   125

Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr Thr Asp Thr Leu Gly
    130   135   140

His
145

<210> 9633
<211> 56
<212> PRT
<213> Homo sapiens

<220>
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      breast carcinoma amplified sequence 3; "

<220>
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<223> /note="ENSP ID: ENSP00000466075"

<400> 9633
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1   5   10   15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr

```
            20                  25                  30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Ala Ser
        35                  40                  45

Arg Lys Gln Leu Ile Gly Trp Val
    50                  55


<210> 9634
<211> 928
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID:  Q9H6U6; "

<220>
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<223> /note="ENSP ID: ENSP00000466078"

<400> 9634
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1               5                   10                  15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
            20                  25                  30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Ala Tyr
        35                  40                  45

Ser Gly Thr Pro Leu Thr Glu Glu Lys Glu Lys Ile Val Trp Val Arg
    50                  55                  60

Phe Glu Asn Ala Asp Leu Asn Asp Thr Ser Arg Asn Leu Glu Phe His
65                  70                  75                  80
```

```
Glu Ile His Ser Thr Gly Asn Glu Pro Pro Leu Leu Ile Met Ile Gly
                85                  90                  95

Tyr Ser Asp Gly Met Gln Val Trp Ser Ile Pro Ile Ser Gly Glu Ala
            100                 105                 110

Gln Glu Leu Phe Ser Val Arg His Gly Pro Ile Arg Ala Ala Arg Ile
        115                 120                 125

Leu Pro Ala Pro Gln Phe Gly Ala Gln Lys Cys Asp Asn Phe Ala Glu
    130                 135                 140

Lys Arg Pro Leu Leu Gly Val Cys Lys Ser Ile Gly Ser Ser Gly Thr
145                 150                 155                 160

Ser Pro Pro Tyr Cys Cys Val Asp Leu Tyr Ser Leu Arg Thr Gly Glu
                165                 170                 175

Met Val Lys Ser Ile Gln Phe Lys Thr Pro Ile Tyr Asp Leu His Cys
            180                 185                 190

Asn Lys Arg Ile Leu Val Val Val Leu Gln Glu Lys Ile Ala Ala Phe
        195                 200                 205

Asp Ser Cys Thr Phe Thr Lys Lys Phe Phe Val Thr Ser Cys Tyr Pro
    210                 215                 220

Cys Pro Gly Pro Asn Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu
225                 230                 235                 240

Ala Tyr Ala Glu Asn Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly
                245                 250                 255

Ala Cys Gly Asp Asn Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala
            260                 265                 270

Ala Lys Thr Leu Lys Ser Gly Leu Thr Met Val Gly Lys Val Val Thr
        275                 280                 285

Gln Leu Thr Gly Thr Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala
    290                 295                 300
```

```
Ile His Ser Asn Ser Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr
305                 310                 315                 320

Val Ile Asp Thr Glu Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu
                325                 330                 335

Asp Ser Asp Ser Asp Gly Ile Val Ala His Phe Pro Ala His Glu Lys
            340                 345                 350

Pro Val Cys Cys Met Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr
        355                 360                 365

Thr Asp Thr Leu Gly His Asp Phe His Val Phe Gln Ile Leu Thr His
    370                 375                 380

Pro Trp Ser Ser Ser Gln Cys Ala Val His His Leu Tyr Thr Leu His
385                 390                 395                 400

Arg Gly Glu Thr Glu Ala Lys Val Gln Asp Ile Cys Phe Ser His Asp
                405                 410                 415

Cys Arg Trp Val Val Val Ser Thr Leu Arg Gly Thr Ser His Val Phe
            420                 425                 430

Pro Ile Asn Pro Tyr Gly Gly Gln Pro Cys Val Arg Thr His Met Ser
        435                 440                 445

Pro Arg Val Val Asn Arg Met Ser Arg Phe Gln Lys Ser Ala Gly Leu
    450                 455                 460

Glu Glu Ile Glu Gln Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys Ser
465                 470                 475                 480

Pro Val Pro Gly Leu Ser Ser Ser Pro Ser Gly Ser Pro Leu His Gly
                485                 490                 495

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

Gly Asn Pro Arg Leu Ser Pro Leu Pro Ser Leu Met Val Val Met Pro
        515                 520                 525

Leu Ala Gln Ile Lys Gln Pro Met Thr Leu Gly Thr Ile Thr Lys Arg
```

```
    530                 535                 540

Thr Gly Lys Val Lys Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser Met
545                 550                 555                 560

Gly Gly Glu Phe Cys Val Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp
                565                 570                 575

Phe Ala Asn Asn Ala Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln
            580                 585                 590

Val Val Val Glu Ser Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val
        595                 600                 605

Glu His Met Met Glu Pro Arg Pro Leu Ser Thr Ala Pro Lys Ile Ser
    610                 615                 620

Asp Asp Thr Pro Leu Glu Met Met Thr Ser Pro Arg Ala Ser Trp Thr
625                 630                 635                 640

Leu Val Arg Thr Pro Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala
                645                 650                 655

Asn His Pro Leu Leu Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe
            660                 665                 670

Leu Leu Ala Gly Leu Val Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg
        675                 680                 685

His Gly Ser Tyr Asp Ser Leu Ala Ser Asp His Ser Gly Gln Glu Asp
    690                 695                 700

Glu Glu Trp Leu Ser Gln Val Glu Ile Val Thr His Thr Gly Pro His
705                 710                 715                 720

Arg Arg Leu Trp Met Gly Pro Gln Phe Gln Phe Lys Thr Ile His Pro
                725                 730                 735

Ser Gly Gln Thr Thr Val Ile Ser Ser Ser Ser Ser Val Leu Gln Ser
            740                 745                 750

His Gly Pro Ser Asp Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp
        755                 760                 765
```

```
Asp Leu Asp Leu Asn Ser Leu Arg Ile Gln Pro Val Arg Ser Asp Pro
    770                 775                 780

Val Ser Met Pro Gly Ser Ser Arg Pro Val Ser Asp Arg Arg Gly Val
785                 790                 795                 800

Ser Thr Val Ile Asp Ala Ala Ser Gly Thr Phe Asp Arg Ser Val Thr
                805                 810                 815

Leu Leu Glu Val Cys Gly Ser Trp Pro Glu Gly Phe Gly Leu Arg His
            820                 825                 830

Met Ser Ser Met Glu His Thr Glu Glu Gly Leu Arg Glu Arg Leu Ala
        835                 840                 845

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

Asp Thr Ala Leu Asp Val Ala Val Lys Thr Phe Pro Pro Glu Arg His
865                 870                 875                 880

Val Ala Val Lys Cys Phe Gly Lys Lys Lys Gly Lys Lys Lys Gln Cys
                885                 890                 895

Gln Gln Pro Ser Val Arg Glu Gln Pro Asn Ser Asn Lys Ala Cys Val
            900                 905                 910

Arg Asp Gly Gly Arg Thr Ser Ala Arg Gly Lys His Arg Asp Ser Glu
        915                 920                 925
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<210> 9635
<211> 184
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<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
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<223> /note="Gene Name:
breast carcinoma amplified sequence 3; "

<220>
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<400> 9635

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Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu Ala Tyr Ala Glu Asn
1               5                  10                  15

Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly Ala Cys Gly Asp Asn
            20                  25                  30

Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala Ala Lys Thr Leu Lys
        35                  40                  45

Ser Gly Leu Thr Met Val Gly Lys Val Val Thr Gln Leu Thr Gly Thr
    50                  55                  60

Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala Ile His Ser Asn Ser
65                  70                  75                  80

Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr Val Ile Asp Thr Glu
                85                  90                  95

Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu Asp Ser Asp Ser Asp
            100                 105                 110

Gly Ile Val Ala His Phe Pro Ala His Glu Lys Pro Val Cys Cys Met
        115                 120                 125

Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr Thr Asp Thr Leu Gly
    130                 135                 140

His Asp Phe His Val Phe Gln Ile Leu Thr His Pro Trp Ser Ser Ser
145                 150                 155                 160

Gln Cys Ala Val His His Leu Tyr Thr Leu His Arg Gly Glu Thr Glu
                165                 170                 175

Ala Lys Val Gln Asp Ile Cys Phe
            180
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<210> 9636

<211> 53
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1958; "

<220>
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breast carcinoma amplified sequence 3; "

<220>
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<400> 9636
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1 5 10 15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
20 25 30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Lys Ser
35 40 45

Asn Val Ala Lys Glu
50

<210> 9637
<211> 950
<212> PRT
<213> Homo sapiens

<220>
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<220>
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breast carcinoma amplified sequence 3; "

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<220>
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<223> /note="ENSP ID: ENSP00000468592"

<400> 9637
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1   5   10   15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
            20   25   30

Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Ala Tyr
        35   40   45

Ser Gly Thr Pro Leu Thr Glu Glu Lys Glu Lys Ile Val Trp Val Arg
    50   55   60

Phe Glu Asn Ala Asp Leu Asn Asp Thr Ser Arg Asn Leu Glu Phe His
65   70   75   80

Glu Ile His Ser Thr Gly Asn Glu Pro Pro Leu Leu Ile Met Ile Gly
                85   90   95

Tyr Ser Asp Gly Met Gln Val Trp Ser Ile Pro Ile Ser Gly Glu Ala
            100   105   110

Gln Glu Leu Phe Ser Val Arg His Gly Pro Ile Arg Ala Ala Arg Ile
        115   120   125

Leu Pro Ala Pro Gln Phe Gly Ala Gln Lys Cys Asp Asn Phe Ala Glu
    130   135   140

Lys Arg Pro Leu Leu Gly Val Cys Lys Ser Ile Gly Ser Ser Gly Thr
145   150   155   160

Ser Pro Pro Tyr Cys Cys Val Asp Leu Tyr Ser Leu Arg Thr Gly Glu
                165   170   175

Met Val Lys Ser Ile Gln Phe Lys Thr Pro Ile Tyr Asp Leu His Cys
            180   185   190

Asn Lys Arg Ile Leu Val Val Val Leu Gln Glu Lys Ile Ala Ala Phe

```
        195                 200                 205

Asp Ser Cys Thr Phe Thr Lys Lys Phe Phe Val Thr Ser Cys Tyr Pro
    210                 215                 220

Cys Pro Gly Pro Asn Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu
225                 230                 235                 240

Ala Tyr Ala Glu Asn Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly
                245                 250                 255

Ala Cys Gly Asp Asn Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala
            260                 265                 270

Ala Lys Thr Leu Lys Ser Gly Leu Thr Met Val Gly Lys Val Val Thr
        275                 280                 285

Gln Leu Thr Gly Thr Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala
    290                 295                 300

Ile His Ser Asn Ser Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr
305                 310                 315                 320

Val Ile Asp Thr Glu Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu
                325                 330                 335

Asp Ser Asp Ser Asp Gly Ile Val Ala His Phe Pro Ala His Glu Lys
            340                 345                 350

Pro Val Cys Cys Met Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr
        355                 360                 365

Thr Asp Thr Leu Gly His Asp Phe His Val Phe Gln Ile Leu Thr His
    370                 375                 380

Pro Trp Ser Ser Ser Gln Cys Ala Val His His Leu Tyr Thr Leu His
385                 390                 395                 400

Arg Gly Glu Thr Glu Ala Lys Val Gln Asp Ile Cys Phe Ser His Asp
                405                 410                 415

Cys Arg Trp Val Val Val Ser Thr Leu Arg Gly Thr Ser His Val Phe
            420                 425                 430
```

```
Pro Ile Asn Pro Tyr Gly Gly Gln Pro Cys Val Arg Thr His Met Ser
        435                 440                 445

Pro Arg Val Val Asn Arg Met Ser Arg Phe Gln Lys Ser Ala Gly Leu
    450                 455                 460

Glu Glu Ile Glu Gln Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys Ser
465                 470                 475                 480

Pro Val Pro Gly Leu Ser Ser Ser Pro Ser Gly Ser Pro Leu His Gly
                485                 490                 495

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

Gly Asn Pro Arg Leu Ser Pro Leu Pro Ser Leu Met Val Val Met Pro
        515                 520                 525

Leu Ala Gln Ile Lys Gln Pro Met Thr Leu Gly Thr Ile Thr Lys Arg
    530                 535                 540

Thr Gly Pro Tyr Leu Phe Gly Ala Gly Cys Phe Ser Ile Lys Ala Pro
545                 550                 555                 560

Cys Lys Val Lys Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser Met Gly
                565                 570                 575

Gly Glu Phe Cys Val Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp Phe
            580                 585                 590

Ala Asn Asn Ala Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln Val
        595                 600                 605

Val Val Glu Ser Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val Glu
    610                 615                 620

His Met Met Glu Pro Arg Pro Leu Ser Thr Ala Pro Lys Ile Ser Asp
625                 630                 635                 640

Asp Thr Pro Leu Glu Met Met Thr Ser Pro Arg Ala Ser Trp Thr Leu
                645                 650                 655
```

```
Val Arg Thr Pro Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala Asn
            660                 665                 670

His Pro Leu Leu Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe Leu
        675                 680                 685

Leu Ala Gly Leu Val Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg His
    690                 695                 700

Gly Ser Tyr Asp Ser Leu Ala Ser Asp His Ser Gly Gln Glu Asp Glu
705                 710                 715                 720

Glu Trp Leu Ser Gln Val Glu Ile Val Thr His Thr Gly Pro His Arg
                725                 730                 735

Arg Leu Trp Met Gly Pro Gln Phe Gln Phe Lys Thr Ile His Pro Ser
            740                 745                 750

Gly Gln Thr Thr Val Ile Ser Ser Ser Ser Ser Val Leu Gln Ser His
        755                 760                 765

Gly Pro Ser Asp Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp Asp
    770                 775                 780

Leu Asp Leu Asn Ser Leu Arg Ile Gln Pro Val Arg Ser Asp Pro Val
785                 790                 795                 800

Ser Met Pro Gly Ser Ser Arg Pro Val Ser Asp Arg Arg Gly Val Ser
                805                 810                 815

Thr Val Ile Asp Ala Ala Ser Gly Thr Phe Asp Arg Ser Val Thr Leu
            820                 825                 830

Leu Glu Val Cys Gly Ser Trp Pro Glu Gly Phe Gly Leu Arg His Met
        835                 840                 845

Ser Ser Met Glu His Thr Glu Glu Gly Leu Arg Glu Arg Leu Ala Asp
    850                 855                 860

Ala Met Ala Glu Ser Pro Ser Arg Asp Val Val Gly Ser Gly Thr Asp
865                 870                 875                 880
```

```
Thr Ala Leu Asp Val Ala Val Lys Thr Phe Pro Pro Glu Arg His Val
                885                 890                 895

Ala Val Lys Cys Phe Glu Leu Gln Arg Glu Gly Ser Ile Glu Thr Leu
            900                 905                 910

Ser Asn Ser Ser Gly Ser Thr Ser Gly Ser Ile Pro Arg Asn Phe Asp
        915                 920                 925

Gly Tyr Arg Ser Pro Leu Pro Thr Asn Glu Ser Gln Pro Leu Ser Leu
    930                 935                 940

Phe Pro Thr Gly Phe Pro
945                 950


<210> 9638
<211> 699
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1958; "

<220>
<221> source
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<220>
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<220>
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<400> 9638
Met Asn Pro Ile Ala Leu Gly Ser Arg Trp Leu Ala Tyr Ala Glu Asn
1               5                   10                  15

Lys Leu Ile Arg Cys His Gln Ser Arg Gly Gly Ala Cys Gly Asp Asn
            20                  25                  30

Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser Ala Ala Lys Thr Leu Lys
        35                  40                  45

Ser Gly Leu Thr Met Val Gly Lys Val Val Thr Gln Leu Thr Gly Thr
    50                  55                  60
```

```
Leu Pro Ser Gly Val Thr Glu Asp Asp Val Ala Ile His Ser Asn Ser
65                  70                  75                  80

Arg Arg Ser Pro Leu Val Pro Gly Ile Ile Thr Val Ile Asp Thr Glu
                85                  90                  95

Thr Val Gly Glu Gly Gln Val Leu Val Ser Glu Asp Ser Asp Ser Asp
            100                 105                 110

Gly Ile Val Ala His Phe Pro Ala His Glu Lys Pro Val Cys Cys Met
        115                 120                 125

Ala Phe Asn Thr Ser Gly Met Leu Leu Val Thr Thr Asp Thr Leu Gly
    130                 135                 140

His Asp Phe His Val Phe Gln Ile Leu Thr His Pro Trp Ser Ser Ser
145                 150                 155                 160

Gln Cys Ala Val His His Leu Tyr Thr Leu His Arg Gly Glu Thr Glu
                165                 170                 175

Ala Lys Val Gln Asp Ile Cys Phe Ser His Asp Cys Arg Trp Val Val
            180                 185                 190

Val Ser Thr Leu Arg Gly Thr Ser His Val Phe Pro Ile Asn Pro Tyr
        195                 200                 205

Gly Gly Gln Pro Cys Val Arg Thr His Met Ser Pro Arg Val Val Asn
    210                 215                 220

Arg Met Ser Arg Phe Gln Lys Ser Ala Gly Leu Glu Glu Ile Glu Gln
225                 230                 235                 240

Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys Ser Pro Val Pro Gly Leu
                245                 250                 255

Ser Ser Ser Pro Ser Gly Ser Pro Leu His Gly Lys Leu Asn Ser Gln
            260                 265                 270

Asp Ser Tyr Asn Asn Phe Thr Asn Asn Asn Pro Gly Asn Pro Arg Leu
        275                 280                 285
```

```
Ser Pro Leu Pro Ser Leu Met Val Val Met Pro Leu Ala Gln Ile Lys
    290                 295                 300

Gln Pro Met Thr Leu Gly Thr Ile Thr Lys Arg Thr Gly Pro Tyr Leu
305                 310                 315                 320

Phe Gly Ala Gly Cys Phe Ser Ile Lys Ala Pro Cys Lys Val Lys Pro
                325                 330                 335

Pro Pro Gln Ile Ser Pro Ser Lys Ser Met Gly Gly Glu Phe Cys Val
            340                 345                 350

Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp Phe Ala Asn Asn Ala Gly
        355                 360                 365

Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln Val Val Val Glu Ser Leu
    370                 375                 380

Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val Glu His Met Met Glu Pro
385                 390                 395                 400

Arg Pro Leu Ser Thr Ala Pro Lys Ile Ser Asp Asp Thr Pro Leu Glu
                405                 410                 415

Met Met Thr Ser Pro Arg Ala Ser Trp Thr Leu Val Arg Thr Pro Gln
            420                 425                 430

Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala Asn His Pro Leu Leu Leu
        435                 440                 445

Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe Leu Leu Ala Gly Leu Val
    450                 455                 460

Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg His Gly Ser Tyr Asp Ser
465                 470                 475                 480

Leu Ala Ser Asp His Ser Gly Gln Glu Asp Glu Glu Trp Leu Ser Gln
                485                 490                 495

Val Glu Ile Val Thr His Thr Gly Pro His Arg Arg Leu Trp Met Gly
            500                 505                 510
```

```
Pro Gln Phe Gln Phe Lys Thr Ile His Pro Ser Gly Gln Thr Thr Val
        515                 520                 525

Ile Ser Ser Ser Ser Ser Val Leu Gln Ser His Gly Pro Ser Asp Thr
    530                 535                 540

Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp Asp Leu Asp Leu Asn Ser
545                 550                 555                 560

Leu Arg Ile Gln Pro Val Arg Ser Asp Pro Val Ser Met Pro Gly Ser
                565                 570                 575

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

Ala Ser Gly Thr Phe Asp Arg Ser Val Thr Leu Leu Glu Val Cys Gly
        595                 600                 605

Ser Trp Pro Glu Gly Phe Gly Leu Arg His Met Ser Ser Met Glu His
    610                 615                 620

Thr Glu Glu Gly Leu Arg Glu Arg Leu Ala Asp Ala Met Ala Glu Ser
625                 630                 635                 640

Pro Ser Arg Asp Val Val Gly Ser Gly Thr Glu Leu Gln Arg Glu Gly
                645                 650                 655

Ser Ile Glu Thr Leu Ser Asn Ser Ser Gly Ser Thr Ser Gly Ser Ile
            660                 665                 670

Pro Arg Asn Phe Asp Gly Tyr Arg Ser Pro Leu Pro Thr Asn Glu Ser
        675                 680                 685

Gln Pro Leu Ser Leu Phe Pro Thr Gly Phe Pro
    690                 695


<210> 9639
<211> 650
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1958; "
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breast carcinoma amplified sequence 3; "

<220>
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<223> /note="ENSP ID: ENSP00000484605"

<400> 9639

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Thr Ser Pro Pro Tyr Cys Cys Val Asp Leu Tyr Ser Leu Arg Thr Gly
1               5                  10                  15

Glu Met Val Lys Ser Ile Gln Phe Lys Thr Pro Ile Tyr Asp Leu His
            20                  25                  30

Cys Asn Lys Arg Ile Leu Val Val Val Leu Gln Glu Lys Ile Ala Ala
        35                  40                  45

Phe Asp Ser Cys Thr Phe Thr Lys Lys Phe Phe Val Thr Ser Cys Tyr
    50                  55                  60

Pro Cys Pro Gly Pro Asn Met Asn Pro Ile Ala Leu Gly Ser Arg Trp
65                  70                  75                  80

Leu Ala Tyr Ala Glu Asn Lys Leu Ile Arg Cys His Gln Ser Arg Gly
                85                  90                  95

Gly Ala Cys Gly Asp Asn Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser
            100                 105                 110

Ala Ala Lys Thr Leu Lys Ser Gly Leu Thr Met Val Gly Lys Val Val
        115                 120                 125

Thr Gln Leu Thr Gly Thr Leu Pro Ser Gly Val Thr Glu Asp Asp Val
    130                 135                 140

Ala Ile His Ser Asn Ser Arg Arg Ser Pro Leu Val Pro Gly Ile Ile
145                 150                 155                 160

Thr Val Ile Asp Thr Glu Thr Val Gly Glu Gly Gln Val Leu Val Ser
                165                 170                 175
```

```
Glu Asp Ser Asp Ser Asp Gly Ile Val Ala His Phe Pro Ala His Glu
            180                 185                 190

Lys Pro Val Cys Cys Met Ala Phe Asn Thr Ser Gly Met Leu Leu Val
        195                 200                 205

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

His Pro Trp Ser Ser Ser Gln Cys Ala Val His His Leu Tyr Thr Leu
225                 230                 235                 240

His Arg Gly Glu Thr Glu Ala Lys Val Gln Asp Ile Cys Phe Ser His
                245                 250                 255

Asp Cys Arg Trp Val Val Val Ser Thr Leu Arg Gly Thr Ser His Val
            260                 265                 270

Phe Pro Ile Asn Pro Tyr Gly Gly Gln Pro Cys Val Arg Thr His Met
        275                 280                 285

Ser Pro Arg Val Val Asn Arg Met Ser Arg Phe Gln Lys Ser Ala Gly
    290                 295                 300

Leu Glu Glu Ile Glu Gln Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys
305                 310                 315                 320

Ser Pro Val Pro Gly Leu Ser Ser Ser Pro Ser Gly Ser Pro Leu His
                325                 330                 335

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

Pro Gly Asn Pro Arg Leu Ser Pro Leu Pro Ser Leu Met Val Val Met
        355                 360                 365

Pro Leu Ala Gln Ile Lys Gln Pro Met Thr Leu Gly Thr Ile Thr Lys
    370                 375                 380

Arg Thr Gly Lys Val Lys Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser
385                 390                 395                 400
```

```
Met Gly Gly Glu Phe Cys Val Ala Ala Ile Phe Gly Thr Ser Arg Ser
                405                 410                 415

Trp Phe Ala Asn Asn Ala Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys
            420                 425                 430

Gln Val Val Val Glu Ser Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu
        435                 440                 445

Val Glu His Met Met Glu Pro Arg Pro Leu Ser Thr Ala Pro Lys Ile
    450                 455                 460

Ser Asp Asp Thr Pro Leu Glu Met Met Thr Ser Pro Arg Ala Ser Trp
465                 470                 475                 480

Thr Leu Val Arg Thr Pro Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn
                485                 490                 495

Ala Asn His Pro Leu Leu Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln
            500                 505                 510

Phe Leu Leu Ala Gly Leu Val Pro Pro Gly Ser Pro Gly Pro Ile Thr
        515                 520                 525

Arg His Gly Ser Tyr Asp Ser Leu Ala Ser Asp His Ser Gly Gln Glu
    530                 535                 540

Asp Glu Glu Trp Leu Ser Gln Val Glu Ile Val Thr His Thr Gly Pro
545                 550                 555                 560

His Arg Arg Leu Trp Met Gly Pro Gln Phe Gln Phe Lys Thr Ile His
                565                 570                 575

Pro Ser Gly Gln Thr Thr Val Ile Ser Ser Ser Ser Ser Val Leu Gln
            580                 585                 590

Ser His Gly Pro Ser Asp Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr
        595                 600                 605

Asp Asp Leu Asp Leu Asn Ser Leu Arg Ile Gln Pro Val Arg Ser Asp
    610                 615                 620

Pro Val Ser Met Pro Gly Ser Ser Arg Pro Val Ser Asp Arg Arg Gly
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625 630 635 640

Val Ser Thr Val Ile Asp Ala Ala Ser Gly
645 650

<210> 9640
<211> 665
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1958; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS3; "

<220>
<221> source
<223> /note="Gene Name:
breast carcinoma amplified sequence 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485015"

<400> 9640
Thr Ser Pro Pro Tyr Cys Cys Val Asp Leu Tyr Ser Leu Arg Thr Gly
1 5 10 15

Glu Met Val Lys Ser Ile Gln Phe Lys Thr Pro Ile Tyr Asp Leu His
20 25 30

Cys Asn Lys Arg Ile Leu Val Val Val Leu Gln Glu Lys Ile Ala Ala
35 40 45

Phe Asp Ser Cys Thr Phe Thr Lys Lys Phe Phe Val Thr Ser Cys Tyr
50 55 60

Pro Cys Pro Gly Pro Asn Met Asn Pro Ile Ala Leu Gly Ser Arg Trp
65 70 75 80

Leu Ala Tyr Ala Glu Asn Lys Leu Ile Arg Cys His Gln Ser Arg Gly
85 90 95

Gly Ala Cys Gly Asp Asn Ile Gln Ser Tyr Thr Ala Thr Val Ile Ser
100 105 110

```
Ala Ala Lys Thr Leu Lys Ser Gly Leu Thr Met Val Gly Lys Val Val
        115                 120                 125

Thr Gln Leu Thr Gly Thr Leu Pro Ser Gly Val Thr Glu Asp Asp Val
    130                 135                 140

Ala Ile His Ser Asn Ser Arg Arg Ser Pro Leu Val Pro Gly Ile Ile
145                 150                 155                 160

Thr Val Ile Asp Thr Glu Thr Val Gly Glu Gly Gln Val Leu Val Ser
                165                 170                 175

Glu Asp Ser Asp Ser Asp Gly Ile Val Ala His Phe Pro Ala His Glu
            180                 185                 190

Lys Pro Val Cys Cys Met Ala Phe Asn Thr Ser Gly Met Leu Leu Val
        195                 200                 205

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

His Pro Trp Ser Ser Ser Gln Cys Ala Val His His Leu Tyr Thr Leu
225                 230                 235                 240

His Arg Gly Glu Thr Glu Ala Lys Val Gln Asp Ile Cys Phe Ser His
                245                 250                 255

Asp Cys Arg Trp Val Val Val Ser Thr Leu Arg Gly Thr Ser His Val
            260                 265                 270

Phe Pro Ile Asn Pro Tyr Gly Gly Gln Pro Cys Val Arg Thr His Met
        275                 280                 285

Ser Pro Arg Val Val Asn Arg Met Ser Arg Phe Gln Lys Ser Ala Gly
    290                 295                 300

Leu Glu Glu Ile Glu Gln Glu Leu Thr Ser Lys Gln Gly Gly Arg Cys
305                 310                 315                 320

Ser Pro Val Pro Gly Leu Ser Ser Ser Pro Ser Gly Ser Pro Leu His
                325                 330                 335
```

```
Gly Lys Leu Asn Ser Gln Asp Ser Tyr Asn Asn Phe Thr Asn Asn Asn
            340                 345                 350

Pro Gly Asn Pro Arg Leu Ser Pro Leu Pro Ser Leu Met Val Val Met
        355                 360                 365

Pro Leu Ala Gln Ile Lys Gln Pro Met Thr Leu Gly Thr Ile Thr Lys
    370                 375                 380

Arg Thr Gly Pro Tyr Leu Phe Gly Ala Gly Cys Phe Ser Ile Lys Ala
385                 390                 395                 400

Pro Cys Lys Val Lys Pro Pro Pro Gln Ile Ser Pro Ser Lys Ser Met
                405                 410                 415

Gly Gly Glu Phe Cys Val Ala Ala Ile Phe Gly Thr Ser Arg Ser Trp
            420                 425                 430

Phe Ala Asn Asn Ala Gly Leu Lys Arg Glu Lys Asp Gln Ser Lys Gln
        435                 440                 445

Val Val Val Glu Ser Leu Tyr Ile Ile Ser Cys Tyr Gly Thr Leu Val
    450                 455                 460

Glu His Met Met Glu Pro Arg Pro Leu Ser Thr Ala Pro Lys Ile Ser
465                 470                 475                 480

Asp Asp Thr Pro Leu Glu Met Met Thr Ser Pro Arg Ala Ser Trp Thr
                485                 490                 495

Leu Val Arg Thr Pro Gln Trp Asn Glu Leu Gln Pro Pro Phe Asn Ala
            500                 505                 510

Asn His Pro Leu Leu Leu Ala Ala Asp Ala Val Gln Tyr Tyr Gln Phe
        515                 520                 525

Leu Leu Ala Gly Leu Val Pro Pro Gly Ser Pro Gly Pro Ile Thr Arg
    530                 535                 540

His Gly Ser Tyr Asp Ser Leu Ala Ser Asp His Ser Gly Gln Glu Asp
545                 550                 555                 560

Glu Glu Trp Leu Ser Gln Val Glu Ile Val Thr His Thr Gly Pro His
```

```
                565                 570                 575

Arg Arg Leu Trp Met Gly Pro Gln Phe Gln Phe Lys Thr Ile His Pro
            580                 585                 590

Ser Gly Gln Thr Thr Val Ile Ser Ser Ser Ser Ser Val Leu Gln Ser
        595                 600                 605

His Gly Pro Ser Asp Thr Pro Gln Pro Leu Leu Asp Phe Asp Thr Asp
    610                 615                 620

Asp Leu Asp Leu Asn Ser Leu Arg Ile Gln Pro Val Arg Ser Asp Pro
625                 630                 635                 640

Val Ser Met Pro Gly Ser Ser Arg Pro Val Ser Asp Arg Arg Gly Val
                645                 650                 655

Ser Thr Val Ile Asp Ala Ala Ser Gly
            660                 665


<210> 9641
<211> 53
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1958; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS3; "

<220>
<221> source
<223> /note="Gene Name:
      breast carcinoma amplified sequence 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486318"

<400> 9641
Met Asn Glu Ala Met Ala Thr Asp Ser Pro Arg Arg Pro Ser Arg Cys
1               5                   10                  15

Thr Gly Gly Val Val Val Arg Pro Gln Ala Val Thr Glu Gln Ser Tyr
            20                  25                  30
```

```
Met Glu Ser Val Val Thr Phe Leu Gln Asp Val Val Pro Gln Lys Ser
        35                  40                  45


Asn Val Ala Lys Glu
    50


<210> 9642
<211> 211
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1959; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS4; "

<220>
<221> source
<223> /note="Gene Name:
      breast carcinoma amplified sequence 4; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8TDM0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000351642"

<400> 9642
Met Gln Arg Thr Gly Gly Gly Ala Pro Arg Pro Gly Arg Asn His Gly
1               5                   10                  15


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


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


Leu Ala Leu Phe Leu Thr Pro Glu Pro Gly Ala Glu Ala Lys Glu Val
    50                  55                  60


Glu Glu Thr Ile Glu Gly Met Leu Leu Arg Leu Glu Glu Phe Cys Ser
65                  70                  75                  80


Leu Ala Asp Leu Ile Arg Ser Asp Thr Ser Gln Ile Leu Glu Glu Asn
```

```
                85                  90                  95

Ile Pro Val Leu Lys Ala Lys Leu Thr Glu Met Arg Gly Ile Tyr Ala
            100                 105                 110

Lys Val Asp Arg Leu Glu Ala Phe Val Lys Met Val Gly His His Val
        115                 120                 125

Ala Phe Leu Glu Ala Asp Val Leu Gln Ala Glu Arg Asp His Gly Ala
    130                 135                 140

Phe Pro Gln Ala Leu Arg Arg Trp Leu Gly Ser Ala Gly Leu Pro Ser
145                 150                 155                 160

Phe Arg Asn Val Glu Cys Ser Gly Thr Ile Pro Ala Arg Cys Asn Leu
                165                 170                 175

Arg Leu Pro Gly Ser Ser Asp Ser Pro Ala Ser Ala Ser Gln Val Ala
            180                 185                 190

Gly Ile Thr Glu Val Thr Cys Thr Gly Ala Arg Asp Val Arg Ala Ala
        195                 200                 205

His Thr Val
    210


<210> 9643
<211> 203
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1959; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS4; "

<220>
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<223> /note="Gene Name:
      breast carcinoma amplified sequence 4; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8TDM0; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000360669"

<400> 9643
Met Gln Arg Thr Gly Gly Gly Ala Pro Arg Pro Gly Arg Asn His Gly
1   5   10   15

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

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

Leu Ala Leu Phe Leu Thr Pro Glu Pro Gly Ala Glu Ala Lys Glu Val
    50   55   60

Glu Glu Thr Ile Glu Gly Met Leu Leu Arg Leu Glu Glu Phe Cys Ser
65   70   75   80

Leu Ala Asp Leu Ile Arg Ser Asp Thr Ser Gln Ile Leu Glu Glu Asn
                85   90   95

Ile Pro Val Leu Lys Ala Lys Leu Thr Glu Met Arg Gly Ile Tyr Ala
            100   105   110

Lys Val Asp Arg Leu Glu Ala Phe Val Lys Met Val Gly His His Val
        115   120   125

Ala Phe Leu Glu Ala Asp Val Leu Gln Ala Glu Arg Asp His Gly Ala
    130   135   140

Phe Pro Gln Ala Leu Arg Arg Trp Leu Gly Ser Ala Gly Leu Pro Ser
145   150   155   160

Phe Arg Asn Lys Ser Pro Ala Pro Val Pro Val Thr Tyr Glu Leu Pro
                165   170   175

Thr Leu Tyr Arg Thr Glu Asp Tyr Phe Pro Val Asp Ala Gly Glu Ala
            180   185   190

Gln His His Pro Arg Thr Cys Pro Arg Pro Leu
        195   200

<210> 9644
<211> 117
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BCAS4; "

<220>
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<223> /note="Gene Name:
breast carcinoma amplified sequence 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392594"

<400> 9644
Met Leu Leu Val Asp Ala Asp Gln Pro Glu Pro Met Arg Ser Gly Ala
1 5 10 15

Arg Glu Leu Ala Leu Phe Leu Thr Pro Glu Pro Gly Ala Glu Ala Lys
20 25 30

Glu Val Glu Glu Thr Ile Glu Gly Met Leu Leu Arg Leu Glu Glu Phe
35 40 45

Cys Ser Leu Ala Asp Leu Ile Arg Ser Asp Thr Ser Gln Ile Leu Glu
50 55 60

Glu Asn Ile Pro Val Leu Lys Ala Lys Leu Thr Glu Met Arg Gly Ile
65 70 75 80

Tyr Ala Lys Val Asp Arg Leu Glu Lys Ser Pro Ala Pro Val Pro Val
85 90 95

Thr Tyr Glu Leu Pro Thr Leu Tyr Arg Thr Glu Asp Tyr Phe Pro Val
100 105 110

Asp Ala Gly Glu Ala
115

<210> 9645
<211> 89

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1959; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS4; "

<220>
<221> source
<223> /note="Gene Name:
breast carcinoma amplified sequence 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418559"

<400> 9645
Met Leu Leu Val Asp Ala Asp Gln Pro Glu Pro Met Arg Ser Gly Ala
1 5 10 15

Arg Glu Leu Ala Leu Phe Leu Thr Pro Glu Pro Gly Ala Glu Ala Lys
20 25 30

Glu Val Glu Glu Thr Ile Glu Gly Met Leu Leu Arg Leu Glu Glu Phe
35 40 45

Cys Ser Leu Ala Asp Leu Ile Arg Ser Asp Thr Ser Gln Ile Leu Glu
50 55 60

Glu Asn Ile Pro Val Leu Lys Ala Lys Leu Thr Glu Met Arg Gly Ile
65 70 75 80

Tyr Ala Lys Val Asp Arg Leu Glu Ser
85

<210> 9646
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1959; "

<220>
<221> source
<223> /note="Gene Symbol: BCAS4; "

<220>
<221> source
<223> /note="Gene Name:
breast carcinoma amplified sequence 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477167"

<400> 9646
Met Leu Leu Val Asp Ala Asp Gln Pro Glu Pro Met Arg Ser Gly Ala
1 5 10 15

Arg Glu Leu Ala Leu Phe Leu Thr Pro Glu Pro Gly Ala Glu Ala Lys
20 25 30

Glu Val Glu Glu Thr Ile Glu Gly Met Leu Leu Arg Leu Glu Glu Phe
35 40 45

Cys Ser Leu Ala Asp Leu Ile Arg Ser Asp Thr Ser Gln Ile Leu Glu
50 55 60

Glu Asn Ile Pro Val Leu Lys Ala Lys Leu Thr Glu Met Arg Gly Ile
65 70 75 80

Tyr Ala Lys Val Asp Arg Leu Glu Ala Phe Val Lys Met Val Gly His
85 90 95

His Val Ala Phe Leu Glu Ala Asp Val Leu Gln Ala Glu Arg Asp His
100 105 110

Gly Ala Phe Pro Gln Ala Leu Arg Arg Trp Leu Gly Ser Ala Gly Leu
115 120 125

Pro Ser Phe Arg Asn Val Glu Cys Ser Gly Thr Ile Pro Ala Arg Cys
130 135 140

Asn Leu Arg Leu Pro Gly Ser Ser Asp Ser Pro Ala Ser Ala Ser Gln
145 150 155 160

Val Ala Gly Ile Thr Glu Val Thr Cys Thr Gly Ala Arg Asp Val Arg
165 170 175

Ala Ala His Thr Val
180

<210> 9647
<211> 911
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1960; "

<220>
<221> source
<223> /note="Gene Symbol: BCAN; "

<220>
<221> source
<223> /note="Gene Name:
brevican; "

<220>
<221> source
<223> /note="Uniprot ID: Q96GW7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000331210"

<400> 9647
Met Ala Gln Leu Phe Leu Pro Leu Leu Ala Ala Leu Val Leu Ala Gln
1   5   10   15

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

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

Leu Gly Gly Ala Leu Thr Ile Pro Cys His Val His Tyr Leu Arg Pro
    50   55   60

Pro Pro Ser Arg Arg Ala Val Leu Gly Ser Pro Arg Val Lys Trp Thr
65   70   75   80

Phe Leu Ser Arg Gly Arg Glu Ala Glu Val Leu Val Ala Arg Gly Val
                85   90   95

Arg Val Lys Val Asn Glu Ala Tyr Arg Phe Arg Val Ala Leu Pro Ala
            100   105   110

```
Tyr Pro Ala Ser Leu Thr Asp Val Ser Leu Ala Leu Ser Glu Leu Arg
        115                 120                 125

Pro Asn Asp Ser Gly Ile Tyr Arg Cys Glu Val Gln His Gly Ile Asp
    130                 135                 140

Asp Ser Ser Asp Ala Val Glu Val Lys Val Lys Gly Val Val Phe Leu
145                 150                 155                 160

Tyr Arg Glu Gly Ser Ala Arg Tyr Ala Phe Ser Phe Ser Gly Ala Gln
                165                 170                 175

Glu Ala Cys Ala Arg Ile Gly Ala His Ile Ala Thr Pro Glu Gln Leu
            180                 185                 190

Tyr Ala Ala Tyr Leu Gly Gly Tyr Glu Gln Cys Asp Ala Gly Trp Leu
        195                 200                 205

Ser Asp Gln Thr Val Arg Tyr Pro Ile Gln Thr Pro Arg Glu Ala Cys
    210                 215                 220

Tyr Gly Asp Met Asp Gly Phe Pro Gly Val Arg Asn Tyr Gly Val Val
225                 230                 235                 240

Asp Pro Asp Asp Leu Tyr Asp Val Tyr Cys Tyr Ala Glu Asp Leu Asn
                245                 250                 255

Gly Glu Leu Phe Leu Gly Asp Pro Pro Glu Lys Leu Thr Leu Glu Glu
            260                 265                 270

Ala Arg Ala Tyr Cys Gln Glu Arg Gly Ala Glu Ile Ala Thr Thr Gly
        275                 280                 285

Gln Leu Tyr Ala Ala Trp Asp Gly Gly Leu Asp His Cys Ser Pro Gly
    290                 295                 300

Trp Leu Ala Asp Gly Ser Val Arg Tyr Pro Ile Val Thr Pro Ser Gln
305                 310                 315                 320

Arg Cys Gly Gly Gly Leu Pro Gly Val Lys Thr Leu Phe Leu Phe Pro
                325                 330                 335

Asn Gln Thr Gly Phe Pro Asn Lys His Ser Arg Phe Asn Val Tyr Cys
```

```
            340                 345                 350

Phe Arg Asp Ser Ala Gln Pro Ser Ala Ile Pro Glu Ala Ser Asn Pro
        355                 360                 365

Ala Ser Asn Pro Ala Ser Asp Gly Leu Glu Ala Ile Val Thr Val Thr
    370                 375                 380

Glu Thr Leu Glu Glu Leu Gln Leu Pro Gln Glu Ala Thr Glu Ser Glu
385                 390                 395                 400

Ser Arg Gly Ala Ile Tyr Ser Ile Pro Ile Met Glu Asp Gly Gly Gly
                405                 410                 415

Gly Ser Ser Thr Pro Glu Asp Pro Ala Glu Ala Pro Arg Thr Leu Leu
            420                 425                 430

Glu Phe Glu Thr Gln Ser Met Val Pro Pro Thr Gly Phe Ser Glu Glu
        435                 440                 445

Glu Gly Lys Ala Leu Glu Glu Glu Glu Lys Tyr Glu Asp Glu Glu Glu
    450                 455                 460

Lys Glu Glu Glu Glu Glu Glu Glu Glu Glu Val Glu Asp Glu Ala Leu Trp
465                 470                 475                 480

Ala Trp Pro Ser Glu Leu Ser Ser Pro Gly Pro Glu Ala Ser Leu Pro
                485                 490                 495

Thr Glu Pro Ala Ala Gln Glu Glu Ser Leu Ser Gln Ala Pro Ala Arg
            500                 505                 510

Ala Val Leu Gln Pro Gly Ala Ser Pro Leu Pro Asp Gly Glu Ser Glu
        515                 520                 525

Ala Ser Arg Pro Pro Arg Val His Gly Pro Pro Thr Glu Thr Leu Pro
    530                 535                 540

Thr Pro Arg Glu Arg Asn Leu Ala Ser Pro Ser Pro Ser Thr Leu Val
545                 550                 555                 560

Glu Ala Arg Glu Val Gly Glu Ala Thr Gly Gly Pro Glu Leu Ser Gly
                565                 570                 575
```

```
Val Pro Arg Gly Glu Ser Glu Glu Thr Gly Ser Ser Glu Gly Ala Pro
            580                 585                 590

Ser Leu Leu Pro Ala Thr Arg Ala Pro Glu Gly Thr Arg Glu Leu Glu
        595                 600                 605

Ala Pro Ser Glu Asp Asn Ser Gly Arg Thr Ala Pro Ala Gly Thr Ser
    610                 615                 620

Val Gln Ala Gln Pro Val Leu Pro Thr Asp Ser Ala Ser Arg Gly Gly
625                 630                 635                 640

Val Ala Val Val Pro Ala Ser Gly Asp Cys Val Pro Ser Pro Cys His
                645                 650                 655

Asn Gly Gly Thr Cys Leu Glu Glu Glu Glu Gly Val Arg Cys Leu Cys
            660                 665                 670

Leu Pro Gly Tyr Gly Gly Asp Leu Cys Asp Val Gly Leu Arg Phe Cys
        675                 680                 685

Asn Pro Gly Trp Asp Ala Phe Gln Gly Ala Cys Tyr Lys His Phe Ser
    690                 695                 700

Thr Arg Arg Ser Trp Glu Glu Ala Glu Thr Gln Cys Arg Met Tyr Gly
705                 710                 715                 720

Ala His Leu Ala Ser Ile Ser Thr Pro Glu Glu Gln Asp Phe Ile Asn
                725                 730                 735

Asn Arg Tyr Arg Glu Tyr Gln Trp Ile Gly Leu Asn Asp Arg Thr Ile
            740                 745                 750

Glu Gly Asp Phe Leu Trp Ser Asp Gly Val Pro Leu Leu Tyr Glu Asn
        755                 760                 765

Trp Asn Pro Gly Gln Pro Asp Ser Tyr Phe Leu Ser Gly Glu Asn Cys
    770                 775                 780

Val Val Met Val Trp His Asp Gln Gly Gln Trp Ser Asp Val Pro Cys
785                 790                 795                 800
```

```
Asn Tyr His Leu Ser Tyr Thr Cys Lys Met Gly Leu Val Ser Cys Gly
                805                 810                 815

Pro Pro Pro Glu Leu Pro Leu Ala Gln Val Phe Gly Arg Pro Arg Leu
            820                 825                 830

Arg Tyr Glu Val Asp Thr Val Leu Arg Tyr Arg Cys Arg Glu Gly Leu
        835                 840                 845

Ala Gln Arg Asn Leu Pro Leu Ile Arg Cys Gln Glu Asn Gly Arg Trp
    850                 855                 860

Glu Ala Pro Gln Ile Ser Cys Val Pro Arg Arg Pro Ala Arg Ala Leu
865                 870                 875                 880

His Pro Glu Glu Asp Pro Glu Gly Arg Gln Gly Arg Leu Leu Gly Arg
                885                 890                 895

Trp Lys Ala Leu Leu Ile Pro Pro Ser Ser Pro Met Pro Gly Pro
            900                 905                 910
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<210> 9648
<211> 671
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1960; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q96GW7; "

<220>
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<223> /note="ENSP ID: ENSP00000354925"

<400> 9648

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Met Ala Gln Leu Phe Leu Pro Leu Leu Ala Ala Leu Val Leu Ala Gln
```

```
1               5                   10                  15

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

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

Leu Gly Gly Ala Leu Thr Ile Pro Cys His Val His Tyr Leu Arg Pro
    50                  55                  60

Pro Pro Ser Arg Arg Ala Val Leu Gly Ser Pro Arg Val Lys Trp Thr
65                  70                  75                  80

Phe Leu Ser Arg Gly Arg Glu Ala Glu Val Leu Val Ala Arg Gly Val
                85                  90                  95

Arg Val Lys Val Asn Glu Ala Tyr Arg Phe Arg Val Ala Leu Pro Ala
            100                 105                 110

Tyr Pro Ala Ser Leu Thr Asp Val Ser Leu Ala Leu Ser Glu Leu Arg
        115                 120                 125

Pro Asn Asp Ser Gly Ile Tyr Arg Cys Glu Val Gln His Gly Ile Asp
    130                 135                 140

Asp Ser Ser Asp Ala Val Glu Val Lys Val Lys Gly Val Val Phe Leu
145                 150                 155                 160

Tyr Arg Glu Gly Ser Ala Arg Tyr Ala Phe Ser Phe Ser Gly Ala Gln
                165                 170                 175

Glu Ala Cys Ala Arg Ile Gly Ala His Ile Ala Thr Pro Glu Gln Leu
            180                 185                 190

Tyr Ala Ala Tyr Leu Gly Gly Tyr Glu Gln Cys Asp Ala Gly Trp Leu
        195                 200                 205

Ser Asp Gln Thr Val Arg Tyr Pro Ile Gln Thr Pro Arg Glu Ala Cys
    210                 215                 220

Tyr Gly Asp Met Asp Gly Phe Pro Gly Val Arg Asn Tyr Gly Val Val
225                 230                 235                 240
```

```
Asp Pro Asp Asp Leu Tyr Asp Val Tyr Cys Tyr Ala Glu Asp Leu Asn
                245                 250                 255

Gly Glu Leu Phe Leu Gly Asp Pro Pro Glu Lys Leu Thr Leu Glu Glu
            260                 265                 270

Ala Arg Ala Tyr Cys Gln Glu Arg Gly Ala Glu Ile Ala Thr Thr Gly
        275                 280                 285

Gln Leu Tyr Ala Ala Trp Asp Gly Gly Leu Asp His Cys Ser Pro Gly
    290                 295                 300

Trp Leu Ala Asp Gly Ser Val Arg Tyr Pro Ile Val Thr Pro Ser Gln
305                 310                 315                 320

Arg Cys Gly Gly Gly Leu Pro Gly Val Lys Thr Leu Phe Leu Phe Pro
                325                 330                 335

Asn Gln Thr Gly Phe Pro Asn Lys His Ser Arg Phe Asn Val Tyr Cys
            340                 345                 350

Phe Arg Asp Ser Ala Gln Pro Ser Ala Ile Pro Glu Ala Ser Asn Pro
        355                 360                 365

Ala Ser Asn Pro Ala Ser Asp Gly Leu Glu Ala Ile Val Thr Val Thr
    370                 375                 380

Glu Thr Leu Glu Glu Leu Gln Leu Pro Gln Glu Ala Thr Glu Ser Glu
385                 390                 395                 400

Ser Arg Gly Ala Ile Tyr Ser Ile Pro Ile Met Glu Asp Gly Gly Gly
                405                 410                 415

Gly Ser Ser Thr Pro Glu Asp Pro Ala Glu Ala Pro Arg Thr Leu Leu
            420                 425                 430

Glu Phe Glu Thr Gln Ser Met Val Pro Pro Thr Gly Phe Ser Glu Glu
        435                 440                 445

Glu Gly Lys Ala Leu Glu Glu Glu Glu Lys Tyr Glu Asp Glu Glu Glu
    450                 455                 460
```

```
Lys Glu Glu Glu Glu Glu Glu Glu Glu Val Glu Asp Glu Ala Leu Trp
465                 470                 475                 480

Ala Trp Pro Ser Glu Leu Ser Ser Pro Gly Pro Glu Ala Ser Leu Pro
                485                 490                 495

Thr Glu Pro Ala Ala Gln Glu Glu Ser Leu Ser Gln Ala Pro Ala Arg
            500                 505                 510

Ala Val Leu Gln Pro Gly Ala Ser Pro Leu Pro Asp Gly Glu Ser Glu
        515                 520                 525

Ala Ser Arg Pro Pro Arg Val His Gly Pro Pro Thr Glu Thr Leu Pro
    530                 535                 540

Thr Pro Arg Glu Arg Asn Leu Ala Ser Pro Ser Pro Ser Thr Leu Val
545                 550                 555                 560

Glu Ala Arg Glu Val Gly Glu Ala Thr Gly Gly Pro Glu Leu Ser Gly
                565                 570                 575

Val Pro Arg Gly Glu Ser Glu Glu Thr Gly Ser Ser Glu Gly Ala Pro
            580                 585                 590

Ser Leu Leu Pro Ala Thr Arg Ala Pro Glu Gly Thr Arg Glu Leu Glu
        595                 600                 605

Ala Pro Ser Glu Asp Asn Ser Gly Arg Thr Ala Pro Ala Gly Thr Ser
    610                 615                 620

Val Gln Ala Gln Pro Val Leu Pro Thr Asp Ser Ala Ser Arg Gly Gly
625                 630                 635                 640

Val Ala Val Val Pro Ala Ser Gly Asn Ser Ala Gln Gly Ser Thr Ala
                645                 650                 655

Leu Ser Ile Leu Leu Leu Phe Phe Pro Leu Gln Leu Trp Val Thr
            660                 665                 670
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<210> 9649
<211> 213
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1960; "

<220>
<221> source
<223> /note="Gene Symbol: BCAN; "

<220>
<221> source
<223> /note="Gene Name:
brevican; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000389898"

<400> 9649
Met Ala Gln Leu Phe Leu Pro Leu Leu Ala Ala Leu Val Leu Ala Gln
1 5 10 15

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

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

Leu Gly Gly Ala Leu Thr Ile Pro Cys His Val His Tyr Leu Arg Pro
50 55 60

Pro Pro Ser Arg Arg Ala Val Leu Gly Ser Pro Arg Val Lys Trp Thr
65 70 75 80

Phe Leu Ser Arg Gly Arg Glu Ala Glu Val Leu Val Ala Arg Gly Val
85 90 95

Arg Val Lys Val Asn Glu Ala Tyr Arg Phe Arg Val Ala Leu Pro Ala
100 105 110

Tyr Pro Ala Ser Leu Thr Asp Val Ser Leu Ala Leu Ser Glu Leu Arg
115 120 125

Pro Asn Asp Ser Gly Ile Tyr Arg Cys Glu Val Gln His Gly Ile Asp
130 135 140

Asp Ser Ser Asp Ala Val Glu Val Lys Val Lys Gly Val Val Phe Leu
145 150 155 160

```
Tyr Arg Glu Gly Ser Ala Arg Tyr Ala Phe Ser Phe Ser Gly Ala Gln
                165                 170                 175

Glu Ala Cys Ala Arg Ile Gly Ala His Ile Ala Thr Pro Glu Gln Leu
            180                 185                 190

Tyr Ala Ala Tyr Leu Gly Gly Tyr Glu Gln Cys Asp Ala Gly Trp Leu
        195                 200                 205

Ser Asp Gln Thr Val
    210


<210> 9650
<211> 145
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1960; "

<220>
<221> source
<223> /note="Gene Symbol: BCAN; "

<220>
<221> source
<223> /note="Gene Name:
      brevican; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392731"

<400> 9650
Met Ala Gln Leu Phe Leu Pro Leu Leu Ala Ala Leu Val Leu Ala Gln
1               5                   10                  15

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

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

Leu Gly Gly Ala Leu Thr Ile Pro Cys His Val His Tyr Leu Arg Pro
    50                  55                  60
```

```
Pro Pro Ser Arg Arg Ala Val Leu Gly Ser Pro Arg Val Lys Trp Thr
65                  70                  75                  80

Phe Leu Ser Arg Gly Arg Glu Ala Glu Val Leu Val Ala Arg Gly Val
                85                  90                  95

Arg Val Lys Val Asn Glu Ala Tyr Arg Phe Arg Val Ala Leu Pro Ala
            100                 105                 110

Tyr Pro Ala Ser Leu Thr Asp Val Ser Leu Ala Leu Ser Glu Leu Arg
        115                 120                 125

Pro Asn Asp Ser Gly Ile Tyr Arg Cys Glu Val Gln His Gly Ile Asp
    130                 135                 140

Asp
145


<210> 9651
<211> 231
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1960; "

<220>
<221> source
<223> /note="Gene Symbol: BCAN; "

<220>
<221> source
<223> /note="Gene Name:
      brevican; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401709"

<400> 9651
Met Ala Gln Leu Phe Leu Pro Leu Leu Ala Ala Leu Val Leu Ala Gln
1               5                   10                  15

Ala Pro Ala Ala Leu Ala Asp Val Leu Glu Gly Asp Ser Ser Gly Ile
            20                  25                  30

Tyr Arg Cys Glu Val Gln His Gly Ile Asp Asp Ser Ser Asp Ala Val
        35                  40                  45
```

Glu Val Lys Val Lys Gly Val Val Phe Leu Tyr Arg Glu Gly Ser Ala
50 55 60

Arg Tyr Ala Phe Ser Phe Ser Gly Ala Gln Glu Ala Cys Ala Arg Ile
65 70 75 80

Gly Ala His Ile Ala Thr Pro Glu Gln Leu Tyr Ala Ala Tyr Leu Gly
85 90 95

Gly Tyr Glu Gln Cys Asp Ala Gly Trp Leu Ser Asp Gln Thr Val Arg
100 105 110

Tyr Pro Ile Gln Thr Pro Arg Glu Ala Cys Tyr Gly Asp Met Asp Gly
115 120 125

Phe Pro Gly Val Arg Asn Tyr Gly Val Val Asp Pro Asp Asp Leu Tyr
130 135 140

Asp Val Tyr Cys Tyr Ala Glu Asp Leu Asn Gly Glu Leu Phe Leu Gly
145 150 155 160

Asp Pro Pro Glu Lys Leu Thr Leu Glu Glu Ala Arg Ala Tyr Cys Gln
165 170 175

Glu Arg Gly Ala Glu Ile Ala Thr Thr Gly Gln Leu Tyr Ala Ala Trp
180 185 190

Asp Gly Gly Leu Asp His Cys Ser Pro Gly Trp Leu Ala Asp Gly Ser
195 200 205

Val Arg Tyr Pro Ile Val Thr Pro Ser Gln Arg Cys Gly Gly Gly Leu
210 215 220

Pro Gly Val Lys Thr Leu Phe
225 230

<210> 9652
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1960; "

<220>
<221> source
<223> /note="Gene Symbol: BCAN; "

<220>
<221> source
<223> /note="Gene Name:
brevican; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476259"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9652
Xaa His Gly Ile Asp Asp Ser Ser Asp Ala Val Glu Val Lys Val Lys
1 5 10 15

Gly Gly Gly His Ser Thr His Asn Leu Thr
20 25

<210> 9653
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1960; "

<220>
<221> source
<223> /note="Gene Symbol: BCAN; "

<220>
<221> source
<223> /note="Gene Name:
brevican; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000476509"

<400> 9653
Met Ala Gln Leu Phe Leu Pro Leu Leu Ala Ala Leu Val Leu Ala Gln
1 5 10 15

```
Ala Pro Ala Ala Leu Ala Asp Val Leu Glu Gly Asp Ser Ser Glu Asp
            20                  25                  30

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

Leu Gly Gly Ala Leu Thr Ile Pro Cys His Val His Tyr Leu Arg Pro
    50                  55                  60

Pro Pro Ser Arg Arg Ala Val Leu Gly Ser Pro Arg Val Lys Trp Thr
65                  70                  75                  80

Phe Leu Ser Arg Gly Arg Glu Ala Glu Val Leu Val Ala Arg Gly Val
                85                  90                  95

Arg Val Lys Val Asn Glu Ala Tyr Arg Phe Arg Val Ala Leu Pro Ala
            100                 105                 110

Tyr Pro Ala Ser Leu Thr Asp Val Ser Leu Ala Leu Ser Glu Leu Arg
        115                 120                 125

Pro Asn Asp Ser Gly Ile Tyr Arg Cys Glu Val Gln His Gly Ile Asp
    130                 135                 140

Asp Ser Ser Asp Ala Val Glu Val Lys Val Lys Gly Ile Pro Ser Arg
145                 150                 155                 160

Pro His Glu Arg Pro Val Thr Glu Thr Trp Met Ala Ser Pro Gly Ser
                165                 170                 175

Gly Thr Met Val Trp Trp Thr Arg Met Thr Ser Met Met Cys Thr Val
            180                 185                 190

Met Leu Lys Thr
        195


<210> 9654
<211> 562
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "
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<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor 90 kDa
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q92994; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000329029"

<400> 9654
Met Ala Val Ser Arg His Leu Thr Arg Gly Arg Lys Met Ala His Val
1   5   10   15

Ile Ala Ala Cys Leu Tyr Leu Val Cys Arg Thr Glu Gly Thr Pro His
            20   25   30

Met Leu Leu Asp Leu Ser Asp Leu Leu Gln Val Asn Val Tyr Val Leu
        35   40   45

Gly Lys Thr Phe Leu Leu Leu Ala Arg Glu Leu Cys Ile Asn Ala Pro
    50   55   60

Ala Ile Asp Pro Cys Leu Tyr Ile Pro Arg Phe Ala His Leu Leu Glu
65   70   75   80

Phe Gly Glu Lys Asn His Glu Val Ser Met Thr Ala Leu Arg Leu Leu
                85   90   95

Gln Arg Met Lys Arg Asp Trp Met His Thr Gly Arg Arg Pro Ser Gly
            100   105   110

Leu Cys Gly Ala Ala Leu Leu Val Ala Ala Arg Met His Asp Phe Arg
        115   120   125

Arg Thr Val Lys Glu Val Ile Ser Val Val Lys Val Cys Glu Ser Thr
    130   135   140

Leu Arg Lys Arg Leu Thr Glu Phe Glu Asp Thr Pro Thr Ser Gln Leu

145 150 155 160

Thr Ile Asp Glu Phe Met Lys Ile Asp Leu Glu Glu Glu Cys Asp Pro
165 170 175

Pro Ser Tyr Thr Ala Gly Gln Arg Lys Leu Arg Met Lys Gln Leu Glu
180 185 190

Gln Val Leu Ser Lys Lys Leu Glu Glu Val Glu Gly Glu Ile Ser Ser
195 200 205

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

Lys Gly Gly Leu Ala Ser Leu Ala Lys Asp Gly Ser Thr Glu Asp Thr
225 230 235 240

Ala Ser Ser Leu Cys Gly Glu Glu Asp Thr Glu Asp Glu Glu Leu Glu
245 250 255

Ala Ala Ala Ser His Leu Asn Lys Asp Leu Tyr Arg Glu Leu Leu Gly
260 265 270

Gly Ala Pro Gly Ser Ser Glu Ala Ala Gly Ser Pro Glu Trp Gly Gly
275 280 285

Arg Pro Pro Ala Leu Gly Ser Leu Leu Asp Pro Leu Pro Thr Ala Ala
290 295 300

Ser Leu Gly Ile Ser Asp Ser Ile Arg Glu Cys Ile Ser Ser Gln Ser
305 310 315 320

Ser Asp Pro Lys Asp Ala Ser Gly Asp Gly Glu Leu Asp Leu Ser Gly
325 330 335

Ile Asp Asp Leu Glu Ile Asp Arg Tyr Ile Leu Asn Glu Ser Glu Ala
340 345 350

Arg Val Lys Ala Glu Leu Trp Met Arg Glu Asn Ala Glu Tyr Leu Arg
355 360 365

Glu Gln Arg Glu Lys Glu Ala Arg Ile Ala Lys Glu Lys Glu Leu Gly
370 375 380

```
Ile Tyr Lys Glu His Lys Pro Lys Lys Ser Cys Lys Arg Arg Glu Pro
385                 390                 395                 400

Ile Gln Ala Ser Thr Ala Arg Glu Ala Ile Glu Lys Met Leu Glu Gln
                405                 410                 415

Lys Lys Ile Ser Ser Lys Ile Asn Tyr Ser Val Leu Arg Gly Leu Ser
            420                 425                 430

Ser Ala Gly Gly Gly Ser Pro His Arg Glu Asp Ala Gln Pro Glu His
        435                 440                 445

Ser Ala Ser Ala Arg Lys Leu Ser Arg Arg Arg Thr Pro Ala Ser Arg
    450                 455                 460

Ser Gly Ala Asp Pro Val Thr Ser Val Gly Lys Arg Leu Arg Pro Leu
465                 470                 475                 480

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

Pro Ser Ser Pro Thr Leu Gly Ala Glu Pro Ala Arg Pro Gln Ala Val
            500                 505                 510

Leu Val Glu Ser Gly Pro Val Ser Tyr His Ala Asp Glu Glu Ala Asp
        515                 520                 525

Glu Glu Glu Pro Asp Glu Glu Asp Gly Glu Pro Cys Val Ser Ala Leu
    530                 535                 540

Gln Met Met Gly Ser Asn Asp Tyr Gly Cys Asp Gly Asp Glu Asp Asp
545                 550                 555                 560

Gly Tyr
```

<210> 9655
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369264"

<400> 9655

```
Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His
1               5                  10                  15

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

Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val
        35                  40                  45

Val Lys Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu
    50                  55                  60

Asp Thr Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp
65                  70                  75                  80

Leu Glu Glu Glu Cys Asp Pro Pro Ser Glu Glu Gly Gly Gln Thr Glu
                85                  90                  95

Ala Arg Glu Pro Pro Gln Ala Ser Ser Trp Glu Gly Pro Ser Thr Thr
            100                 105                 110

Arg Arg Arg Ser Gln Leu Trp His Gly Cys Pro Gly Cys Gly Arg Gly
        115                 120                 125

Gly Phe Thr Leu Cys Pro
    130
```

<210> 9656
<211> 650
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q92994; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369269"

<400> 9656

```
Met Thr Gly Arg Val Cys Arg Gly Cys Gly Gly Thr Asp Ile Glu Leu
1               5                  10                  15

Asp Ala Ala Arg Gly Asp Ala Val Cys Thr Ala Cys Gly Ser Val Leu
            20                  25                  30

Glu Asp Asn Ile Ile Val Ser Glu Val Gln Phe Val Glu Ser Ser Gly
        35                  40                  45

Gly Gly Ser Ser Ala Val Gly Gln Phe Val Ser Leu Asp Gly Arg Arg
    50                  55                  60

His Ile His His Leu Gly Asn Gln Leu Gln Leu Asn Gln His Cys Leu
65                  70                  75                  80

Asp Thr Ala Phe Asn Phe Phe Lys Met Ala Val Ser Arg His Leu Thr
                85                  90                  95

Arg Gly Arg Lys Met Ala His Val Ile Ala Ala Cys Leu Tyr Leu Val
            100                 105                 110

Cys Arg Thr Glu Gly Thr Pro His Met Leu Leu Asp Leu Ser Asp Leu
        115                 120                 125
```

```
Leu Gln Val Asn Val Tyr Val Leu Gly Lys Thr Phe Leu Leu Leu Ala
    130                 135                 140

Arg Glu Leu Cys Ile Asn Ala Pro Ala Ile Asp Pro Cys Leu Tyr Ile
145                 150                 155                 160

Pro Arg Phe Ala His Leu Leu Glu Phe Gly Glu Lys Asn His Glu Val
                165                 170                 175

Ser Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met
            180                 185                 190

His Thr Gly Arg Arg Pro Ser Gly Leu Cys Gly Ala Ala Leu Leu Val
        195                 200                 205

Ala Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser
    210                 215                 220

Val Val Lys Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe
225                 230                 235                 240

Glu Asp Thr Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile
                245                 250                 255

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

Lys Leu Arg Met Lys Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu
        275                 280                 285

Glu Val Glu Gly Glu Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu
    290                 295                 300

Leu Glu Asn Ser Arg Pro Lys Ala Lys Gly Gly Leu Ala Ser Leu Ala
305                 310                 315                 320

Lys Asp Gly Ser Thr Glu Asp Thr Ala Ser Ser Leu Cys Gly Glu Glu
                325                 330                 335

Asp Thr Glu Asp Glu Glu Leu Glu Ala Ala Ala Ser His Leu Asn Lys
            340                 345                 350
```

```
Asp Leu Tyr Arg Glu Leu Leu Gly Gly Ala Pro Gly Ser Ser Glu Ala
        355                 360                 365

Ala Gly Ser Pro Glu Trp Gly Gly Arg Pro Pro Ala Leu Gly Ser Leu
    370                 375                 380

Leu Asp Pro Leu Pro Thr Ala Ala Ser Leu Gly Ile Ser Asp Ser Ile
385                 390                 395                 400

Arg Glu Cys Ile Ser Ser Gln Ser Ser Asp Pro Lys Asp Ala Ser Gly
                405                 410                 415

Asp Gly Glu Leu Asp Leu Ser Gly Ile Asp Asp Leu Glu Ile Asp Arg
            420                 425                 430

Tyr Ile Leu Asn Glu Ser Glu Ala Arg Val Lys Ala Glu Leu Trp Met
        435                 440                 445

Arg Glu Asn Ala Glu Tyr Leu Arg Glu Gln Arg Glu Lys Glu Ala Arg
    450                 455                 460

Ile Ala Lys Glu Lys Glu Leu Gly Ile Tyr Lys Glu His Lys Pro Lys
465                 470                 475                 480

Lys Ser Cys Lys Arg Arg Glu Pro Ile Gln Ala Ser Thr Ala Arg Glu
                485                 490                 495

Ala Ile Glu Lys Met Leu Glu Gln Lys Lys Ile Ser Ser Lys Ile Asn
            500                 505                 510

Tyr Ser Val Leu Arg Gly Leu Ser Ser Ala Gly Gly Gly Ser Pro His
        515                 520                 525

Arg Glu Asp Ala Gln Pro Glu His Ser Ala Ser Ala Arg Lys Leu Ser
    530                 535                 540

Arg Arg Arg Thr Pro Ala Ser Arg Ser Gly Ala Asp Pro Val Thr Ser
545                 550                 555                 560

Val Gly Lys Arg Leu Arg Pro Leu Val Ser Thr Gln Pro Ala Lys Lys
                565                 570                 575

Val Ala Thr Gly Glu Ala Leu Leu Pro Ser Ser Pro Thr Leu Gly Ala
```

```
            580                 585                 590

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

Tyr His Ala Asp Glu Glu Ala Asp Glu Glu Glu Pro Asp Glu Glu Asp
    610                 615                 620

Gly Glu Pro Cys Val Ser Ala Leu Gln Met Met Gly Ser Asn Asp Tyr
625                 630                 635                 640

Gly Cys Asp Gly Asp Glu Asp Asp Gly Tyr
                645                 650


<210> 9657
<211> 473
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
      BRF1, RNA polymerase III
      transcription initiation  factor
      90 kDa subunit;  "

<220>
<221> source
<223> /note="Uniprot ID:  Q92994; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376340"

<400> 9657
Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His
1               5                   10                  15

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

Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val
```

```
        35                  40                  45

Val Lys Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu
    50                  55                  60

Asp Thr Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp
65                  70                  75                  80

Leu Glu Glu Glu Cys Asp Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys
                85                  90                  95

Leu Arg Met Lys Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu Glu
            100                 105                 110

Val Glu Gly Glu Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu Leu
        115                 120                 125

Glu Asn Ser Arg Pro Lys Ala Lys Gly Gly Leu Ala Ser Leu Ala Lys
    130                 135                 140

Asp Gly Ser Thr Glu Asp Thr Ala Ser Ser Leu Cys Gly Glu Glu Asp
145                 150                 155                 160

Thr Glu Asp Glu Glu Leu Glu Ala Ala Ala Ser His Leu Asn Lys Asp
                165                 170                 175

Leu Tyr Arg Glu Leu Leu Gly Gly Ala Pro Gly Ser Ser Glu Ala Ala
            180                 185                 190

Gly Ser Pro Glu Trp Gly Gly Arg Pro Pro Ala Leu Gly Ser Leu Leu
        195                 200                 205

Asp Pro Leu Pro Thr Ala Ala Ser Leu Gly Ile Ser Asp Ser Ile Arg
    210                 215                 220

Glu Cys Ile Ser Ser Gln Ser Ser Asp Pro Lys Asp Ala Ser Gly Asp
225                 230                 235                 240

Gly Glu Leu Asp Leu Ser Gly Ile Asp Asp Leu Glu Ile Asp Arg Tyr
                245                 250                 255

Ile Leu Asn Glu Ser Glu Ala Arg Val Lys Ala Glu Leu Trp Met Arg
            260                 265                 270
```

```
Glu Asn Ala Glu Tyr Leu Arg Glu Gln Arg Glu Lys Glu Ala Arg Ile
        275                 280                 285

Ala Lys Glu Lys Glu Leu Gly Ile Tyr Lys Glu His Lys Pro Lys Lys
    290                 295                 300

Ser Cys Lys Arg Arg Glu Pro Ile Gln Ala Ser Thr Ala Arg Glu Ala
305                 310                 315                 320

Ile Glu Lys Met Leu Glu Gln Lys Lys Ile Ser Ser Lys Ile Asn Tyr
                325                 330                 335

Ser Val Leu Arg Gly Leu Ser Ser Ala Gly Gly Gly Ser Pro His Arg
            340                 345                 350

Glu Asp Ala Gln Pro Glu His Ser Ala Ser Ala Arg Lys Leu Ser Arg
        355                 360                 365

Arg Arg Thr Pro Ala Ser Arg Ser Gly Ala Asp Pro Val Thr Ser Val
    370                 375                 380

Gly Lys Arg Leu Arg Pro Leu Val Ser Thr Gln Pro Ala Lys Lys Val
385                 390                 395                 400

Ala Thr Gly Glu Ala Leu Leu Pro Ser Ser Pro Thr Leu Gly Ala Glu
                405                 410                 415

Pro Ala Arg Pro Gln Ala Val Leu Val Glu Ser Gly Pro Val Ser Tyr
            420                 425                 430

His Ala Asp Glu Glu Ala Asp Glu Glu Glu Pro Asp Glu Glu Asp Gly
        435                 440                 445

Glu Pro Cys Val Ser Ala Leu Gln Met Met Gly Ser Asn Asp Tyr Gly
    450                 455                 460

Cys Asp Gly Asp Glu Asp Asp Gly Tyr
465                 470
```

<210> 9658
<211> 584
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q92994; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388877"

<400> 9658

```
Met Ala Val Ser Arg His Leu Thr Arg Gly Arg Lys Met Ala His Val
1               5                  10                  15

Ile Ala Ala Cys Leu Tyr Leu Val Cys Arg Thr Glu Gly Thr Pro His
            20                  25                  30

Met Leu Leu Asp Leu Ser Asp Leu Leu Gln Val Asn Val Tyr Val Leu
        35                  40                  45

Gly Lys Thr Phe Leu Leu Leu Ala Arg Glu Leu Cys Ile Asn Ala Pro
    50                  55                  60

Ala Ile Asp Pro Cys Leu Tyr Ile Pro Arg Phe Ala His Leu Leu Glu
65                  70                  75                  80

Phe Gly Glu Lys Asn His Glu Val Ser Met Thr Ala Leu Arg Leu Leu
                85                  90                  95

Gln Arg Met Lys Arg Asp Trp Met His Thr Gly Arg Arg Pro Ser Gly
            100                 105                 110

Leu Cys Gly Ala Ala Leu Leu Val Ala Ala Arg Met His Asp Phe Arg
        115                 120                 125
```

```
Arg Thr Val Lys Glu Val Ile Ser Val Val Lys Val Cys Glu Ser Thr
    130                 135                 140

Leu Arg Lys Arg Leu Thr Glu Phe Glu Asp Thr Pro Thr Ser Gln Leu
145                 150                 155                 160

Thr Ile Asp Glu Phe Met Lys Ile Asp Leu Glu Glu Glu Cys Asp Pro
                165                 170                 175

Pro Ser Tyr Thr Ala Gly Gln Arg Lys Leu Arg Met Lys Gln Leu Glu
            180                 185                 190

Gln Val Leu Ser Lys Lys Leu Glu Glu Val Glu Gly Glu Ile Ser Ser
        195                 200                 205

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

Lys Gly Gly Leu Ala Ser Leu Ala Lys Asp Gly Ser Thr Glu Asp Thr
225                 230                 235                 240

Ala Ser Ser Leu Cys Gly Glu Glu Asp Thr Glu Asp Glu Glu Leu Glu
                245                 250                 255

Ala Ala Ala Ser His Leu Asn Lys Asp Leu Tyr Arg Glu Leu Leu Gly
            260                 265                 270

Gly Ala Pro Gly Ser Ser Glu Ala Ala Gly Ser Pro Glu Trp Gly Gly
        275                 280                 285

Arg Pro Pro Ala Leu Gly Ser Leu Leu Asp Pro Leu Pro Thr Ala Ala
    290                 295                 300

Ser Leu Gly Ile Ser Asp Ser Ile Arg Glu Cys Ile Ser Ser Gln Ser
305                 310                 315                 320

Ser Asp Pro Lys Asp Ala Ser Gly Asp Gly Glu Leu Asp Leu Ser Gly
                325                 330                 335

Ile Asp Asp Leu Glu Ile Asp Arg Arg Asp Leu Ser Met Pro Arg Cys
            340                 345                 350
```

```
Ala Lys Ala Lys Ser Gln Pro His Phe Pro Val Leu Ala Gln Tyr Ile
        355                 360                 365

Leu Asn Glu Ser Glu Ala Arg Val Lys Ala Glu Leu Trp Met Arg Glu
    370                 375                 380

Asn Ala Glu Tyr Leu Arg Glu Gln Arg Glu Lys Glu Ala Arg Ile Ala
385                 390                 395                 400

Lys Glu Lys Glu Leu Gly Ile Tyr Lys Glu His Lys Pro Lys Lys Ser
                405                 410                 415

Cys Lys Arg Arg Glu Pro Ile Gln Ala Ser Thr Ala Arg Glu Ala Ile
            420                 425                 430

Glu Lys Met Leu Glu Gln Lys Lys Ile Ser Ser Lys Ile Asn Tyr Ser
        435                 440                 445

Val Leu Arg Gly Leu Ser Ser Ala Gly Gly Gly Ser Pro His Arg Glu
    450                 455                 460

Asp Ala Gln Pro Glu His Ser Ala Ser Ala Arg Lys Leu Ser Arg Arg
465                 470                 475                 480

Arg Thr Pro Ala Ser Arg Ser Gly Ala Asp Pro Val Thr Ser Val Gly
                485                 490                 495

Lys Arg Leu Arg Pro Leu Val Ser Thr Gln Pro Ala Lys Lys Val Ala
            500                 505                 510

Thr Gly Glu Ala Leu Leu Pro Ser Ser Pro Thr Leu Gly Ala Glu Pro
        515                 520                 525

Ala Arg Pro Gln Ala Val Leu Val Glu Ser Gly Pro Val Ser Tyr His
    530                 535                 540

Ala Asp Glu Glu Ala Asp Glu Glu Glu Pro Asp Glu Glu Asp Gly Glu
545                 550                 555                 560

Pro Cys Val Ser Ala Leu Gln Met Met Gly Ser Asn Asp Tyr Gly Cys
                565                 570                 575

Asp Gly Asp Glu Asp Asp Gly Tyr
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580

<210> 9659
<211> 439
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q92994; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000389859"

<400> 9659
Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val Val Lys
1 5 10 15

Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu Asp Thr
20 25 30

Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp Leu Glu
35 40 45

Glu Glu Cys Asp Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys Leu Arg
50 55 60

Met Lys Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu Glu Val Glu
65 70 75 80

Gly Glu Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu Leu Glu Asn
85 90 95

Ser Arg Pro Lys Ala Lys Gly Gly Leu Ala Ser Leu Ala Lys Asp Gly

```
            100                 105                 110

Ser Thr Glu Asp Thr Ala Ser Ser Leu Cys Gly Glu Glu Asp Thr Glu
        115                 120                 125

Asp Glu Glu Leu Glu Ala Ala Ala Ser His Leu Asn Lys Asp Leu Tyr
    130                 135                 140

Arg Glu Leu Leu Gly Gly Ala Pro Gly Ser Ser Glu Ala Ala Gly Ser
145                 150                 155                 160

Pro Glu Trp Gly Gly Arg Pro Pro Ala Leu Gly Ser Leu Leu Asp Pro
                165                 170                 175

Leu Pro Thr Ala Ala Ser Leu Gly Ile Ser Asp Ser Ile Arg Glu Cys
            180                 185                 190

Ile Ser Ser Gln Ser Ser Asp Pro Lys Asp Ala Ser Gly Asp Gly Glu
        195                 200                 205

Leu Asp Leu Ser Gly Ile Asp Asp Leu Glu Ile Asp Arg Tyr Ile Leu
    210                 215                 220

Asn Glu Ser Glu Ala Arg Val Lys Ala Glu Leu Trp Met Arg Glu Asn
225                 230                 235                 240

Ala Glu Tyr Leu Arg Glu Gln Arg Glu Lys Glu Ala Arg Ile Ala Lys
                245                 250                 255

Glu Lys Glu Leu Gly Ile Tyr Lys Glu His Lys Pro Lys Lys Ser Cys
            260                 265                 270

Lys Arg Arg Glu Pro Ile Gln Ala Ser Thr Ala Arg Glu Ala Ile Glu
        275                 280                 285

Lys Met Leu Glu Gln Lys Lys Ile Ser Ser Lys Ile Asn Tyr Ser Val
    290                 295                 300

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

Ala Gln Pro Glu His Ser Ala Ser Ala Arg Lys Leu Ser Arg Arg Arg
                325                 330                 335
```

```
Thr Pro Ala Ser Arg Ser Gly Ala Asp Pro Val Thr Ser Val Gly Lys
            340                 345                 350

Arg Leu Arg Pro Leu Val Ser Thr Gln Pro Ala Lys Lys Val Ala Thr
        355                 360                 365

Gly Glu Ala Leu Leu Pro Ser Ser Pro Thr Leu Gly Ala Glu Pro Ala
    370                 375                 380

Arg Pro Gln Ala Val Leu Val Glu Ser Gly Pro Val Ser Tyr His Ala
385                 390                 395                 400

Asp Glu Glu Ala Asp Glu Glu Glu Pro Asp Glu Glu Asp Gly Glu Pro
                405                 410                 415

Cys Val Ser Ala Leu Gln Met Met Gly Ser Asn Asp Tyr Gly Cys Asp
            420                 425                 430

Gly Asp Glu Asp Asp Gly Tyr
        435
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<210> 9660
<211> 208
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
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<223> /note="Gene Symbol: BRF1; "

<220>
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<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q92994; "

<220>
<221> source
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<400> 9660
Met Thr Gly Arg Val Cys Arg Gly Cys Gly Gly Thr Asp Ile Glu Leu
1 5 10 15

Asp Ala Ala Arg Gly Asp Ala Val Cys Thr Ala Cys Gly Ser Val Leu
20 25 30

Glu Asp Asn Ile Ile Val Ser Glu Val Gln Phe Val Glu Ser Ser Gly
35 40 45

Gly Gly Ser Ser Ala Val Gly Gln Phe Val Ser Leu Asp Gly Ala Gly
50 55 60

Lys Thr Pro Thr Leu Gly Gly Gly Phe His Val Asn Leu Gly Lys Glu
65 70 75 80

Ser Arg Ala Gln Thr Leu Gln Asn Gly Arg Arg His Ile His His Leu
85 90 95

Gly Asn Gln Leu Gln Leu Asn Gln His Cys Leu Asp Thr Ala Phe Asn
100 105 110

Phe Phe Lys Met Ala Val Ser Arg His Leu Thr Arg Gly Arg Lys Met
115 120 125

Ala His Val Ile Ala Ala Cys Leu Tyr Leu Val Cys Arg Thr Glu Gly
130 135 140

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

Leu Arg Pro Ala Ser Phe Pro Thr Trp Gly Cys Asp Leu Gly Val Val
165 170 175

Thr Arg Val Val Thr Gly Val Tyr Pro Arg Cys Leu His Ala Ser Gln
180 185 190

Trp Pro Val Cys Ala Ala Cys Pro Val Arg Lys Phe Trp Ser Val Gly
195 200 205

<210> 9661
<211> 161
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<220>
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BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446901"

<400> 9661

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Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His
1               5                  10                  15

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

Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val
        35                  40                  45

Val Lys Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu
    50                  55                  60

Asp Thr Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp
65                  70                  75                  80

Leu Glu Glu Glu Cys Asp Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys
                85                  90                  95

Leu Arg Met Lys Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu Glu
            100                 105                 110

Val Glu Gly Glu Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu Leu
        115                 120                 125

Glu Asn Ser Arg Pro Lys Ala Pro His Arg Gly Gly Arg Ala Asp Gly
    130                 135                 140
```

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

Ser

<210> 9662
<211> 14
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447521"

<400> 9662
Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp
1 5 10

<210> 9663
<211> 677
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448387"

<400> 9663
Met Thr Gly Arg Val Cys Arg Gly Cys Gly Gly Thr Asp Ile Glu Leu
1   5   10   15

Asp Ala Ala Arg Gly Asp Ala Val Cys Thr Ala Cys Gly Ser Val Leu
            20   25   30

Glu Asp Asn Ile Ile Val Ser Glu Val Gln Phe Val Glu Ser Ser Gly
        35   40   45

Gly Gly Ser Ser Ala Val Gly Gln Phe Val Ser Leu Asp Gly Ala Gly
    50   55   60

Lys Thr Pro Thr Leu Gly Gly Gly Phe His Val Asn Leu Gly Lys Glu
65   70   75   80

Ser Arg Ala Gln Thr Leu Gln Asn Gly Arg Arg His Ile His His Leu
                85   90   95

Gly Asn Gln Leu Gln Leu Asn Gln His Cys Leu Asp Thr Ala Phe Asn
            100   105   110

Phe Phe Lys Met Ala Val Ser Arg His Leu Thr Arg Gly Arg Lys Met
        115   120   125

Ala His Val Ile Ala Ala Cys Leu Tyr Leu Val Cys Arg Thr Glu Gly
    130   135   140

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

Tyr Val Leu Gly Lys Thr Phe Leu Leu Leu Ala Arg Glu Leu Cys Ile
                165   170   175

Asn Ala Pro Ala Ile Asp Pro Cys Leu Tyr Ile Pro Arg Phe Ala His
            180   185   190

Leu Leu Glu Phe Gly Glu Lys Asn His Glu Val Ser Met Thr Ala Leu
        195   200   205

```
Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His Thr Gly Arg Arg
    210                 215                 220

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

Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val Val Lys Val Cys
                245                 250                 255

Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu Asp Thr Pro Thr
            260                 265                 270

Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp Leu Glu Glu Glu
        275                 280                 285

Cys Asp Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys Leu Arg Met Lys
    290                 295                 300

Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu Glu Val Glu Gly Glu
305                 310                 315                 320

Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu Leu Glu Asn Ser Arg
                325                 330                 335

Pro Lys Ala Lys Gly Gly Leu Ala Ser Leu Ala Lys Asp Gly Ser Thr
            340                 345                 350

Glu Asp Thr Ala Ser Ser Leu Cys Gly Glu Glu Asp Thr Glu Asp Glu
        355                 360                 365

Glu Leu Glu Ala Ala Ala Ser His Leu Asn Lys Asp Leu Tyr Arg Glu
    370                 375                 380

Leu Leu Gly Gly Ala Pro Gly Ser Ser Glu Ala Ala Gly Ser Pro Glu
385                 390                 395                 400

Trp Gly Gly Arg Pro Pro Ala Leu Gly Ser Leu Leu Asp Pro Leu Pro
                405                 410                 415

Thr Ala Ala Ser Leu Gly Ile Ser Asp Ser Ile Arg Glu Cys Ile Ser
            420                 425                 430
```

```
Ser Gln Ser Ser Asp Pro Lys Asp Ala Ser Gly Asp Gly Glu Leu Asp
        435                 440                 445

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

Ser Glu Ala Arg Val Lys Ala Glu Leu Trp Met Arg Glu Asn Ala Glu
465                 470                 475                 480

Tyr Leu Arg Glu Gln Arg Glu Lys Glu Ala Arg Ile Ala Lys Glu Lys
                485                 490                 495

Glu Leu Gly Ile Tyr Lys Glu His Lys Pro Lys Lys Ser Cys Lys Arg
            500                 505                 510

Arg Glu Pro Ile Gln Ala Ser Thr Ala Arg Glu Ala Ile Glu Lys Met
        515                 520                 525

Leu Glu Gln Lys Lys Ile Ser Ser Lys Ile Asn Tyr Ser Val Leu Arg
    530                 535                 540

Gly Leu Ser Ser Ala Gly Gly Gly Ser Pro His Arg Glu Asp Ala Gln
545                 550                 555                 560

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

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

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

Ala Leu Leu Pro Ser Ser Pro Thr Leu Gly Ala Glu Pro Ala Arg Pro
    610                 615                 620

Gln Ala Val Leu Val Glu Ser Gly Pro Val Ser Tyr His Ala Asp Glu
625                 630                 635                 640

Glu Ala Asp Glu Glu Glu Pro Asp Glu Glu Asp Gly Glu Pro Cys Val
                645                 650                 655

Ser Ala Leu Gln Met Met Gly Ser Asn Asp Tyr Gly Cys Asp Gly Asp
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660 665 670

Glu Asp Asp Gly Tyr
675

<210> 9664
<211> 234
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448723"

<400> 9664
Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His
1 5 10 15

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

Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val
35 40 45

Val Lys Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu
50 55 60

Asp Thr Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp
65 70 75 80

Leu Glu Glu Glu Cys Asp Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys
85 90 95

Leu Arg Met Lys Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu Glu

```
            100                 105                 110

Val Glu Gly Glu Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu Leu
        115                 120                 125

Glu Asn Ser Arg Pro Lys Ala Lys Gly Gly Leu Ala Ser Leu Ala Lys
    130                 135                 140

Asp Gly Ser Thr Glu Asp Thr Ala Ser Ser Leu Cys Gly Glu Glu Asp
145                 150                 155                 160

Thr Glu Asp Glu Glu Leu Glu Ala Ala Ala Ser His Leu Asn Lys Asp
                165                 170                 175

Leu Tyr Arg Glu Leu Leu Gly Gly Ala Pro Gly Ser Ser Glu Ala Ala
            180                 185                 190

Gly Ser Pro Glu Trp Gly Gly Arg Pro Pro Ala Leu Gly Ser Leu Leu
        195                 200                 205

Asp Pro Leu Pro Thr Ala Ala Ser Leu Gly Ile Ser Asp Ser Ile Arg
    210                 215                 220

Glu Cys Ile Ser Ser Gln Ser Ser Asp Pro
225                 230


<210> 9665
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
      BRF1, RNA polymerase III
      transcription initiation  factor
      90 kDa subunit;  "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000448823"

<400> 9665
Met Ala Val Ser Arg His Leu Thr Arg Gly Arg Lys Met Ala His Val
1   5   10   15

Ile Ala Ala Cys Leu Tyr Leu Val Cys Arg Thr Glu Gly Thr Pro His
            20   25   30

Met Leu Leu Asp Leu Ser Asp Leu Leu Gln Val Asn Val Tyr Val Leu
        35   40   45

Gly Lys Thr Phe Leu Leu Leu Ala Arg Glu Leu Cys Ile Asn Ala
    50   55   60

<210> 9666
<211> 45
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449173"

<400> 9666
Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His
1   5   10   15

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

Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val
        35   40   45

<210> 9667

<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
BRF1, RNA polymerase III
transcription initiation factor
90 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449788"

<400> 9667

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Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His
1               5                  10                  15

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

Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val
        35                  40                  45

Val Lys Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu
    50                  55                  60

Asp Thr Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp
65                  70                  75                  80

Leu Glu Glu Glu Cys Asp Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys
                85                  90                  95

Leu Arg Met Lys Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu Glu
            100                 105                 110

Val Glu Gly Glu Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu Leu
        115                 120                 125

Glu Asn Ser Arg Pro Lys Ala Lys Gly Gly Leu Ala Ser Leu Ala Lys
```

```
    130                 135                 140

Asp Gly Ser Thr Glu Asp Thr Ala Ser Ser Leu
145                 150                 155


<210> 9668
<211> 185
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
      BRF1, RNA polymerase III
      transcription initiation  factor
      90 kDa subunit;  "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450258"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9668
Xaa Gly Gln Phe Val Ser Leu Asp Gly Ala Gly Lys Thr Pro Thr Leu
1               5                   10                  15


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


Leu Gln Asn Asp Pro Cys Leu Tyr Ile Pro Arg Phe Ala His Leu Leu
        35                  40                  45


Glu Phe Gly Glu Lys Asn His Glu Val Ser Met Thr Ala Leu Arg Leu
    50                  55                  60


Leu Gln Arg Met Lys Arg Asp Trp Met His Thr Gly Arg Arg Pro Ser
65                  70                  75                  80
```

```
Gly Leu Cys Gly Ala Ala Leu Leu Val Ala Ala Arg Met His Asp Phe
                85                  90                  95

Arg Arg Thr Val Lys Glu Val Ile Ser Val Val Lys Val Cys Glu Ser
            100                 105                 110

Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu Asp Thr Pro Thr Ser Gln
        115                 120                 125

Leu Thr Ile Asp Glu Phe Met Lys Ile Asp Leu Glu Glu Glu Cys Asp
    130                 135                 140

Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys Leu Arg Met Lys Gln Leu
145                 150                 155                 160

Glu Gln Val Leu Ser Lys Lys Leu Glu Glu Val Glu Gly Glu Ile Ser
                165                 170                 175

Ser Tyr Gln Asp Ala Ile Glu Ile Glu
            180                 185


<210> 9669
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1961; "

<220>
<221> source
<223> /note="Gene Symbol: BRF1; "

<220>
<221> source
<223> /note="Gene Name:
      BRF1, RNA polymerase III
      transcription initiation  factor
      90 kDa subunit;  "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480452"

<400> 9669
Met Thr Ala Leu Arg Leu Leu Gln Arg Met Lys Arg Asp Trp Met His
1               5                   10                  15
```

```
Thr Gly Arg Arg Pro Ser Gly Leu Cys Gly Ala Ala Leu Leu Val Ala
            20                  25                  30

Ala Arg Met His Asp Phe Arg Arg Thr Val Lys Glu Val Ile Ser Val
        35                  40                  45

Val Lys Val Cys Glu Ser Thr Leu Arg Lys Arg Leu Thr Glu Phe Glu
    50                  55                  60

Asp Thr Pro Thr Ser Gln Leu Thr Ile Asp Glu Phe Met Lys Ile Asp
65                  70                  75                  80

Leu Glu Glu Glu Cys Asp Pro Pro Ser Tyr Thr Ala Gly Gln Arg Lys
                85                  90                  95

Leu Arg Met Lys Gln Leu Glu Gln Val Leu Ser Lys Lys Leu Glu Glu
            100                 105                 110

Val Glu Gly Glu Ile Ser Ser Tyr Gln Asp Ala Ile Glu Ile Glu Leu
        115                 120                 125

Glu Asn Ser Pro Pro Ser Arg Arg Glu Gly Arg Arg Arg Pro Glu Ser
    130                 135                 140

Leu Pro Arg Pro Leu Arg Gly Lys Ala Pro Val Pro Leu Val Gly Gly
145                 150                 155                 160

Leu Ser Ser Gly Met Ala Ala Pro Asp Val Ala Glu Gly Ala Ser Pro
                165                 170                 175

Cys Val Leu Arg Arg Gly Trp Pro
            180


<210> 9670
<211> 419
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1962; "

<220>
<221> source
<223> /note="Gene Symbol: BRF2; "
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<220>
<221> source
<223> /note="Gene Name:
BRF2, RNA polymerase III
transcription initiation factor
50 kDa subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HAW0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000220659"

<400> 9670
Met Pro Gly Arg Gly Arg Cys Pro Asp Cys Gly Ser Thr Glu Leu Val
1 5 10 15

Glu Asp Ser His Tyr Ser Gln Ser Gln Leu Val Cys Ser Asp Cys Gly
20 25 30

Cys Val Val Thr Glu Gly Val Leu Thr Thr Thr Phe Ser Asp Glu Gly
35 40 45

Asn Leu Arg Glu Val Thr Tyr Ser Arg Ser Thr Gly Glu Asn Glu Gln
50 55 60

Val Ser Arg Ser Gln Gln Arg Gly Leu Arg Arg Val Arg Asp Leu Cys
65 70 75 80

Arg Val Leu Gln Leu Pro Pro Thr Phe Glu Asp Thr Ala Val Ala Tyr
85 90 95

Tyr Gln Gln Ala Tyr Arg His Ser Gly Ile Arg Ala Ala Arg Leu Gln
100 105 110

Lys Lys Glu Val Leu Val Gly Cys Cys Val Leu Ile Thr Cys Arg Gln
115 120 125

His Asn Trp Pro Leu Thr Met Gly Ala Ile Cys Thr Leu Leu Tyr Ala
130 135 140

Asp Leu Asp Val Phe Ser Ser Thr Tyr Met Gln Ile Val Lys Leu Leu
145 150 155 160

```
Gly Leu Asp Val Pro Ser Leu Cys Leu Ala Glu Leu Val Lys Thr Tyr
                165                 170                 175

Cys Ser Ser Phe Lys Leu Phe Gln Ala Ser Pro Ser Val Pro Ala Lys
            180                 185                 190

Tyr Val Glu Asp Lys Glu Lys Met Leu Ser Arg Thr Met Gln Leu Val
        195                 200                 205

Glu Leu Ala Asn Glu Thr Trp Leu Val Thr Gly Arg His Pro Leu Pro
    210                 215                 220

Val Ile Thr Ala Ala Thr Phe Leu Ala Trp Gln Ser Leu Gln Pro Ala
225                 230                 235                 240

Asp Arg Leu Ser Cys Ser Leu Ala Arg Phe Cys Lys Leu Ala Asn Val
                245                 250                 255

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

Leu Leu Arg Met Ala Glu Gln Leu Ala Trp Leu Arg Val Leu Arg Leu
        275                 280                 285

Asp Lys Arg Ser Val Val Lys His Ile Gly Asp Leu Leu Gln His Arg
    290                 295                 300

Gln Ser Leu Val Arg Ser Ala Phe Arg Asp Gly Thr Ala Glu Val Glu
305                 310                 315                 320

Thr Arg Glu Lys Glu Pro Pro Gly Trp Gly Gln Gly Gln Gly Glu Gly
                325                 330                 335

Glu Val Gly Asn Asn Ser Leu Gly Leu Pro Gln Gly Lys Arg Pro Ala
            340                 345                 350

Ser Pro Ala Leu Leu Leu Pro Pro Cys Met Leu Lys Ser Pro Lys Arg
        355                 360                 365

Ile Cys Pro Val Pro Pro Val Ser Thr Val Thr Gly Asp Glu Asn Ile
    370                 375                 380

Ser Asp Ser Glu Ile Glu Gln Tyr Leu Arg Thr Pro Gln Glu Val Arg
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385 390 395 400

Asp Phe Gln Arg Ala Gln Ala Ala Arg Gln Ala Ala Thr Ser Val Pro
405 410 415

Asn Pro Pro

<210> 9671
<211> 72
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1962; "

<220>
<221> source
<223> /note="Gene Symbol: BRF2; "

<220>
<221> source
<223> /note="Gene Name:
BRF2, RNA polymerase III
transcription initiation factor
50 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429554"

<400> 9671
Met Pro Gly Arg Gly Arg Cys Pro Asp Cys Gly Ser Thr Glu Leu Val
1 5 10 15

Glu Asp Ser His Tyr Ser Gln Ser Gln Leu Val Cys Ser Asp Cys Gly
20 25 30

Cys Val Val Thr Glu Gly Val Leu Thr Thr Thr Phe Ser Asp Glu Gly
35 40 45

Asn Leu Arg Glu Val Thr Tyr Ser Arg Ser Thr Gly Glu Asn Glu Gln
50 55 60

Val Ser Arg Ser Gln Gln Arg Glu
65 70

<210> 9672

<211> 202
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1962; "

<220>
<221> source
<223> /note="Gene Symbol: BRF2; "

<220>
<221> source
<223> /note="Gene Name:
BRF2, RNA polymerase III
transcription initiation factor
50 kDa subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430107"

<400> 9672

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Met Pro Gly Arg Gly Arg Cys Pro Asp Cys Gly Ser Thr Glu Leu Val
1               5                  10                  15

Glu Asp Ser His Tyr Ser Gln Ser Gln Leu Val Cys Ser Asp Cys Gly
            20                  25                  30

Cys Val Val Thr Glu Gly Val Leu Thr Thr Thr Phe Ser Asp Glu Gly
        35                  40                  45

Asn Leu Arg Glu Val Thr Tyr Ser Arg Ser Thr Gly Glu Asn Glu Gln
    50                  55                  60

Val Ser Arg Ser Gln Gln Arg Gly Leu Arg Arg Val Arg Asp Leu Cys
65                  70                  75                  80

Arg Val Leu Gln Leu Pro Pro Thr Phe Glu Asp Thr Ala Val Ala Tyr
                85                  90                  95

Tyr Gln Gln Ala Tyr Arg His Ser Gly Ile Arg Ala Ala Arg Leu Gln
            100                 105                 110

Lys Lys Glu Val Leu Val Gly Cys Cys Val Leu Ile Thr Cys Arg Gln
        115                 120                 125

His Asn Trp Pro Leu Thr Met Gly Ala Ile Cys Thr Leu Leu Tyr Ala
```

```
    130                 135                 140

Asp Leu Asp Val Phe Ser Ser Thr Tyr Met Gln Ile Val Lys Leu Leu
145                 150                 155                 160

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

Cys Ser Ser Leu Glu Cys Ser Gly Thr Ile Ile Ala His Cys Ser Leu
            180                 185                 190

Glu Leu Met Gly Ser Ser Asp Leu Pro Thr
        195                 200


<210> 9673
<211> 72
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1962; "

<220>
<221> source
<223> /note="Gene Symbol: BRF2; "

<220>
<221> source
<223> /note="Gene Name:
      BRF2, RNA polymerase III
      transcription initiation  factor
      50 kDa subunit;  "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430193"

<400> 9673
Met Pro Gly Arg Gly Arg Cys Pro Asp Cys Gly Ser Thr Glu Leu Val
1               5                   10                  15

Glu Asp Ser His Tyr Ser Gln Ser Gln Leu Val Cys Ser Asp Cys Gly
            20                  25                  30

Cys Val Val Thr Glu Gly Val Leu Thr Thr Thr Phe Ser Asp Glu Gly
        35                  40                  45

Asn Leu Arg Glu Val Thr Tyr Ser Arg Ser Thr Gly Glu Asn Glu Gln
```

```
    50                  55                  60

Val Ser Arg Ser Gln Gln Arg Glu
65                  70


<210> 9674
<211> 251
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1963; "

<220>
<221> source
<223> /note="Gene Symbol: BRI3BP; "

<220>
<221> source
<223> /note="Gene Name:
      BRI3 binding prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8WY22; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000340761"

<400> 9674
Met Gly Ala Arg Ala Ser Gly Gly Pro Leu Ala Arg Ala Gly Leu Leu
1               5                  10                  15


Leu Leu Leu Leu Leu Leu Leu Leu Leu Gly Leu Leu Ala Pro Gly Ala
            20                  25                  30


Gln Gly Ala Arg Gly Arg Gly Gly Ala Glu Lys Asn Ser Tyr Arg Arg
        35                  40                  45


Thr Val Asn Thr Phe Ser Gln Ser Val Ser Ser Leu Phe Gly Glu Asp
    50                  55                  60


Asn Val Arg Ala Ala Gln Lys Phe Leu Ala Arg Leu Thr Glu Arg Phe
65                  70                  75                  80


Val Leu Gly Val Asp Met Phe Val Glu Thr Leu Trp Lys Val Trp Thr
                85                  90                  95
```

```
Glu Leu Leu Asp Val Leu Gly Leu Asp Val Ser Asn Leu Ser Gln Tyr
            100                 105                 110

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

Val Gly Val Val Leu Leu Ala Tyr Trp Phe Leu Ser Leu Thr Leu Gly
    130                 135                 140

Phe Thr Phe Ser Val Leu His Val Val Phe Gly Arg Phe Phe Trp Ile
145                 150                 155                 160

Val Arg Val Val Leu Phe Ser Met Ser Cys Val Tyr Ile Leu His Lys
                165                 170                 175

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

Ala Val Tyr Phe Met Thr Gly Pro Met Gly Phe Tyr Trp Arg Ser Ser
        195                 200                 205

Pro Ser Gly Pro Ser Asn Pro Ser Asn Pro Ser Val Glu Glu Lys Leu
    210                 215                 220

Glu His Leu Glu Lys Gln Val Arg Leu Leu Asn Ile Arg Leu Asn Arg
225                 230                 235                 240

Val Leu Glu Ser Leu Asp Arg Ser Lys Asp Lys
                245                 250
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<210> 9675
<211> 228
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1964; "

<220>
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<223> /note="Gene Symbol: BRICD5; "

<220>
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<223> /note="Gene Name:

BRICHOS
domain containing 5; "

<220>
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<223> /note="Uniprot ID: Q6PL45; "

<220>
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<223> /note="ENSP ID: ENSP00000332389"

<400> 9675

```
Met Glu Pro Ala Ser Cys Cys Ala Glu Arg Pro Lys Pro Gly Pro Thr
1               5                  10                  15

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

Leu Leu Leu Leu Leu Leu Leu Val Leu Ala Ala Val Gly Val Val Ala
        35                  40                  45

Gly Gly Leu Leu Gly Ser Ala Gln Gly Pro Pro Lys Pro Arg Leu Gln
    50                  55                  60

Thr Leu Arg Met Thr Leu Pro Ser Pro His Met Pro Arg Pro Asn Gln
65                  70                  75                  80

Thr Ile Leu Val Asp Val Ala Arg Asn Ala Ala Thr Ile Thr Val Thr
                85                  90                  95

Pro Pro Gln Ser Asn His Ser Trp Ala Val Leu Phe Asp Gly Gln Ser
            100                 105                 110

Gly Cys Ile Cys Tyr Arg Pro Glu Glu His Gln Val Cys Phe Leu Arg
        115                 120                 125

Leu Met Glu Asp Ser Asp Arg Glu Thr Leu Arg Leu Leu Val Asp Thr
    130                 135                 140

Ser Lys Val Gln Glu Ala Trp Val Pro Ser Gln Asp Thr His His Thr
145                 150                 155                 160

Gln Glu Leu Leu Ala Val Gln Gly Ser Leu Glu Val Asp Pro Ala Gln
                165                 170                 175

Ala Gly Ala Leu Val Gln Arg Leu Cys Met Arg Thr Pro Ile Tyr Trp
```

```
            180                 185                 190

Ala Arg Arg Ala Glu Gly Pro Arg Arg Gln Arg Leu Ile Tyr Leu Cys
        195                 200                 205

Ile Asp Ile Cys Phe Pro Ser Asn Ile Cys Val Ser Val Cys Phe Tyr
    210                 215                 220

Tyr Leu Pro Asp
225
```

<210> 9676
<211> 260
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1964; "

<220>
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<220>
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domain containing 5; "

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<220>
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<223> /note="ENSP ID: ENSP00000455052"

<400> 9676

```
Met Glu Pro Ala Ser Cys Cys Ala Glu Arg Pro Lys Pro Gly Pro Thr
1               5                  10                  15

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

Leu Leu Leu Leu Leu Leu Leu Val Leu Ala Ala Val Gly Val Val Ala
        35                  40                  45

Gly Gly Leu Leu Gly Ser Ala Gln Gly Pro Pro Lys Pro Arg Leu Gln
    50                  55                  60
```

```
Thr Leu Arg Met Thr Leu Pro Ser Pro His Met Pro Arg Pro Asn Gln
65                  70                  75                  80

Thr Ile Leu Val Asp Val Ala Arg Asn Ala Ala Thr Ile Thr Val Thr
                85                  90                  95

Pro Pro Gln Ser Asn His Ser Trp Ala Val Leu Phe Asp Gly Gln Ser
            100                 105                 110

Gly Cys Ile Cys Tyr Arg Pro Glu Glu His Gln Val Cys Phe Leu Arg
        115                 120                 125

Leu Met Glu Asp Ser Asp Arg Glu Thr Leu Arg Leu Leu Val Asp Thr
    130                 135                 140

Ser Lys Val Gln Glu Ala Trp Val Pro Ser Gln Asp Thr His His Thr
145                 150                 155                 160

Gln Glu Leu Leu Ala Val Gln Gly Ser Leu Glu Val Asp Pro Ala Gln
                165                 170                 175

Ala Gly Ala Leu Val Gln Arg Leu Cys Met Arg Thr Pro Ile Tyr Trp
            180                 185                 190

Ala Arg Arg Ala Glu Gly Glu Ser Gly Pro Leu Trp Gly Lys Ala Arg
        195                 200                 205

Pro Ser Gly Trp Phe Glu Glu Leu Gly Ala Glu Pro Leu Glu Ile His
    210                 215                 220

Gly Thr Leu Ala Thr Gly Pro Arg Arg Gln Arg Leu Ile Tyr Leu Cys
225                 230                 235                 240

Ile Asp Ile Cys Phe Pro Ser Asn Ile Cys Val Ser Val Cys Phe Tyr
                245                 250                 255

Tyr Leu Pro Asp
            260
```

<210> 9677
<211> 153
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1964; "

<220>
<221> source
<223> /note="Gene Symbol: BRICD5; "

<220>
<221> source
<223> /note="Gene Name:
BRICHOS
domain containing 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457969"

<400> 9677

```
Met Glu Pro Ala Ser Cys Cys Ala Glu Arg Pro Lys Pro Gly Pro Thr
1               5                  10                  15


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


Leu Leu Leu Leu Leu Leu Leu Val Leu Ala Ala Val Gly Val Val Ala
        35                  40                  45


Gly Gly Leu Leu Gly Ser Ala Gln Gly Pro Pro Lys Pro Arg Leu Gln
    50                  55                  60


Thr Leu Arg Met Thr Leu Pro Ser Pro His Met Pro Arg Pro Asn Gln
65                  70                  75                  80


Thr Ile Leu Val Asp Val Ala Arg Asn Ala Ala Thr Ile Thr Val Thr
                85                  90                  95


Pro Pro Gln Ser Asn His Ser Trp Ala Val Leu Phe Asp Gly Gln Ser
            100                 105                 110


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


Pro Ala Ser Pro Pro Cys Leu Pro Arg Ala Ala Ser Val Thr Ala Leu
    130                 135                 140
```

```
Arg Ser Thr Arg Ser Ala Ser Ser Ala
145                 150


<210> 9678
<211> 75
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1965; "

<220>
<221> source
<223> /note="Gene Symbol: BRK1; "

<220>
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<223> /note="Gene Name:
      BRICK1, SCAR/WAVE actin-nucleating complex
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8WUW1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432472"

<400> 9678
Met Ala Gly Gln Glu Asp Pro Val Gln Arg Glu Ile His Gln Asp Trp
1               5                   10                  15


Ala Asn Arg Glu Tyr Ile Glu Ile Ile Thr Ser Ser Ile Lys Lys Ile
            20                  25                  30


Ala Asp Phe Leu Asn Ser Phe Asp Met Ser Cys Arg Ser Arg Leu Ala
        35                  40                  45


Thr Leu Asn Glu Lys Leu Thr Ala Leu Glu Arg Arg Ile Glu Tyr Ile
    50                  55                  60


Glu Ala Arg Val Thr Lys Gly Glu Thr Leu Thr
65                  70                  75


<210> 9679
<211> 409
<212> PRT
<213> Homo sapiens
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<220>
<221> source
<223> /note="Payload ID: 1966; "

<220>
<221> source
<223> /note="Gene Symbol: BIN1; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 1; "

<220>
<221> source
<223> /note="Uniprot ID: O00499; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000259237"

<400> 9679
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1   5   10   15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20   25   30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35   40   45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50   55   60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65   70   75   80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85   90   95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100   105   110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115   120   125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130   135   140

```
Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165                 170                 175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180                 185                 190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195                 200                 205

Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp
                245                 250                 255

Asn Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser
            260                 265                 270

Pro Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala
        275                 280                 285

Gly Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Ser
    290                 295                 300

Ser Leu Pro Ala Val Val Val Glu Thr Phe Pro Ala Thr Val Asn Gly
305                 310                 315                 320

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

Phe Met Phe Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr Asp Thr
            340                 345                 350

Asp Glu Leu Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile Pro Phe
        355                 360                 365
```

```
Gln Asn Pro Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val Lys Glu
    370                 375                 380

Ser Asp Trp Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly Val Phe
385                 390                 395                 400

Pro Glu Asn Phe Thr Glu Arg Val Pro
                405
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<210> 9680
<211> 497
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1966; "

<220>
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<223> /note="Gene Symbol: BIN1; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 1; "

<220>
<221> source
<223> /note="Uniprot ID: O00499; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000259238"

<400> 9680

```
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1               5                   10                  15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20                  25                  30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35                  40                  45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50                  55                  60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65                  70                  75                  80
```

```
Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85                  90                  95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100                 105                 110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115                 120                 125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165                 170                 175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180                 185                 190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195                 200                 205

Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Arg Lys
                245                 250                 255

Lys Ser Lys Leu Phe Ser Arg Leu Arg Arg Lys Lys Asn Ser Asp Asn
            260                 265                 270

Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser Pro
        275                 280                 285

Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala Gly
    290                 295                 300
```

```
Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Leu Arg
305                 310                 315                 320

Lys Gly Pro Pro Val Pro Pro Pro Pro Lys His Thr Pro Ser Lys Glu
                325                 330                 335

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

Glu Ile Ser Val Thr Thr Pro Ser Gln Pro Ala Glu Ala Ser Glu Val
        355                 360                 365

Ala Gly Gly Thr Gln Pro Ala Ala Gly Ala Gln Glu Pro Gly Glu Thr
    370                 375                 380

Ala Ala Ser Glu Ala Ala Ser Ser Ser Leu Pro Ala Val Val Val Glu
385                 390                 395                 400

Thr Phe Pro Ala Thr Val Asn Gly Thr Val Glu Gly Gly Ser Gly Ala
                405                 410                 415

Gly Arg Leu Asp Leu Pro Pro Gly Phe Met Phe Lys Val Gln Ala Gln
            420                 425                 430

His Asp Tyr Thr Ala Thr Asp Thr Asp Glu Leu Gln Leu Lys Ala Gly
        435                 440                 445

Asp Val Val Leu Val Ile Pro Phe Gln Asn Pro Glu Glu Gln Asp Glu
    450                 455                 460

Gly Trp Leu Met Gly Val Lys Glu Ser Asp Trp Asn Gln His Lys Glu
465                 470                 475                 480

Leu Glu Lys Cys Arg Gly Val Phe Pro Glu Asn Phe Thr Glu Arg Val
                485                 490                 495

Pro
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<210> 9681
<211> 454
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1966; "

<220>
<221> source
<223> /note="Gene Symbol: BIN1; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 1; "

<220>
<221> source
<223> /note="Uniprot ID: O00499; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000315284"

<400> 9681
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1   5   10   15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20   25   30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35   40   45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50   55   60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65   70   75   80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85   90   95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100   105   110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115   120   125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130   135   140

```
Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165                 170                 175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180                 185                 190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195                 200                 205

Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Arg Lys
                245                 250                 255

Lys Ser Lys Leu Phe Ser Arg Leu Arg Arg Lys Lys Asn Ser Asp Asn
            260                 265                 270

Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser Pro
        275                 280                 285

Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala Gly
    290                 295                 300

Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Pro Ala
305                 310                 315                 320

Glu Ala Ser Glu Val Ala Gly Gly Thr Gln Pro Ala Ala Gly Ala Gln
                325                 330                 335

Glu Pro Gly Glu Thr Ala Ala Ser Glu Ala Ala Ser Ser Ser Leu Pro
            340                 345                 350

Ala Val Val Val Glu Thr Phe Pro Ala Thr Val Asn Gly Thr Val Glu
        355                 360                 365
```

```
Gly Gly Ser Gly Ala Gly Arg Leu Asp Leu Pro Pro Gly Phe Met Phe
    370                 375                 380

Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr Asp Thr Asp Glu Leu
385                 390                 395                 400

Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile Pro Phe Gln Asn Pro
                405                 410                 415

Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val Lys Glu Ser Asp Trp
            420                 425                 430

Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly Val Phe Pro Glu Asn
        435                 440                 445

Phe Thr Glu Arg Val Pro
    450
```

<210> 9682
<211> 506
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1966; "

<220>
<221> source
<223> /note="Gene Symbol: BIN1; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 1; "

<220>
<221> source
<223> /note="Uniprot ID: O00499; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000315388"

<400> 9682

```
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1               5                   10                  15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
```

```
            20                  25                  30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35                  40                  45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50                  55                  60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65                  70                  75                  80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85                  90                  95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100                 105                 110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115                 120                 125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Pro Val Ser
                165                 170                 175

Leu Leu Glu Lys Ala Ala Pro Gln Trp Cys Gln Gly Lys Leu Gln Ala
            180                 185                 190

His Leu Val Ala Gln Thr Asn Leu Leu Arg Asn Gln Ala Glu Glu Glu
        195                 200                 205

Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu Gln
    210                 215                 220

Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val Asn
225                 230                 235                 240

Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu Met
                245                 250                 255
```

```
Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu Lys
            260                 265                 270

Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp Asn
        275                 280                 285

Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser Pro
    290                 295                 300

Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala Gly
305                 310                 315                 320

Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Pro Thr
                325                 330                 335

Glu Ser Pro Ala Gly Ser Leu Pro Ser Gly Glu Pro Ser Ala Ala Glu
            340                 345                 350

Gly Thr Phe Ala Val Ser Trp Pro Ser Gln Thr Ala Glu Pro Gly Pro
        355                 360                 365

Ala Gln Pro Ala Glu Ala Ser Glu Val Ala Gly Gly Thr Gln Pro Ala
    370                 375                 380

Ala Gly Ala Gln Glu Pro Gly Glu Thr Ala Ala Ser Glu Ala Ala Ser
385                 390                 395                 400

Ser Ser Leu Pro Ala Val Val Val Glu Thr Phe Pro Ala Thr Val Asn
                405                 410                 415

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

Gly Phe Met Phe Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr Asp
        435                 440                 445

Thr Asp Glu Leu Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile Pro
    450                 455                 460

Phe Gln Asn Pro Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val Lys
465                 470                 475                 480
```

Glu Ser Asp Trp Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly Val
485 490 495

Phe Pro Glu Asn Phe Thr Glu Arg Val Pro
500 505

<210> 9683
<211> 518
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1966; "

<220>
<221> source
<223> /note="Gene Symbol: BIN1; "

<220>
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<223> /note="Gene Name:
bridging integrator 1; "

<220>
<221> source
<223> /note="Uniprot ID: O00499; "

<220>
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<223> /note="ENSP ID: ENSP00000315411"

<400> 9683
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1 5 10 15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
20 25 30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
35 40 45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
50 55 60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65 70 75 80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly

```
                85                  90                  95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100                 105                 110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115                 120                 125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165                 170                 175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180                 185                 190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195                 200                 205

Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp
                245                 250                 255

Asn Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser
            260                 265                 270

Pro Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala
        275                 280                 285

Gly Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Leu
    290                 295                 300

Arg Lys Gly Pro Pro Val Pro Pro Pro Pro Lys His Thr Pro Ser Lys
305                 310                 315                 320
```

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

Pro Glu Ile Ser Val Thr Thr Pro Ser Gln Pro Thr Glu Ser Pro Ala
340 345 350

Gly Ser Leu Pro Ser Gly Glu Pro Ser Ala Ala Glu Gly Thr Phe Ala
355 360 365

Val Ser Trp Pro Ser Gln Thr Ala Glu Pro Gly Pro Ala Gln Pro Ala
370 375 380

Glu Ala Ser Glu Val Ala Gly Gly Thr Gln Pro Ala Ala Gly Ala Gln
385 390 395 400

Glu Pro Gly Glu Thr Ala Ala Ser Glu Ala Ala Ser Ser Ser Leu Pro
405 410 415

Ala Val Val Val Glu Thr Phe Pro Ala Thr Val Asn Gly Thr Val Glu
420 425 430

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

Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr Asp Thr Asp Glu Leu
450 455 460

Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile Pro Phe Gln Asn Pro
465 470 475 480

Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val Lys Glu Ser Asp Trp
485 490 495

Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly Val Phe Pro Glu Asn
500 505 510

Phe Thr Glu Arg Val Pro
515

<210> 9684
<211> 593
<212> PRT

<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: BIN1; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: O00499; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000316779"

<400> 9684

```
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1               5                  10                  15


Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20                  25                  30


Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35                  40                  45


Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50                  55                  60


Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65                  70                  75                  80


Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85                  90                  95


Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100                 105                 110


Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115                 120                 125


Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
```

```
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Pro Val Ser
                165                 170                 175

Leu Leu Glu Lys Ala Ala Pro Gln Trp Cys Gln Gly Lys Leu Gln Ala
            180                 185                 190

His Leu Val Ala Gln Thr Asn Leu Leu Arg Asn Gln Ala Glu Glu Glu
        195                 200                 205

Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu Gln
    210                 215                 220

Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val Asn
225                 230                 235                 240

Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu Met
                245                 250                 255

Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu Lys
            260                 265                 270

Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp Asn
        275                 280                 285

Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser Pro
    290                 295                 300

Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala Gly
305                 310                 315                 320

Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Leu Arg
                325                 330                 335

Lys Gly Pro Pro Val Pro Pro Pro Pro Lys His Thr Pro Ser Lys Glu
            340                 345                 350

Val Lys Gln Glu Gln Ile Leu Ser Leu Phe Glu Asp Thr Phe Val Pro
        355                 360                 365
```

```
Glu Ile Ser Val Thr Thr Pro Ser Gln Phe Glu Ala Pro Gly Pro Phe
    370                 375                 380

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

Val Thr Ser Pro Val Lys Ala Pro Thr Pro Ser Gly Gln Ser Ile Pro
                405                 410                 415

Trp Asp Leu Trp Glu Pro Thr Glu Ser Pro Ala Gly Ser Leu Pro Ser
            420                 425                 430

Gly Glu Pro Ser Ala Ala Glu Gly Thr Phe Ala Val Ser Trp Pro Ser
        435                 440                 445

Gln Thr Ala Glu Pro Gly Pro Ala Gln Pro Ala Glu Ala Ser Glu Val
    450                 455                 460

Ala Gly Gly Thr Gln Pro Ala Ala Gly Ala Gln Glu Pro Gly Glu Thr
465                 470                 475                 480

Ala Ala Ser Glu Ala Ala Ser Ser Ser Leu Pro Ala Val Val Val Glu
                485                 490                 495

Thr Phe Pro Ala Thr Val Asn Gly Thr Val Glu Gly Gly Ser Gly Ala
            500                 505                 510

Gly Arg Leu Asp Leu Pro Pro Gly Phe Met Phe Lys Val Gln Ala Gln
        515                 520                 525

His Asp Tyr Thr Ala Thr Asp Thr Asp Glu Leu Gln Leu Lys Ala Gly
    530                 535                 540

Asp Val Val Leu Val Ile Pro Phe Gln Asn Pro Glu Glu Gln Asp Glu
545                 550                 555                 560

Gly Trp Leu Met Gly Val Lys Glu Ser Asp Trp Asn Gln His Lys Glu
                565                 570                 575

Leu Glu Lys Cys Arg Gly Val Phe Pro Glu Asn Phe Thr Glu Arg Val
            580                 585                 590
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Pro

<210> 9685
<211> 550
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1966; "

<220>
<221> source
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<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID: O00499; "

<220>
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<400> 9685
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1 5 10 15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
20 25 30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
35 40 45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
50 55 60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65 70 75 80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
85 90 95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met

```
            100                 105                 110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115                 120                 125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Pro Val Ser
                165                 170                 175

Leu Leu Glu Lys Ala Ala Pro Gln Trp Cys Gln Gly Lys Leu Gln Ala
            180                 185                 190

His Leu Val Ala Gln Thr Asn Leu Leu Arg Asn Gln Ala Glu Glu Glu
        195                 200                 205

Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu Gln
    210                 215                 220

Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val Asn
225                 230                 235                 240

Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu Met
                245                 250                 255

Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu Lys
            260                 265                 270

Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp Asn
        275                 280                 285

Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser Pro
    290                 295                 300

Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala Gly
305                 310                 315                 320

Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Phe Glu
                325                 330                 335
```

```
Ala Pro Gly Pro Phe Ser Glu Gln Ala Ser Leu Leu Asp Leu Asp Phe
            340                 345                 350

Asp Pro Leu Pro Pro Val Thr Ser Pro Val Lys Ala Pro Thr Pro Ser
        355                 360                 365

Gly Gln Ser Ile Pro Trp Asp Leu Trp Glu Pro Thr Glu Ser Pro Ala
    370                 375                 380

Gly Ser Leu Pro Ser Gly Glu Pro Ser Ala Ala Glu Gly Thr Phe Ala
385                 390                 395                 400

Val Ser Trp Pro Ser Gln Thr Ala Glu Pro Gly Pro Ala Gln Pro Ala
                405                 410                 415

Glu Ala Ser Glu Val Ala Gly Gly Thr Gln Pro Ala Ala Gly Ala Gln
            420                 425                 430

Glu Pro Gly Glu Thr Ala Ala Ser Glu Ala Ala Ser Ser Ser Leu Pro
        435                 440                 445

Ala Val Val Val Glu Thr Phe Pro Ala Thr Val Asn Gly Thr Val Glu
    450                 455                 460

Gly Gly Ser Gly Ala Gly Arg Leu Asp Leu Pro Pro Gly Phe Met Phe
465                 470                 475                 480

Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr Asp Thr Asp Glu Leu
                485                 490                 495

Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile Pro Phe Gln Asn Pro
            500                 505                 510

Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val Lys Glu Ser Asp Trp
        515                 520                 525

Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly Val Phe Pro Glu Asn
    530                 535                 540

Phe Thr Glu Arg Val Pro
545                 550
```

<210> 9686
<211> 424
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1966; "

<220>
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<220>
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<223> /note="Uniprot ID: O00499; "

<220>
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<400> 9686
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1   5   10   15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20   25   30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35   40   45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50   55   60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65   70   75   80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85   90   95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100   105   110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr

```
        115                 120                 125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165                 170                 175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180                 185                 190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195                 200                 205

Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Arg Lys
                245                 250                 255

Lys Ser Lys Leu Phe Ser Arg Leu Arg Arg Lys Lys Asn Ser Asp Asn
            260                 265                 270

Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser Pro
        275                 280                 285

Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala Gly
    290                 295                 300

Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Ser Ser
305                 310                 315                 320

Leu Pro Ala Val Val Val Glu Thr Phe Pro Ala Thr Val Asn Gly Thr
                325                 330                 335

Val Glu Gly Gly Ser Gly Ala Gly Arg Leu Asp Leu Pro Pro Gly Phe
            340                 345                 350
```

```
Met Phe Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr Asp Thr Asp
        355                 360                 365

Glu Leu Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile Pro Phe Gln
    370                 375                 380

Asn Pro Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val Lys Glu Ser
385                 390                 395                 400

Asp Trp Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly Val Phe Pro
                405                 410                 415

Glu Asn Phe Thr Glu Arg Val Pro
            420


<210> 9687
<211> 482
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1966; "

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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="Uniprot ID:  O00499; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376760"

<400> 9687
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1               5                   10                  15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20                  25                  30
```

```
Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35                  40                  45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50                  55                  60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65                  70                  75                  80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85                  90                  95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100                 105                 110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115                 120                 125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165                 170                 175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180                 185                 190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195                 200                 205

Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp
                245                 250                 255

Asn Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser
```

```
            260                 265                 270

Pro Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala
        275                 280                 285

Gly Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Leu
    290                 295                 300

Arg Lys Gly Pro Pro Val Pro Pro Pro Pro Lys His Thr Pro Ser Lys
305                 310                 315                 320

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

Pro Glu Ile Ser Val Thr Thr Pro Ser Gln Pro Ala Glu Ala Ser Glu
            340                 345                 350

Val Ala Gly Gly Thr Gln Pro Ala Ala Gly Ala Gln Glu Pro Gly Glu
        355                 360                 365

Thr Ala Ala Ser Glu Ala Ala Ser Ser Ser Leu Pro Ala Val Val Val
    370                 375                 380

Glu Thr Phe Pro Ala Thr Val Asn Gly Thr Val Glu Gly Gly Ser Gly
385                 390                 395                 400

Ala Gly Arg Leu Asp Leu Pro Pro Gly Phe Met Phe Lys Val Gln Ala
                405                 410                 415

Gln His Asp Tyr Thr Ala Thr Asp Thr Asp Glu Leu Gln Leu Lys Ala
            420                 425                 430

Gly Asp Val Val Leu Val Ile Pro Phe Gln Asn Pro Glu Glu Gln Asp
        435                 440                 445

Glu Gly Trp Leu Met Gly Val Lys Glu Ser Asp Trp Asn Gln His Lys
    450                 455                 460

Glu Leu Glu Lys Cys Arg Gly Val Phe Pro Glu Asn Phe Thr Glu Arg
465                 470                 475                 480

Val Pro
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<210> 9688
<211> 475
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1966; "

<220>
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<220>
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<223> /note="Uniprot ID: O00499; "

<220>
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<223> /note="ENSP ID: ENSP00000376761"

<400> 9688
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1   5   10   15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20   25   30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35   40   45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50   55   60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65   70   75   80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85   90   95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100   105   110

```
Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115                 120                 125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130                 135                 140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145                 150                 155                 160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165                 170                 175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180                 185                 190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195                 200                 205

Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp
                245                 250                 255

Asn Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser
            260                 265                 270

Pro Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala
        275                 280                 285

Gly Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Pro
    290                 295                 300

Thr Glu Ser Pro Ala Gly Ser Leu Pro Ser Gly Glu Pro Ser Ala Ala
305                 310                 315                 320

Glu Gly Thr Phe Ala Val Ser Trp Pro Ser Gln Thr Ala Glu Pro Gly
                325                 330                 335

Pro Ala Gln Pro Ala Glu Ala Ser Glu Val Ala Gly Gly Thr Gln Pro
```

```
            340                 345                 350

Ala Ala Gly Ala Gln Glu Pro Gly Glu Thr Ala Ala Ser Glu Ala Ala
        355                 360                 365

Ser Ser Ser Leu Pro Ala Val Val Val Glu Thr Phe Pro Ala Thr Val
    370                 375                 380

Asn Gly Thr Val Glu Gly Gly Ser Gly Ala Gly Arg Leu Asp Leu Pro
385                 390                 395                 400

Pro Gly Phe Met Phe Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr
                405                 410                 415

Asp Thr Asp Glu Leu Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile
            420                 425                 430

Pro Phe Gln Asn Pro Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val
        435                 440                 445

Lys Glu Ser Asp Trp Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly
    450                 455                 460

Val Phe Pro Glu Asn Phe Thr Glu Arg Val Pro
465                 470                 475


<210> 9689
<211> 439
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1966; "

<220>
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<223> /note="Gene Symbol: BIN1; "

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<223> /note="Gene Name:
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<223> /note="Uniprot ID:  O00499; "
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<220>
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<400> 9689
Met Ala Glu Met Gly Ser Lys Gly Val Thr Ala Gly Lys Ile Ala Ser
1   5   10   15

Asn Val Gln Lys Lys Leu Thr Arg Ala Gln Glu Lys Val Leu Gln Lys
            20   25   30

Leu Gly Lys Ala Asp Glu Thr Lys Asp Glu Gln Phe Glu Gln Cys Val
        35   40   45

Gln Asn Phe Asn Lys Gln Leu Thr Glu Gly Thr Arg Leu Gln Lys Asp
    50   55   60

Leu Arg Thr Tyr Leu Ala Ser Val Lys Ala Met His Glu Ala Ser Lys
65   70   75   80

Lys Leu Asn Glu Cys Leu Gln Glu Val Tyr Glu Pro Asp Trp Pro Gly
                85   90   95

Arg Asp Glu Ala Asn Lys Ile Ala Glu Asn Asn Asp Leu Leu Trp Met
            100   105   110

Asp Tyr His Gln Lys Leu Val Asp Gln Ala Leu Leu Thr Met Asp Thr
        115   120   125

Tyr Leu Gly Gln Phe Pro Asp Ile Lys Ser Arg Ile Ala Lys Arg Gly
    130   135   140

Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Tyr Glu Ser Leu
145   150   155   160

Gln Thr Ala Lys Lys Lys Asp Glu Ala Lys Ile Ala Lys Ala Glu Glu
                165   170   175

Glu Leu Ile Lys Ala Gln Lys Val Phe Glu Glu Met Asn Val Asp Leu
            180   185   190

Gln Glu Glu Leu Pro Ser Leu Trp Asn Ser Arg Val Gly Phe Tyr Val
        195   200   205

```
Asn Thr Phe Gln Ser Ile Ala Gly Leu Glu Glu Asn Phe His Lys Glu
    210                 215                 220

Met Ser Lys Leu Asn Gln Asn Leu Asn Asp Val Leu Val Gly Leu Glu
225                 230                 235                 240

Lys Gln His Gly Ser Asn Thr Phe Thr Val Lys Ala Gln Pro Ser Asp
                245                 250                 255

Asn Ala Pro Ala Lys Gly Asn Lys Ser Pro Ser Pro Pro Asp Gly Ser
            260                 265                 270

Pro Ala Ala Thr Pro Glu Ile Arg Val Asn His Glu Pro Glu Pro Ala
        275                 280                 285

Gly Gly Ala Thr Pro Gly Ala Thr Leu Pro Lys Ser Pro Ser Gln Pro
    290                 295                 300

Ala Glu Ala Ser Glu Val Ala Gly Gly Thr Gln Pro Ala Ala Gly Ala
305                 310                 315                 320

Gln Glu Pro Gly Glu Thr Ala Ala Ser Glu Ala Ala Ser Ser Ser Leu
                325                 330                 335

Pro Ala Val Val Val Glu Thr Phe Pro Ala Thr Val Asn Gly Thr Val
            340                 345                 350

Glu Gly Gly Ser Gly Ala Gly Arg Leu Asp Leu Pro Pro Gly Phe Met
        355                 360                 365

Phe Lys Val Gln Ala Gln His Asp Tyr Thr Ala Thr Asp Thr Asp Glu
    370                 375                 380

Leu Gln Leu Lys Ala Gly Asp Val Val Leu Val Ile Pro Phe Gln Asn
385                 390                 395                 400

Pro Glu Glu Gln Asp Glu Gly Trp Leu Met Gly Val Lys Glu Ser Asp
                405                 410                 415

Trp Asn Gln His Lys Glu Leu Glu Lys Cys Arg Gly Val Phe Pro Glu
            420                 425                 430

Asn Phe Thr Glu Arg Val Pro
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435

<210> 9690
<211> 551
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1967; "

<220>
<221> source
<223> /note="Gene Symbol: BIN2; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410217"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9690
Xaa Glu Asn His Arg Ala Arg Gly Gln Gly Gly Gly Pro Gln Gly Val
1 5 10 15

Gly Arg Met Ala Glu Gly Lys Ala Gly Gly Ala Ala Gly Leu Phe Ala
20 25 30

Lys Gln Val Gln Lys Lys Phe Ser Arg Ala Gln Glu Lys Val Leu Gln
35 40 45

Lys Leu Gly Lys Ala Val Glu Thr Lys Asp Glu Arg Phe Glu Gln Ser
50 55 60

Ala Ser Asn Phe Tyr Gln Gln Gln Ala Glu Gly His Lys Leu Tyr Lys
65 70 75 80

Asp Leu Lys Asn Phe Leu Ser Ala Val Lys Val Met His Glu Ser Ser
85 90 95

Lys Arg Val Ser Glu Thr Leu Gln Glu Ile Tyr Ser Ser Glu Trp Asp

```
            100                 105                 110

Gly His Glu Glu Leu Lys Ala Ile Val Trp Glu Arg Ile Ala Lys Arg
        115                 120                 125

Gly Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Leu Glu Ala
    130                 135                 140

Val Gln Asn Ala Lys Lys Lys Asp Glu Ala Lys Thr Ala Lys Ala Glu
145                 150                 155                 160

Glu Glu Phe Asn Lys Ala Gln Thr Val Phe Glu Asp Leu Asn Gln Glu
                165                 170                 175

Leu Leu Glu Glu Leu Pro Ile Leu Tyr Asn Ser Arg Ile Gly Cys Tyr
            180                 185                 190

Val Thr Ile Phe Gln Asn Ile Ser Asn Leu Arg Asp Val Phe Tyr Arg
        195                 200                 205

Glu Met Ser Lys Leu Asn His Asn Leu Tyr Glu Val Met Ser Lys Leu
    210                 215                 220

Glu Lys Gln His Ser Asn Lys Val Phe Val Val Lys Gly Leu Ser Ser
225                 230                 235                 240

Ser Ser Arg Arg Ser Leu Val Ile Ser Pro Pro Val Arg Thr Ala Thr
                245                 250                 255

Val Ser Ser Pro Leu Thr Ser Pro Thr Ser Pro Ser Thr Leu Ser Leu
            260                 265                 270

Lys Ser Glu Ser Glu Ser Val Ser Ala Thr Glu Asp Leu Ala Pro Asp
        275                 280                 285

Ala Ala Gln Gly Glu Asp Asn Ser Glu Ile Lys Glu Leu Leu Glu Glu
    290                 295                 300

Glu Glu Ile Glu Lys Glu Gly Ser Glu Ala Ser Ser Ser Glu Glu Asp
305                 310                 315                 320

Glu Pro Leu Pro Ala Cys Asn Gly Pro Ala Gln Ala Gln Pro Ser Pro
                325                 330                 335
```

```
Thr Thr Glu Arg Ala Lys Ser Gln Glu Glu Val Leu Pro Ser Ser Thr
            340                 345                 350

Thr Pro Ser Pro Gly Gly Ala Leu Ser Pro Ser Gly Gln Pro Ser Ser
        355                 360                 365

Ser Ala Thr Glu Val Val Leu Arg Thr Arg Thr Ala Ser Glu Gly Ser
    370                 375                 380

Glu Gln Pro Lys Lys Arg Ala Ser Ile Gln Arg Thr Ser Ala Pro Pro
385                 390                 395                 400

Ser Arg Pro Pro Pro Pro Arg Ala Thr Ala Ser Pro Arg Pro Ser Ser
                405                 410                 415

Gly Asn Ile Pro Ser Ser Pro Thr Ala Ser Gly Gly Gly Ser Pro Thr
            420                 425                 430

Ser Pro Arg Ala Ser Leu Gly Thr Gly Thr Ala Ser Pro Arg Thr Ser
        435                 440                 445

Leu Glu Val Ser Pro Asn Pro Glu Pro Pro Glu Lys Pro Val Arg Thr
    450                 455                 460

Pro Glu Ala Lys Glu Asn Glu Asn Ile His Asn Gln Asn Pro Glu Glu
465                 470                 475                 480

Leu Cys Thr Ser Pro Thr Leu Met Thr Ser Gln Val Ala Ser Glu Pro
                485                 490                 495

Gly Glu Ala Lys Lys Met Glu Asp Lys Glu Lys Asp Asn Lys Leu Ile
            500                 505                 510

Ser Ala Asn Ser Ser Glu Gly Gln Asp Gln Leu Gln Val Ser Met Val
        515                 520                 525

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

Thr Ser Glu Asn Pro Gln Leu
545                 550
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<210> 9691
<211> 539
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1967; "

<220>
<221> source
<223> /note="Gene Symbol: BIN2; "

<220>
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<223> /note="Gene Name:
bridging integrator 2; "

<220>
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<400> 9691
Met Val Leu Gln Lys Leu Gly Lys Ala Val Glu Thr Lys Asp Glu Arg
1 5 10 15

Phe Glu Gln Ser Ala Ser Asn Phe Tyr Gln Gln Gln Ala Glu Gly His
20 25 30

Lys Leu Tyr Lys Asp Leu Lys Asn Phe Leu Ser Ala Val Lys Val Met
35 40 45

His Glu Ser Ser Lys Arg Val Ser Glu Thr Leu Gln Glu Ile Tyr Ser
50 55 60

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

Asp Leu Leu Trp Glu Asp Tyr Glu Glu Lys Leu Ala Asp Gln Ala Val
85 90 95

Arg Thr Met Glu Ile Tyr Val Ala Gln Phe Ser Glu Ile Lys Glu Arg
100 105 110

Ile Ala Lys Arg Gly Arg Lys Leu Val Asp Tyr Asp Ser Ala Arg His
115 120 125

His Leu Glu Ala Val Gln Asn Ala Lys Lys Lys Asp Glu Ala Lys Thr

130 135 140

Ala Lys Ala Glu Glu Glu Phe Asn Lys Ala Gln Thr Val Phe Glu Asp
145 150 155 160

Leu Asn Gln Glu Leu Leu Glu Glu Leu Pro Ile Leu Tyr Asn Ser Arg
165 170 175

Ile Gly Cys Tyr Val Thr Ile Phe Gln Asn Ile Ser Asn Leu Arg Asp
180 185 190

Val Phe Tyr Arg Glu Met Ser Lys Leu Asn His Asn Leu Tyr Glu Val
195 200 205

Met Ser Lys Leu Glu Lys Gln His Ser Asn Lys Val Phe Val Val Lys
210 215 220

Gly Leu Ser Ser Ser Ser Arg Arg Ser Leu Val Ile Ser Pro Pro Val
225 230 235 240

Arg Thr Ala Thr Val Ser Ser Pro Leu Thr Ser Pro Thr Ser Pro Ser
245 250 255

Thr Leu Ser Leu Lys Ser Glu Ser Glu Ser Val Ser Ala Thr Glu Asp
260 265 270

Leu Ala Pro Asp Ala Ala Gln Gly Glu Asp Asn Ser Glu Ile Lys Glu
275 280 285

Leu Leu Glu Glu Glu Glu Ile Glu Lys Glu Gly Ser Glu Ala Ser Ser
290 295 300

Ser Glu Glu Asp Glu Pro Leu Pro Ala Cys Asn Gly Pro Ala Gln Ala
305 310 315 320

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

Pro Ser Ser Thr Thr Pro Ser Pro Gly Gly Ala Leu Ser Pro Ser Gly
340 345 350

Gln Pro Ser Ser Ser Ala Thr Glu Val Val Leu Arg Thr Arg Thr Ala
355 360 365

```
Ser Glu Gly Ser Glu Gln Pro Lys Lys Arg Ala Ser Ile Gln Arg Thr
    370                 375                 380

Ser Ala Pro Pro Ser Arg Pro Pro Pro Pro Arg Ala Thr Ala Ser Pro
385                 390                 395                 400

Arg Pro Ser Ser Gly Asn Ile Pro Ser Ser Pro Thr Ala Ser Gly Gly
                405                 410                 415

Gly Ser Pro Thr Ser Pro Arg Ala Ser Leu Gly Thr Gly Thr Ala Ser
            420                 425                 430

Pro Arg Thr Ser Leu Glu Val Ser Pro Asn Pro Glu Pro Pro Glu Lys
        435                 440                 445

Pro Val Arg Thr Pro Glu Ala Lys Glu Asn Glu Asn Ile His Asn Gln
    450                 455                 460

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

Ala Ser Glu Pro Gly Glu Ala Lys Lys Met Glu Asp Lys Glu Lys Asp
                485                 490                 495

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

Val Ser Met Val Pro Glu Asn Asn Asn Leu Thr Ala Pro Glu Pro Gln
        515                 520                 525

Glu Glu Val Ser Thr Ser Glu Asn Pro Gln Leu
    530                 535


<210> 9692
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1967; "

<220>
<221> source
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<223> /note="Gene Symbol: BIN2; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000474425"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9692
Xaa Ala Arg Gly Gln Gly Gly Gly Pro Gln Gly Val Gly Arg Met Ala
1 5 10 15

Glu Gly Lys Ala Gly Gly Ala Ala Gly Leu Phe Ala Lys Gln Val Gln
20 25 30

Lys Lys Phe Ser Arg Ala Gln Glu Lys Val Leu Gln Lys Leu Gly Lys
35 40 45

Ala Val Glu Thr Lys Asp Glu Arg Phe Glu Gln Ser Ala Ser Asn Phe
50 55 60

Tyr Gln Gln Gln Phe Val Cys Leu Phe
65 70

<210> 9693
<211> 536
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1967; "

<220>
<221> source
<223> /note="Gene Symbol: BIN2; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 2; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000474972"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9693
Xaa Gly Val Gly Arg Met Ala Glu Gly Lys Ala Gly Gly Ala Ala Gly
1 5 10 15

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

Ala Glu Gly His Lys Leu Tyr Lys Asp Leu Lys Asn Phe Leu Ser Ala
35 40 45

Val Lys Val Met His Glu Ser Ser Lys Arg Val Ser Glu Thr Leu Gln
50 55 60

Glu Ile Tyr Ser Ser Glu Trp Asp Gly His Glu Glu Leu Lys Ala Ile
65 70 75 80

Val Trp Asn Asn Asp Leu Leu Trp Glu Asp Tyr Glu Glu Lys Leu Ala
85 90 95

Asp Gln Ala Val Arg Thr Met Glu Ile Tyr Val Ala Gln Phe Ser Glu
100 105 110

Ile Lys Glu Arg Ile Ala Lys Arg Gly Arg Lys Leu Val Asp Tyr Asp
115 120 125

Ser Ala Arg His His Leu Glu Ala Val Gln Asn Ala Lys Lys Lys Asp
130 135 140

Glu Ala Lys Thr Ala Lys Ala Glu Glu Glu Phe Asn Lys Ala Gln Thr
145 150 155 160

Val Phe Glu Asp Leu Asn Gln Glu Leu Leu Glu Glu Leu Pro Ile Leu
165 170 175

Tyr Asn Ser Arg Ile Gly Cys Tyr Val Thr Ile Phe Gln Asn Ile Ser
180 185 190

```
Asn Leu Arg Asp Val Phe Tyr Arg Glu Met Ser Lys Leu Asn His Asn
        195                 200                 205

Leu Tyr Glu Val Met Ser Lys Leu Glu Lys Gln His Ser Asn Lys Val
    210                 215                 220

Phe Val Val Lys Gly Leu Ser Ser Ser Ser Arg Arg Ser Leu Val Ile
225                 230                 235                 240

Ser Pro Pro Val Arg Thr Ala Thr Val Ser Ser Pro Leu Thr Ser Pro
                245                 250                 255

Thr Ser Pro Ser Thr Leu Ser Leu Lys Ser Glu Ser Glu Ser Val Ser
            260                 265                 270

Ala Thr Glu Asp Leu Ala Pro Asp Ala Ala Gln Gly Glu Asp Asn Ser
        275                 280                 285

Glu Ile Lys Glu Leu Leu Glu Glu Glu Glu Ile Glu Lys Glu Gly Ser
    290                 295                 300

Glu Ala Ser Ser Ser Glu Glu Asp Glu Pro Leu Pro Ala Cys Asn Gly
305                 310                 315                 320

Pro Ala Gln Ala Gln Pro Ser Pro Thr Thr Glu Arg Ala Lys Ser Gln
                325                 330                 335

Glu Glu Val Leu Pro Ser Ser Thr Thr Pro Ser Pro Gly Gly Ala Leu
            340                 345                 350

Ser Pro Ser Gly Gln Pro Ser Ser Ser Ala Thr Glu Val Val Leu Arg
        355                 360                 365

Thr Arg Thr Ala Ser Glu Gly Ser Glu Gln Pro Lys Lys Arg Ala Ser
    370                 375                 380

Ile Gln Arg Thr Ser Ala Pro Pro Ser Arg Pro Pro Pro Pro Arg Ala
385                 390                 395                 400

Thr Ala Ser Pro Arg Pro Ser Ser Gly Asn Ile Pro Ser Ser Pro Thr
                405                 410                 415
```

```
Ala Ser Gly Gly Gly Ser Pro Thr Ser Pro Arg Ala Ser Leu Gly Thr
            420                 425                 430

Gly Thr Ala Ser Pro Arg Thr Ser Leu Glu Val Ser Pro Asn Pro Glu
        435                 440                 445

Pro Pro Glu Lys Pro Val Arg Thr Pro Glu Ala Lys Glu Asn Glu Asn
    450                 455                 460

Ile His Asn Gln Asn Pro Glu Glu Leu Cys Thr Ser Pro Thr Leu Met
465                 470                 475                 480

Thr Ser Gln Thr Ser Phe Lys Ser Pro Trp Tyr Gln Lys Thr Thr Thr
                485                 490                 495

Ser Gln His Leu Asn Leu Lys Lys Arg Tyr Pro Gln Val Lys Ile His
            500                 505                 510

Asn Ser Glu Glu Lys Leu Pro Arg Leu Leu Leu Pro Gln Thr Ser Pro
        515                 520                 525

Glu Lys Leu Phe Asn Gln Arg Val
    530                 535


<210> 9694
<211> 597
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1967; "

<220>
<221> source
<223> /note="Gene Symbol: BIN2; "

<220>
<221> source
<223> /note="Gene Name:
      bridging integrator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483983"

<400> 9694
Met Arg Gly Met Pro Gly Ala Arg Thr Ser Ser Ser Gly Ala Ser Glu
1               5                   10                  15
```

```
Asn His Arg Ala Arg Gly Gln Gly Gly Gly Pro Gln Gly Val Gly Arg
            20                  25                  30

Met Ala Glu Gly Lys Ala Gly Gly Ala Ala Gly Leu Phe Ala Lys Gln
        35                  40                  45

Val Gln Lys Lys Phe Ser Arg Ala Gln Glu Lys Val Leu Gln Lys Leu
    50                  55                  60

Gly Lys Ala Val Glu Thr Lys Asp Glu Arg Phe Glu Gln Ser Ala Ser
65                  70                  75                  80

Asn Phe Tyr Gln Gln Gln Ala Glu Gly His Lys Leu Tyr Lys Asp Leu
                85                  90                  95

Lys Asn Phe Leu Ser Ala Val Lys Val Met His Glu Ser Ser Lys Arg
            100                 105                 110

Val Ser Glu Thr Leu Gln Glu Ile Tyr Ser Ser Glu Trp Asp Gly His
        115                 120                 125

Glu Glu Leu Lys Ala Ile Val Trp Asn Asn Asp Leu Leu Trp Glu Asp
    130                 135                 140

Tyr Glu Glu Lys Leu Ala Asp Gln Ala Val Arg Thr Met Glu Ile Tyr
145                 150                 155                 160

Val Ala Gln Phe Ser Glu Ile Lys Glu Arg Ile Ala Lys Arg Gly Arg
                165                 170                 175

Lys Leu Val Asp Tyr Asp Ser Ala Arg His His Leu Glu Ala Val Gln
            180                 185                 190

Asn Ala Lys Lys Lys Asp Glu Ala Lys Thr Ala Lys Ala Glu Glu Glu
        195                 200                 205

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

Glu Glu Leu Pro Ile Leu Tyr Asn Ser Arg Ile Gly Cys Tyr Val Thr
225                 230                 235                 240
```

```
Ile Phe Gln Asn Ile Ser Asn Leu Arg Asp Val Phe Tyr Arg Glu Met
                245                 250                 255

Ser Lys Leu Asn His Asn Leu Tyr Glu Val Met Ser Lys Leu Glu Lys
            260                 265                 270

Gln His Ser Asn Lys Val Phe Val Val Lys Gly Leu Ser Ser Ser Ser
        275                 280                 285

Arg Arg Ser Leu Val Ile Ser Pro Pro Val Arg Thr Ala Thr Val Ser
    290                 295                 300

Ser Pro Leu Thr Ser Pro Thr Ser Pro Ser Thr Leu Ser Leu Lys Ser
305                 310                 315                 320

Glu Ser Glu Ser Val Ser Ala Thr Glu Asp Leu Ala Pro Asp Ala Ala
                325                 330                 335

Gln Gly Glu Asp Asn Ser Glu Ile Lys Glu Leu Leu Glu Glu Glu Glu
            340                 345                 350

Ile Glu Lys Glu Gly Ser Glu Ala Ser Ser Ser Glu Glu Asp Glu Pro
        355                 360                 365

Leu Pro Ala Cys Asn Gly Pro Ala Gln Ala Gln Pro Ser Pro Thr Thr
    370                 375                 380

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

Ser Pro Gly Gly Ala Leu Ser Pro Ser Gly Gln Pro Ser Ser Ser Ala
                405                 410                 415

Thr Glu Val Val Leu Arg Thr Arg Thr Ala Ser Glu Gly Ser Glu Gln
            420                 425                 430

Pro Lys Lys Arg Ala Ser Ile Gln Arg Thr Ser Ala Pro Pro Ser Arg
        435                 440                 445

Pro Pro Pro Pro Arg Ala Thr Ala Ser Pro Arg Pro Ser Ser Gly Asn
    450                 455                 460
```

```
Ile Pro Ser Ser Pro Thr Ala Ser Gly Gly Gly Ser Pro Thr Ser Pro
465                 470                 475                 480

Arg Ala Ser Leu Gly Thr Gly Thr Ala Ser Pro Arg Thr Ser Leu Glu
                485                 490                 495

Val Ser Pro Asn Pro Glu Pro Pro Glu Lys Pro Val Arg Thr Pro Glu
            500                 505                 510

Ala Lys Glu Asn Glu Asn Ile His Asn Gln Asn Pro Glu Glu Leu Cys
        515                 520                 525

Thr Ser Pro Thr Leu Met Thr Ser Gln Val Ala Ser Glu Pro Gly Glu
    530                 535                 540

Ala Lys Lys Met Glu Asp Lys Glu Lys Asp Asn Lys Leu Ile Ser Ala
545                 550                 555                 560

Asn Ser Ser Glu Gly Gln Asp Gln Leu Gln Val Ser Met Val Pro Glu
                565                 570                 575

Asn Asn Asn Leu Thr Ala Pro Glu Pro Gln Glu Glu Val Ser Thr Ser
            580                 585                 590

Glu Asn Pro Gln Leu
        595


<210> 9695
<211> 253
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1968; "

<220>
<221> source
<223> /note="Gene Symbol: BIN3; "

<220>
<221> source
<223> /note="Gene Name:
      bridging integrator 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NQY0; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000276416"

<400> 9695
Met Ser Trp Ile Pro Phe Lys Ile Gly Gln Pro Lys Lys Gln Ile Val
1   5   10   15

Pro Lys Thr Val Glu Arg Asp Phe Glu Arg Glu Tyr Gly Lys Leu Gln
            20   25   30

Gln Leu Glu Glu Gln Thr Arg Arg Leu Gln Lys Asp Met Lys Lys Ser
        35   40   45

Thr Asp Ala Asp Leu Ala Met Ser Lys Ser Ala Val Lys Ile Ser Leu
    50   55   60

Asp Leu Leu Ser Asn Pro Leu Cys Glu Gln Asp Gln Asp Leu Leu Asn
65   70   75   80

Met Val Thr Ala Leu Asp Thr Ala Met Lys Arg Met Asp Ala Phe Asn
                85   90   95

Gln Glu Lys Val Asn Gln Ile Gln Lys Thr Val Ile Glu Pro Leu Lys
            100   105   110

Lys Phe Gly Ser Val Phe Pro Ser Leu Asn Met Ala Val Lys Arg Arg
        115   120   125

Glu Gln Ala Leu Gln Asp Tyr Arg Arg Leu Gln Ala Lys Val Glu Lys
    130   135   140

Tyr Glu Glu Lys Glu Lys Thr Gly Pro Val Leu Ala Lys Leu His Gln
145   150   155   160

Ala Arg Glu Glu Leu Arg Pro Val Arg Glu Asp Phe Glu Ala Lys Asn
                165   170   175

Arg Gln Leu Leu Glu Glu Met Pro Arg Phe Tyr Gly Ser Arg Leu Asp
            180   185   190

Tyr Phe Gln Pro Ser Phe Glu Ser Leu Ile Arg Ala Gln Val Val Tyr
        195   200   205

```
Tyr Ser Glu Met His Lys Ile Phe Gly Asp Leu Ser His Gln Leu Asp
    210                 215                 220

Gln Pro Gly His Ser Asp Glu Gln Arg Glu Arg Glu Asn Glu Ala Lys
225                 230                 235                 240

Leu Ser Glu Leu Arg Ala Leu Ser Ile Val Ala Asp Asp
                245                 250
```

<210> 9696
<211> 205
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1968; "

<220>
<221> source
<223> /note="Gene Symbol: BIN3; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000382859"

<400> 9696

```
Met Glu Asn Phe Ser Thr Met Ser Lys Ser Ala Val Lys Ile Ser Leu
1               5                   10                  15

Asp Leu Leu Ser Asn Pro Leu Cys Glu Gln Asp Gln Asp Leu Leu Asn
            20                  25                  30

Met Val Thr Ala Leu Asp Thr Ala Met Lys Arg Met Asp Ala Phe Asn
        35                  40                  45

Gln Glu Lys Val Asn Gln Ile Gln Lys Thr Val Ile Glu Pro Leu Lys
    50                  55                  60

Lys Phe Gly Ser Val Phe Pro Ser Leu Asn Met Ala Val Lys Arg Arg
65                  70                  75                  80

Glu Gln Ala Leu Gln Asp Tyr Arg Arg Leu Gln Ala Lys Val Glu Lys
```

```
                85                  90                  95

Tyr Glu Glu Lys Glu Lys Thr Gly Pro Val Leu Ala Lys Leu His Gln
            100                 105                 110

Ala Arg Glu Glu Leu Arg Pro Val Arg Glu Asp Phe Glu Ala Lys Asn
        115                 120                 125

Arg Gln Leu Leu Glu Glu Met Pro Arg Phe Tyr Gly Ser Arg Leu Asp
    130                 135                 140

Tyr Phe Gln Pro Ser Phe Glu Ser Leu Ile Arg Ala Gln Val Val Tyr
145                 150                 155                 160

Tyr Ser Glu Met His Lys Ile Phe Gly Asp Leu Ser His Gln Leu Asp
                165                 170                 175

Gln Pro Gly His Ser Asp Glu Gln Arg Glu Arg Glu Asn Glu Ala Lys
            180                 185                 190

Leu Ser Glu Leu Arg Ala Leu Ser Ile Val Ala Asp Asp
        195                 200                 205


<210> 9697
<211> 27
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1968; "

<220>
<221> source
<223> /note="Gene Symbol: BIN3; "

<220>
<221> source
<223> /note="Gene Name:
      bridging integrator 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428768"

<400> 9697
Met Ser Trp Ile Pro Phe Lys Ile Gly Gln Pro Lys Lys Gln Ile Val
1               5                   10                  15
```

Pro Lys Thr Val Ser Asn Ser Ile Val Leu Leu
20 25

<210> 9698
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1968; "

<220>
<221> source
<223> /note="Gene Symbol: BIN3; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429660"

<400> 9698
Met Ser Trp Ile Pro Phe Lys Ile Gly Gln Pro Lys Lys Gln Ile Val
1 5 10 15

Pro Lys Thr Val Glu Arg Asp Phe Glu Arg Glu Tyr Gly Lys Leu Gln
20 25 30

Gln Leu Glu Glu Gln Thr Arg Arg Leu Gln Lys Asp Met Lys Lys Ser
35 40 45

Thr Asp Ala Asp Leu Ala Met Ser Lys Ser Ala Val Lys Ile Ser Leu
50 55 60

Asp Leu Leu Ser Asn Pro Leu Cys Glu Gln Asp Gln Asp Leu Leu Asn
65 70 75 80

Met Val Thr Ala Leu Asp Thr Ala Met Lys Arg Met Asp Ala Phe Asn
85 90 95

Gln Glu Lys Val Asn Gln Ile Gln Lys Thr Val Ile Glu Pro Leu Lys
100 105 110

Lys Arg Asn Gln Leu Phe Trp Ser Trp Val Thr Ser Glu Trp Pro Gln

115 120 125

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

Leu Trp Leu Ala Trp
145

<210> 9699
<211> 199
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1968; "

<220>
<221> source
<223> /note="Gene Symbol: BIN3; "

<220>
<221> source
<223> /note="Gene Name:
bridging integrator 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NQY0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430423"

<400> 9699
Met Ser Lys Ser Ala Val Lys Ile Ser Leu Asp Leu Leu Ser Asn Pro
1 5 10 15

Leu Cys Glu Gln Asp Gln Asp Leu Leu Asn Met Val Thr Ala Leu Asp
20 25 30

Thr Ala Met Lys Arg Met Asp Ala Phe Asn Gln Glu Lys Val Asn Gln
35 40 45

Ile Gln Lys Thr Val Ile Glu Pro Leu Lys Lys Phe Gly Ser Val Phe
50 55 60

Pro Ser Leu Asn Met Ala Val Lys Arg Arg Glu Gln Ala Leu Gln Asp
65 70 75 80

```
Tyr Arg Arg Leu Gln Ala Lys Val Glu Lys Tyr Glu Glu Lys Glu Lys
                85                  90                  95

Thr Gly Pro Val Leu Ala Lys Leu His Gln Ala Arg Glu Glu Leu Arg
            100                 105                 110

Pro Val Arg Glu Asp Phe Glu Ala Lys Asn Arg Gln Leu Leu Glu Glu
        115                 120                 125

Met Pro Arg Phe Tyr Gly Ser Arg Leu Asp Tyr Phe Gln Pro Ser Phe
    130                 135                 140

Glu Ser Leu Ile Arg Ala Gln Val Val Tyr Tyr Ser Glu Met His Lys
145                 150                 155                 160

Ile Phe Gly Asp Leu Ser His Gln Leu Asp Gln Pro Gly His Ser Asp
                165                 170                 175

Glu Gln Arg Glu Arg Glu Asn Glu Ala Lys Leu Ser Glu Leu Arg Ala
            180                 185                 190

Leu Ser Ile Val Ala Asp Asp
        195


<210> 9700
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1968; "

<220>
<221> source
<223> /note="Gene Symbol: BIN3; "

<220>
<221> source
<223> /note="Gene Name:
      bridging integrator 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430546"

<400> 9700
Met Ser Trp Ile Pro Phe Lys Ile Gly Gln Pro Lys Lys Gln Ile Val
```

```
1               5                   10                  15

Pro Lys Thr Val Glu Arg Asp Phe Glu Arg Glu Tyr Gly Lys Leu Gln
            20                  25                  30

Gln Leu Glu Glu Gln Thr Arg Arg Leu Gln Lys Asp Met Lys Lys Ser
        35                  40                  45

Thr Asp Ala Asp Leu Ala Pro Lys Pro Gln Pro Val Thr Asp Val
    50                  55                  60


<210> 9701
<211> 329
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
<221> source
<223> /note="Gene Symbol: BABAM1; "

<220>
<221> source
<223> /note="Gene Name:
      BRISC and BRCA1 A complex member 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NWV8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000352408"

<400> 9701
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                   10                  15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60
```

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65 70 75 80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
85 90 95

Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
100 105 110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
115 120 125

Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
130 135 140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145 150 155 160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
165 170 175

Ser Cys Ser Thr Phe Asn Leu Glu Gly Leu Phe Ser Leu Ile Gln Gln
180 185 190

Lys Thr Glu Leu Pro Val Thr Glu Asn Val Gln Thr Ile Pro Pro Pro
195 200 205

Tyr Val Val Arg Thr Ile Leu Val Tyr Ser Arg Pro Pro Cys Gln Pro
210 215 220

Gln Phe Ser Leu Thr Glu Pro Met Lys Lys Met Phe Gln Cys Pro Tyr
225 230 235 240

Phe Phe Phe Asp Val Val Tyr Ile His Asn Gly Thr Glu Glu Lys Glu
245 250 255

Glu Glu Met Ser Trp Lys Asp Met Phe Ala Phe Met Gly Ser Leu Asp
260 265 270

Thr Lys Gly Thr Ser Tyr Lys Tyr Glu Val Ala Leu Ala Gly Pro Ala
275 280 285

```
Leu Glu Leu His Asn Cys Met Ala Lys Leu Leu Ala His Pro Leu Gln
    290                 295                 300

Arg Pro Cys Gln Ser His Ala Ser Tyr Ser Leu Leu Glu Glu Glu Asp
305                 310                 315                 320

Glu Ala Ile Glu Val Glu Ala Thr Val
                325
```

<210> 9702
<211> 254
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
<221> source
<223> /note="Gene Symbol: BABAM1; "

<220>
<221> source
<223> /note="Gene Name:
BRISC and BRCA1 A complex member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407826"

<400> 9702

```
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                   10                  15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65                  70                  75                  80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
                85                  90                  95
```

```
Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100                 105                 110

Phe Asn Gly Gln Gln Lys Thr Glu Leu Pro Val Thr Glu Asn Val Gln
        115                 120                 125

Thr Ile Pro Pro Pro Tyr Val Val Arg Thr Ile Leu Val Tyr Ser Arg
    130                 135                 140

Pro Pro Cys Gln Pro Gln Phe Ser Leu Thr Glu Pro Met Lys Lys Met
145                 150                 155                 160

Phe Gln Cys Pro Tyr Phe Phe Phe Asp Val Val Tyr Ile His Asn Gly
                165                 170                 175

Thr Glu Glu Lys Glu Glu Glu Met Ser Trp Lys Asp Met Phe Ala Phe
            180                 185                 190

Met Gly Ser Leu Asp Thr Lys Gly Thr Ser Tyr Lys Tyr Glu Val Ala
        195                 200                 205

Leu Ala Gly Pro Ala Leu Glu Leu His Asn Cys Met Ala Lys Leu Leu
    210                 215                 220

Ala His Pro Leu Gln Arg Pro Cys Gln Ser His Ala Ser Tyr Ser Leu
225                 230                 235                 240

Leu Glu Glu Glu Asp Glu Ala Ile Glu Val Glu Ala Thr Val
                245                 250


<210> 9703
<211> 254
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
<221> source
<223> /note="Gene Symbol: BABAM1; "

<220>
<221> source
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<223> /note="Gene Name:
BRISC and BRCA1 A complex member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468834"

<400> 9703

```
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                  10                  15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65                  70                  75                  80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
                85                  90                  95

Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100                 105                 110

Phe Asn Gly Gln Gln Lys Thr Glu Leu Pro Val Thr Glu Asn Val Gln
        115                 120                 125

Thr Ile Pro Pro Pro Tyr Val Val Arg Thr Ile Leu Val Tyr Ser Arg
    130                 135                 140

Pro Pro Cys Gln Pro Gln Phe Ser Leu Thr Glu Pro Met Lys Lys Met
145                 150                 155                 160

Phe Gln Cys Pro Tyr Phe Phe Phe Asp Val Val Tyr Ile His Asn Gly
                165                 170                 175

Thr Glu Glu Lys Glu Glu Glu Met Ser Trp Lys Asp Met Phe Ala Phe
            180                 185                 190

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

```
        195                 200                 205

Leu Ala Gly Pro Ala Leu Glu Leu His Asn Cys Met Ala Lys Leu Leu
    210                 215                 220

Ala His Pro Leu Gln Arg Pro Cys Gln Ser His Ala Ser Tyr Ser Leu
225                 230                 235                 240

Leu Glu Glu Glu Asp Glu Ala Ile Glu Val Glu Ala Thr Val
                245                 250


<210> 9704
<211> 108
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

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<223> /note="Gene Symbol: BABAM1; "

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<223> /note="Gene Name:
      BRISC and BRCA1 A complex member 1; "

<220>
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<400> 9704
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                   10                  15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65                  70                  75                  80
```

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Leu
85 90 95

Gln Asn Gln Arg Pro Gln Cys Leu Pro Glu Asp Asp
100 105

<210> 9705
<211> 97
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000470088"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9705
Xaa Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala
1 5 10 15

Pro Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val
20 25 30

Ile Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu
35 40 45

Ser Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met
50 55 60

Ile Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Cys
65 70 75 80

```
Leu Asn His Pro Cys Thr Ser Ala Pro Ser Cys Ala Arg Lys Ser Leu
                85                  90                  95


Ala



<210> 9706
<211> 32
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      BRISC and BRCA1 A complex member 1; "

<220>
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<400> 9706
Pro Leu Gln Lys Met Phe Gln Cys Pro Tyr Phe Phe Phe Asp Val Val
1               5                  10                  15


Tyr Ile His Asn Gly Thr Glu Glu Lys Glu Glu Glu Met Ser Trp Lys
            20                  25                  30


<210> 9707
<211> 329
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1969; "

<220>
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<220>
<221> source
<223> /note="Uniprot ID: Q9NWV8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470920"

<400> 9707
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1   5   10   15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20   25   30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35   40   45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50   55   60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65   70   75   80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
                85   90   95

Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100   105   110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
        115   120   125

Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
    130   135   140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145   150   155   160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
                165   170   175

Ser Cys Ser Thr Phe Asn Leu Glu Gly Leu Phe Ser Leu Ile Gln Gln
            180   185   190

```
Lys Thr Glu Leu Pro Val Thr Glu Asn Val Gln Thr Ile Pro Pro Pro
        195                 200                 205

Tyr Val Val Arg Thr Ile Leu Val Tyr Ser Arg Pro Pro Cys Gln Pro
    210                 215                 220

Gln Phe Ser Leu Thr Glu Pro Met Lys Lys Met Phe Gln Cys Pro Tyr
225                 230                 235                 240

Phe Phe Phe Asp Val Val Tyr Ile His Asn Gly Thr Glu Glu Lys Glu
                245                 250                 255

Glu Glu Met Ser Trp Lys Asp Met Phe Ala Phe Met Gly Ser Leu Asp
            260                 265                 270

Thr Lys Gly Thr Ser Tyr Lys Tyr Glu Val Ala Leu Ala Gly Pro Ala
        275                 280                 285

Leu Glu Leu His Asn Cys Met Ala Lys Leu Leu Ala His Pro Leu Gln
    290                 295                 300

Arg Pro Cys Gln Ser His Ala Ser Tyr Ser Leu Leu Glu Glu Glu Asp
305                 310                 315                 320

Glu Ala Ile Glu Val Glu Ala Thr Val
                325


<210> 9708
<211> 225
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
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<223> /note="ENSP ID: ENSP00000471246"

<400> 9708

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Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                  10                  15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65                  70                  75                  80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
                85                  90                  95

Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100                 105                 110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
        115                 120                 125

Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
    130                 135                 140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145                 150                 155                 160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
                165                 170                 175

Ser Cys Ser Thr Phe Asn Leu Glu Gly Leu Phe Ser Leu Ile Gln Gln
            180                 185                 190

Lys Thr Glu Leu Pro Val Thr Glu Asn Val Gln Thr Ile Pro Pro Pro
        195                 200                 205

Tyr Val Val Arg Thr Ile Leu Val Tyr Ser Arg Pro Pro Cys Gln Pro
    210                 215                 220
```

Gln
225

<210> 9709
<211> 329
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
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<220>
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<223> /note="Uniprot ID: Q9NWV8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000471605"

<400> 9709
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1 5 10 15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
20 25 30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
35 40 45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
50 55 60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65 70 75 80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
85 90 95

```
Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100                 105                 110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
        115                 120                 125

Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
    130                 135                 140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145                 150                 155                 160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
                165                 170                 175

Ser Cys Ser Thr Phe Asn Leu Glu Gly Leu Phe Ser Leu Ile Gln Gln
            180                 185                 190

Lys Thr Glu Leu Pro Val Thr Glu Asn Val Gln Thr Ile Pro Pro Pro
        195                 200                 205

Tyr Val Val Arg Thr Ile Leu Val Tyr Ser Arg Pro Pro Cys Gln Pro
    210                 215                 220

Gln Phe Ser Leu Thr Glu Pro Met Lys Lys Met Phe Gln Cys Pro Tyr
225                 230                 235                 240

Phe Phe Phe Asp Val Val Tyr Ile His Asn Gly Thr Glu Glu Lys Glu
                245                 250                 255

Glu Glu Met Ser Trp Lys Asp Met Phe Ala Phe Met Gly Ser Leu Asp
            260                 265                 270

Thr Lys Gly Thr Ser Tyr Lys Tyr Glu Val Ala Leu Ala Gly Pro Ala
        275                 280                 285

Leu Glu Leu His Asn Cys Met Ala Lys Leu Leu Ala His Pro Leu Gln
    290                 295                 300

Arg Pro Cys Gln Ser His Ala Ser Tyr Ser Leu Leu Glu Glu Glu Asp
305                 310                 315                 320

Glu Ala Ile Glu Val Glu Ala Thr Val
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325

<210> 9710
<211> 218
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
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<223> /note="Gene Name:
BRISC and BRCA1 A complex member 1; "

<220>
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<223> /note="ENSP ID: ENSP00000471721"

<400> 9710
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1 5 10 15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
20 25 30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
35 40 45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
50 55 60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65 70 75 80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
85 90 95

Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
100 105 110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
115 120 125

```
Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
    130                 135                 140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145                 150                 155                 160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
                165                 170                 175

Ser Cys Ser Thr Phe Thr Phe Ser Leu Ala Pro Pro Pro Asp Leu Glu
            180                 185                 190

Gly Leu Phe Ser Leu Ile Gln Gln Lys Thr Glu Leu Pro Val Thr Glu
        195                 200                 205

Asn Val Gln Thr Ile Pro Pro Pro Tyr Val
    210                 215


<210> 9711
<211> 193
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
      BRISC and BRCA1 A complex member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472425"

<400> 9711
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                   10                  15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
```

```
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65                  70                  75                  80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
                85                  90                  95

Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100                 105                 110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
        115                 120                 125

Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
    130                 135                 140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145                 150                 155                 160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
                165                 170                 175

Ser Cys Ser Thr Phe Thr Pro Pro Pro Asp Leu Glu Gly Leu Phe Ser
            180                 185                 190

Leu
```

<210> 9712
<211> 237
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
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<223> /note="Gene Symbol: BABAM1; "

<220>

<221> source
<223> /note="Gene Name:
BRISC and BRCA1 A complex member 1; "

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<221> source
<223> /note="ENSP ID: ENSP00000472585"

<400> 9712

```
Met Leu Val Arg Leu Val Ser Asn Phe Gln Pro Gln Gly Arg Ile Leu
1               5                  10                  15

Ala Ser Pro Val Arg Val Pro Ser Ser His Thr Gly Ala Met Glu Val
            20                  25                  30

Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu Glu Glu His
        35                  40                  45

Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu Gly Ala Glu
    50                  55                  60

Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg Ser Glu Gly
65                  70                  75                  80

Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn Thr Ser Gly
                85                  90                  95

Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro Glu Val Gln
            100                 105                 110

Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile Ile Cys Leu
        115                 120                 125

Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser Phe Asn Gly
    130                 135                 140

Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile Glu Met Phe
145                 150                 155                 160

Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe Ala Leu Val
                165                 170                 175

Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr Ser Asp Pro
            180                 185                 190
```

```
Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala Ser Cys Ser
        195                 200                 205

Thr Phe Asn Leu Glu Gly Leu Phe Ser Leu Ile Gln Gln Lys Thr Glu
    210                 215                 220

Leu Pro Val Thr Glu Asn Val Gln Thr Ile Pro Pro Pro
225                 230                 235
```

<210> 9713
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
<221> source
<223> /note="Gene Symbol: BABAM1; "

<220>
<221> source
<223> /note="Gene Name:
BRISC and BRCA1 A complex member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472632"

<400> 9713

```
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                   10                  15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65                  70                  75                  80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
                85                  90                  95
```

```
Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100                 105                 110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
        115                 120                 125

Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
    130                 135                 140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145                 150                 155                 160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
                165                 170                 175

Ser Cys Ser Thr Phe Asn Leu Glu Gly Leu Phe Ser Leu Ile Gln Gln
            180                 185                 190

Lys Thr Glu Leu Pro Val Thr Glu
        195                 200


<210> 9714
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1969; "

<220>
<221> source
<223> /note="Gene Symbol: BABAM1; "

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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000473182"

<400> 9714
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1               5                   10                  15
```

```
Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
            20                  25                  30

Gly Ala Glu Asp Arg Ala Val Gly Ala Gln Ala Ser Val Gly Ser Arg
        35                  40                  45

Ser Glu Gly Glu Gly Glu Ala Ala Ser Ala Asp Asp Gly Ser Leu Asn
    50                  55                  60

Thr Ser Gly Ala Gly Pro Lys Ser Trp Gln Val Pro Pro Pro Ala Pro
65                  70                  75                  80

Glu Val Gln Ile Arg Thr Pro Arg Val Asn Cys Pro Glu Lys Val Ile
                85                  90                  95

Ile Cys Leu Asp Leu Ser Glu Glu Met Ser Leu Pro Lys Leu Glu Ser
            100                 105                 110

Phe Asn Gly Ser Lys Thr Asn Ala Leu Asn Val Ser Gln Lys Met Ile
        115                 120                 125

Glu Met Phe Val Arg Thr Lys His Lys Ile Asp Lys Ser His Glu Phe
    130                 135                 140

Ala Leu Val Val Val Asn Asp Asp Thr Ala Trp Leu Ser Gly Leu Thr
145                 150                 155                 160

Ser Asp Pro Arg Glu Leu Cys Ser Cys Leu Tyr Asp Leu Glu Thr Ala
                165                 170                 175

Ser Cys Ser Thr Phe
            180
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<210> 9715
<211> 60
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BABAM1; "

<220>
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<223> /note="Gene Name:
BRISC and BRCA1 A complex member 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473240"

<400> 9715
Met Glu Val Ala Glu Pro Ser Ser Pro Thr Glu Glu Glu Glu Glu Glu
1 5 10 15

Glu Glu His Ser Ala Glu Pro Arg Pro Arg Thr Arg Ser Asn Pro Glu
20 25 30

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

Lys Phe Gly His Gln Gly Ser Thr Val Gln Arg Lys
50 55 60

<210> 9716
<211> 411
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1970; "

<220>
<221> source
<223> /note="Gene Symbol: BROX; "

<220>
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<223> /note="Gene Name:
BRO1 domain and CAAX motif containing; "

<220>
<221> source
<223> /note="Uniprot ID: Q5VW32; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343742"

<400> 9716
Met Thr His Trp Phe His Arg Asn Pro Leu Lys Ala Thr Ala Pro Val
1 5 10 15

```
Ser Phe Asn Tyr Tyr Gly Val Val Thr Gly Pro Ser Ala Ser Lys Ile
            20                  25                  30

Cys Asn Asp Leu Arg Ser Ser Arg Ala Arg Leu Leu Glu Leu Phe Thr
        35                  40                  45

Asp Leu Ser Cys Asn Pro Glu Met Met Lys Asn Ala Ala Asp Ser Tyr
    50                  55                  60

Phe Ser Leu Leu Gln Gly Phe Ile Asn Ser Leu Asp Glu Ser Thr Gln
65                  70                  75                  80

Glu Ser Lys Leu Arg Tyr Ile Gln Asn Phe Lys Trp Thr Asp Thr Leu
                85                  90                  95

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

Ser Met Gly Phe Asn Val Ala Leu Trp Tyr Thr Lys Tyr Ala Ser Arg
        115                 120                 125

Leu Ala Gly Lys Glu Asn Ile Thr Glu Asp Glu Ala Lys Glu Val His
    130                 135                 140

Arg Ser Leu Lys Ile Ala Ala Gly Ile Phe Lys His Leu Lys Glu Ser
145                 150                 155                 160

His Leu Pro Lys Leu Ile Thr Pro Ala Glu Lys Gly Arg Asp Leu Glu
                165                 170                 175

Ser Arg Leu Ile Glu Ala Tyr Val Ile Gln Cys Gln Ala Glu Ala Gln
            180                 185                 190

Glu Val Thr Ile Ala Arg Ala Ile Glu Leu Lys His Ala Pro Gly Leu
        195                 200                 205

Ile Ala Ala Leu Ala Tyr Glu Thr Ala Asn Phe Tyr Gln Lys Ala Asp
    210                 215                 220

His Thr Leu Ser Ser Leu Glu Pro Ala Tyr Ser Ala Lys Trp Arg Lys
225                 230                 235                 240

Tyr Leu His Leu Lys Met Cys Phe Tyr Thr Ala Tyr Ala Tyr Cys Tyr
```

```
                245                 250                 255

His Gly Glu Thr Leu Leu Ala Ser Asp Lys Cys Gly Glu Ala Ile Arg
            260                 265                 270

Ser Leu Gln Glu Ala Glu Lys Leu Tyr Ala Lys Ala Glu Ala Leu Cys
        275                 280                 285

Lys Glu Tyr Gly Glu Thr Lys Gly Pro Gly Pro Thr Val Lys Pro Ser
    290                 295                 300

Gly His Leu Phe Phe Arg Lys Leu Gly Asn Leu Val Lys Asn Thr Leu
305                 310                 315                 320

Glu Lys Cys Gln Arg Glu Asn Gly Phe Ile Tyr Phe Gln Lys Ile Pro
                325                 330                 335

Thr Glu Ala Pro Gln Leu Glu Leu Lys Ala Asn Tyr Gly Leu Val Glu
            340                 345                 350

Pro Ile Pro Phe Glu Phe Pro Pro Thr Ser Val Gln Trp Thr Pro Glu
        355                 360                 365

Thr Leu Ala Ala Phe Asp Leu Thr Lys Arg Pro Lys Asp Asp Ser Thr
    370                 375                 380

Lys Pro Lys Pro Glu Glu Glu Val Lys Pro Val Lys Glu Pro Asp Ile
385                 390                 395                 400

Lys Pro Gln Lys Asp Thr Gly Cys Tyr Ile Ser
                405                 410


<210> 9717
<211> 215
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1970; "

<220>
<221> source
<223> /note="Gene Symbol: BROX; "

<220>
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<221> source
<223> /note="Gene Name:
BRO1 domain and CAAX motif containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398862"

<400> 9717

```
Met Thr His Trp Phe His Arg Asn Pro Leu Lys Ala Thr Ala Pro Val
1               5                  10                  15

Ser Phe Asn Tyr Tyr Gly Val Val Thr Gly Pro Ser Ala Ser Lys Ile
            20                  25                  30

Cys Asn Asp Leu Arg Ser Ser Arg Ala Arg Leu Leu Glu Leu Phe Thr
        35                  40                  45

Asp Leu Ser Cys Asn Pro Glu Met Met Lys Asn Ala Ala Asp Ser Tyr
    50                  55                  60

Phe Ser Leu Leu Gln Gly Phe Ile Asn Ser Leu Asp Glu Ser Thr Gln
65                  70                  75                  80

Glu Ser Lys Leu Arg Tyr Ile Gln Asn Phe Lys Trp Thr Asp Thr Leu
                85                  90                  95

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

Ser Met Gly Phe Asn Val Ala Leu Trp Tyr Thr Lys Tyr Ala Ser Arg
        115                 120                 125

Leu Ala Gly Lys Glu Asn Ile Thr Glu Asp Glu Ala Lys Glu Val His
    130                 135                 140

Arg Ser Leu Lys Ile Ala Ala Gly Ile Phe Lys His Leu Lys Glu Ser
145                 150                 155                 160

His Leu Pro Lys Leu Ile Thr Pro Ala Glu Lys Gly Arg Asp Leu Glu
                165                 170                 175

Ser Arg Leu Ile Glu Ala Tyr Val Ile Gln Cys Gln Ala Glu Ala Gln
            180                 185                 190
```

Glu Val Thr Ile Ala Arg Ala Ile Glu Leu Lys His Ala Pro Gly Leu
        195   200   205

Ile Ala Ala Leu Ala Tyr Glu
    210   215

<210> 9718
<211> 338
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1970; "

<220>
<221> source
<223> /note="Gene Symbol: BROX; "

<220>
<221> source
<223> /note="Gene Name:
      BRO1 domain and CAAX motif containing; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440041"

<400> 9718
Met Thr His Trp Phe His Arg Asn Pro Leu Lys Ala Thr Ala Pro Val
1   5   10   15

Ser Phe Asn Tyr Tyr Gly Val Val Thr Gly Pro Ser Ala Ser Lys Ile
            20   25   30

Cys Asn Asp Leu Arg Ser Ser Arg Ala Arg Leu Leu Glu Leu Phe Thr
        35   40   45

Asp Leu Ser Cys Asn Pro Glu Met Met Lys Asn Ala Ala Asp Ser Tyr
    50   55   60

Phe Ser Leu Leu Gln Gly Phe Ile Asn Ser Leu Asp Glu Ser Thr Gln
65   70   75   80

Glu Ser Lys Leu Arg Tyr Ile Gln Asn Phe Lys Trp Thr Asp Thr Leu
                85   90   95

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

```
Ser Met Gly Phe Asn Val Ala Leu Trp Tyr Thr Lys Tyr Ala Ser Arg
        115                 120                 125

Leu Ala Gly Lys Glu Asn Ile Thr Glu Asp Glu Ala Lys Glu Val His
    130                 135                 140

Arg Ser Leu Lys Ile Ala Ala Gly Ile Phe Lys His Leu Lys Glu Ser
145                 150                 155                 160

His Leu Pro Lys Leu Ile Thr Pro Ala Glu Lys Gly Arg Asp Leu Glu
                165                 170                 175

Ser Arg Leu Ile Glu Ala Tyr Val Ile Gln Cys Gln Ala Glu Ala Gln
            180                 185                 190

Glu Val Thr Ile Ala Arg Ala Ile Glu Leu Lys His Ala Pro Gly Leu
        195                 200                 205

Ile Ala Ala Leu Ala Tyr Glu Thr Ala Asn Phe Tyr Gln Lys Ala Asp
    210                 215                 220

His Thr Leu Ser Ser Leu Glu Pro Ala Tyr Ser Ala Lys Trp Arg Lys
225                 230                 235                 240

Tyr Leu His Leu Lys Met Cys Phe Tyr Thr Ala Tyr Ala Tyr Cys Tyr
                245                 250                 255

His Gly Glu Thr Leu Leu Ala Ser Asp Lys Cys Gly Glu Ala Ile Arg
            260                 265                 270

Ser Leu Gln Glu Ala Glu Lys Leu Tyr Ala Lys Ala Glu Ala Leu Cys
        275                 280                 285

Lys Glu Tyr Gly Glu Thr Lys Gly Pro Gly Pro Thr Val Lys Pro Ser
    290                 295                 300

Gly His Leu Phe Phe Arg Lys Leu Gly Asn Leu Val Lys Asn Thr Leu
305                 310                 315                 320

Glu Lys Cys Gln Arg Glu Asn Gly Phe Ile Leu Asn Pro Asn Gln Lys
                325                 330                 335
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Lys Lys

<210> 9719
<211> 379
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1970; "

<220>
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<223> /note="Gene Name:
BRO1 domain and CAAX motif containing; "

<220>
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<400> 9719
Met Thr His Trp Phe His Arg Asn Pro Leu Lys Ala Thr Ala Pro Val
1 5 10 15

Ser Phe Asn Tyr Tyr Gly Val Val Thr Gly Pro Ser Ala Ser Lys Ile
20 25 30

Cys Asn Asp Leu Arg Ser Ser Arg Ala Arg Leu Leu Glu Leu Phe Thr
35 40 45

Asp Leu Ser Cys Asn Pro Glu Met Met Lys Asn Ala Ala Asp Ser Tyr
50 55 60

Phe Ser Leu Leu Gln Gly Phe Ile Asn Ser Leu Asp Glu Ser Thr Gln
65 70 75 80

Glu Ser Lys Leu Arg Tyr Ile Gln Asn Phe Lys Trp Thr Asp Thr Leu
85 90 95

Gln Gly Gln Val Pro Ser Ile Thr Glu Asp Glu Ala Lys Glu Val His

```
            100                 105                 110

Arg Ser Leu Lys Ile Ala Ala Gly Ile Phe Lys His Leu Lys Glu Ser
        115                 120                 125

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

Ser Arg Leu Ile Glu Ala Tyr Val Ile Gln Cys Gln Ala Glu Ala Gln
145                 150                 155                 160

Glu Val Thr Ile Ala Arg Ala Ile Glu Leu Lys His Ala Pro Gly Leu
                165                 170                 175

Ile Ala Ala Leu Ala Tyr Glu Thr Ala Asn Phe Tyr Gln Lys Ala Asp
            180                 185                 190

His Thr Leu Ser Ser Leu Glu Pro Ala Tyr Ser Ala Lys Trp Arg Lys
        195                 200                 205

Tyr Leu His Leu Lys Met Cys Phe Tyr Thr Ala Tyr Ala Tyr Cys Tyr
    210                 215                 220

His Gly Glu Thr Leu Leu Ala Ser Asp Lys Cys Gly Glu Ala Ile Arg
225                 230                 235                 240

Ser Leu Gln Glu Ala Glu Lys Leu Tyr Ala Lys Ala Glu Ala Leu Cys
                245                 250                 255

Lys Glu Tyr Gly Glu Thr Lys Gly Pro Gly Pro Thr Val Lys Pro Ser
            260                 265                 270

Gly His Leu Phe Phe Arg Lys Leu Gly Asn Leu Val Lys Asn Thr Leu
        275                 280                 285

Glu Lys Cys Gln Arg Glu Asn Gly Phe Ile Tyr Phe Gln Lys Ile Pro
    290                 295                 300

Thr Glu Ala Pro Gln Leu Glu Leu Lys Ala Asn Tyr Gly Leu Val Glu
305                 310                 315                 320

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

```
Thr Leu Ala Ala Phe Asp Leu Thr Lys Arg Pro Lys Asp Asp Ser Thr
            340                 345                 350

Lys Pro Lys Pro Glu Glu Glu Val Lys Pro Val Lys Glu Pro Asp Ile
        355                 360                 365

Lys Pro Gln Lys Asp Thr Gly Cys Tyr Ile Ser
    370                 375


<210> 9720
<211> 379
<212> PRT
<213> Homo sapiens

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<220>
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<400> 9720
Met Thr His Trp Phe His Arg Asn Pro Leu Lys Ala Thr Ala Pro Val
1               5                  10                  15

Ser Phe Asn Tyr Tyr Gly Val Val Thr Gly Pro Ser Ala Ser Lys Ile
            20                  25                  30

Cys Asn Asp Leu Arg Ser Ser Arg Ala Arg Leu Leu Glu Leu Phe Thr
        35                  40                  45

Asp Leu Ser Cys Asn Pro Glu Met Met Lys Asn Ala Ala Asp Ser Tyr
    50                  55                  60
```

Phe Ser Leu Leu Gln Gly Phe Ile Asn Ser Leu Asp Glu Ser Thr Gln
65 70 75 80

Glu Ser Lys Leu Arg Tyr Ile Gln Asn Phe Lys Trp Thr Asp Thr Leu
85 90 95

Gln Gly Gln Val Pro Ser Ile Thr Glu Asp Glu Ala Lys Glu Val His
100 105 110

Arg Ser Leu Lys Ile Ala Ala Gly Ile Phe Lys His Leu Lys Glu Ser
115 120 125

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

Ser Arg Leu Ile Glu Ala Tyr Val Ile Gln Cys Gln Ala Glu Ala Gln
145 150 155 160

Glu Val Thr Ile Ala Arg Ala Ile Glu Leu Lys His Ala Pro Gly Leu
165 170 175

Ile Ala Ala Leu Ala Tyr Glu Thr Ala Asn Phe Tyr Gln Lys Ala Asp
180 185 190

His Thr Leu Ser Ser Leu Glu Pro Ala Tyr Ser Ala Lys Trp Arg Lys
195 200 205

Tyr Leu His Leu Lys Met Cys Phe Tyr Thr Ala Tyr Ala Tyr Cys Tyr
210 215 220

His Gly Glu Thr Leu Leu Ala Ser Asp Lys Cys Gly Glu Ala Ile Arg
225 230 235 240

Ser Leu Gln Glu Ala Glu Lys Leu Tyr Ala Lys Ala Glu Ala Leu Cys
245 250 255

Lys Glu Tyr Gly Glu Thr Lys Gly Pro Gly Pro Thr Val Lys Pro Ser
260 265 270

Gly His Leu Phe Phe Arg Lys Leu Gly Asn Leu Val Lys Asn Thr Leu
275 280 285

Glu Lys Cys Gln Arg Glu Asn Gly Phe Ile Tyr Phe Gln Lys Ile Pro

```
    290                 295                 300

Thr Glu Ala Pro Gln Leu Glu Leu Lys Ala Asn Tyr Gly Leu Val Glu
305                 310                 315                 320

Pro Ile Pro Phe Glu Phe Pro Pro Thr Ser Val Gln Trp Thr Pro Glu
                325                 330                 335

Thr Leu Ala Ala Phe Asp Leu Thr Lys Arg Pro Lys Asp Asp Ser Thr
            340                 345                 350

Lys Pro Lys Pro Glu Glu Glu Val Lys Pro Val Lys Glu Pro Asp Ile
        355                 360                 365

Lys Pro Gln Lys Asp Thr Gly Cys Tyr Ile Ser
    370                 375


<210> 9721
<211> 780
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
      bromo adjacent homology
      domain containing 1; "

<220>
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<223> /note="Uniprot ID:  Q8TBE0; "

<220>
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<400> 9721
Met Thr His Thr Arg Arg Lys Ser Leu Pro Met Leu Ser Ser Gly Leu
1               5                   10                  15

Thr Gly Arg Arg Glu Pro Leu Gln Met Glu Asp Ser Asn Met Glu Gln
            20                  25                  30
```

```
Gly Val Glu Gly Val Glu Pro Gly Met Pro Glu Ser Pro Gly His Leu
        35                  40                  45

Thr Gly Arg Arg Lys Asn Tyr Pro Leu Arg Lys Arg Pro Leu Val Pro
    50                  55                  60

Glu Lys Pro Lys Ala Cys Lys Val Leu Leu Thr Arg Leu Glu Asn Val
65                  70                  75                  80

Ala Gly Pro Arg Ser Ala Asp Glu Ala Asp Glu Leu Pro Pro Asp Leu
                85                  90                  95

Pro Lys Pro Pro Ser Pro Ala Pro Ser Ser Glu Asp Pro Gly Leu Ala
            100                 105                 110

Gln Pro Arg Lys Arg Arg Leu Ala Ser Leu Asn Ala Glu Ala Leu Asn
        115                 120                 125

Asn Leu Leu Leu Glu Arg Glu Asp Thr Ser Ser Leu Ala Gly Thr Arg
    130                 135                 140

Arg Ser Arg Ala Gly Asp Pro His Arg Ser Arg Asp Arg Asp Arg Ala
145                 150                 155                 160

Thr Gly Gly Trp Ser Ser Ser Lys Lys Arg Pro Arg Leu Gly Asp Leu
                165                 170                 175

Gly Gly Gly Ser Arg Asp Leu Ser Pro Glu Pro Ala Pro Asp Glu Gly
            180                 185                 190

Pro Arg Arg Asp Gly Asp Pro Ala Pro Lys Arg Leu Ala Ser Leu Asn
        195                 200                 205

Ala Ala Ala Phe Leu Lys Leu Ser Gln Glu Arg Glu Leu Pro Leu Arg
    210                 215                 220

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

Ala Pro Lys Ala Pro Arg Pro Lys Trp Pro Lys Val Asn Gly Lys Asn
                245                 250                 255
```

```
Tyr Pro Lys Ala Trp Gln Gly Ala Ser Ser Gly Glu Ala Ala Gly Pro
            260                 265                 270

Pro Gly Trp Gln Gly Cys Pro Asp Glu Pro Trp Pro Ser Ala Thr Pro
        275                 280                 285

Cys Gly Pro Ser Val Gln Pro Ser His Gln Pro Leu Ser Lys Ala Leu
    290                 295                 300

Glu Ser Pro Leu Gly Leu Arg Pro His Leu Pro Leu Leu Met Gly Gly
305                 310                 315                 320

Gln Ala Ala Leu Lys Pro Glu Pro Gly Arg Pro Gly Glu Glu Ser Pro
                325                 330                 335

Ala Pro Lys Gln Glu Leu His Gln Pro Ser Phe Pro Thr Pro Gln Leu
            340                 345                 350

Ser Pro Leu Pro Met Pro Gly Asn Pro Ala Asp Tyr Asn Gly Leu Cys
        355                 360                 365

Val Gly Pro Glu Leu Thr Ala Leu Gly Ser Phe Tyr Leu Tyr Cys Gly
    370                 375                 380

Gln Glu Gly Leu Gln Cys Gly Gly Tyr Ser Pro Cys Pro Met Leu Pro
385                 390                 395                 400

Glu Gly Lys Leu Ser Pro Val Ala Ala Pro His Glu Glu Gly Leu Leu
                405                 410                 415

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

Trp Gly Ser Ser Arg Tyr Cys Ser Ser Glu Asp Thr Gly Val Asn Gly
        435                 440                 445

Tyr Ser Ile Cys Gly Val Leu Pro Leu Ser Val Thr His Ala Gly Thr
    450                 455                 460

Thr Cys Gly Gly Cys Pro Tyr Lys Met Pro Phe Ala Ala Glu Gly Cys
465                 470                 475                 480
```

Arg Ser Leu Gly Gln Leu Glu Phe Pro Leu Pro Glu Ala Gly His Pro
485 490 495

Ala Ser Pro Ala His Pro Leu Leu Gly Cys Pro Val Pro Ser Val Pro
500 505 510

Pro Ala Ala Glu Pro Val Pro His Leu Gln Thr Pro Thr Ser Glu Pro
515 520 525

Gln Thr Val Ala Arg Ala Cys Pro Gln Ser Ala Lys Pro Pro Ser Gly
530 535 540

Ser Lys Ser Gly Leu Arg Thr Gly Ser Ser Cys Arg His Thr Ala Arg
545 550 555 560

Ser Lys Ala Ala Arg Arg Pro Ser His Pro Lys Gln Pro Arg Val Gln
565 570 575

Arg Pro Arg Pro Arg Arg Arg Arg Arg Arg Arg Thr Asn Gly Trp Val
580 585 590

Pro Val Gly Ala Ala Cys Glu Lys Ala Val Tyr Val Leu Asp Glu Pro
595 600 605

Glu Pro Ala Ile Arg Lys Ser Tyr Gln Ala Val Glu Arg His Gly Glu
610 615 620

Thr Ile Arg Val Arg Asp Thr Val Leu Leu Lys Ser Gly Pro Arg Lys
625 630 635 640

Thr Ser Thr Pro Tyr Val Ala Lys Ile Ser Ala Leu Trp Glu Asn Pro
645 650 655

Glu Ser Gly Glu Leu Met Met Ser Leu Leu Trp Tyr Tyr Arg Pro Glu
660 665 670

His Leu Gln Gly Gly Arg Ser Pro Ser Met His Glu Pro Leu Gln Asn
675 680 685

Glu Val Phe Ala Ser Arg His Gln Asp Gln Asn Ser Val Ala Cys Ile
690 695 700

Glu Glu Lys Cys Tyr Val Leu Thr Phe Ala Glu Tyr Cys Arg Phe Cys

705 710 715 720

Ala Met Ala Lys Arg Arg Gly Glu Gly Leu Pro Ser Arg Lys Thr Ala
725 730 735

Leu Val Pro Pro Ser Ala Asp Tyr Ser Thr Pro Pro His Arg Thr Val
740 745 750

Pro Glu Asp Thr Asp Pro Glu Leu Val Phe Leu Cys Arg His Val Tyr
755 760 765

Asp Phe Arg His Gly Arg Ile Leu Lys Asn Pro Gln
770 775 780

<210> 9722
<211> 777
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 1971; "

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<223> /note="Gene Symbol: BAHD1; "

<220>
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<223> /note="Gene Name:
bromo adjacent homology
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8TBE0; "

<220>
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Met Thr His Thr Arg Arg Lys Ser Leu Pro Met Leu Ser Ser Gly Leu
1 5 10 15

Thr Gly Arg Arg Glu Pro Leu Gln Met Glu Asp Ser Asn Met Glu Gln
20 25 30

Gly Val Glu Gly Val Glu Pro Gly Met Pro Glu Ser Pro Gly His Leu
35 40 45

```
Thr Gly Arg Arg Lys Asn Tyr Pro Leu Arg Lys Arg Pro Leu Val Pro
    50                  55                  60

Glu Lys Pro Lys Ala Cys Lys Val Leu Leu Thr Arg Leu Glu Asn Val
65                  70                  75                  80

Ala Gly Pro Arg Ser Ala Asp Glu Ala Asp Glu Leu Pro Pro Asp Leu
                85                  90                  95

Pro Lys Pro Pro Ser Pro Ala Pro Ser Ser Glu Asp Pro Gly Leu Ala
            100                 105                 110

Gln Pro Arg Lys Arg Arg Leu Ala Ser Leu Asn Ala Glu Ala Leu Asn
        115                 120                 125

Asn Leu Leu Leu Glu Arg Glu Asp Thr Ser Ser Leu Ala Gly Thr Arg
    130                 135                 140

Arg Ser Arg Ala Gly Asp Pro His Arg Ser Arg Asp Arg Asp Arg Ala
145                 150                 155                 160

Thr Gly Gly Trp Ser Ser Ser Lys Lys Arg Pro Arg Leu Gly Asp Leu
                165                 170                 175

Gly Gly Gly Ser Arg Asp Leu Ser Pro Glu Pro Ala Pro Asp Glu Gly
            180                 185                 190

Pro Arg Arg Asp Gly Asp Pro Ala Pro Lys Arg Leu Ala Ser Leu Asn
        195                 200                 205

Ala Ala Ala Phe Leu Lys Leu Ser Gln Glu Arg Glu Leu Pro Leu Arg
    210                 215                 220

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

Ala Pro Lys Ala Pro Arg Pro Lys Trp Pro Lys Val Asn Gly Lys Asn
                245                 250                 255

Tyr Pro Lys Ala Trp Gln Gly Ala Ser Ser Gly Glu Ala Ala Gly Pro
            260                 265                 270
```

```
Pro Gly Trp Gln Gly Cys Pro Asp Glu Pro Trp Pro Ser Ala Thr Pro
        275                 280                 285

Cys Gly Pro Ser Val Gln Pro Ser His Gln Pro Leu Ser Lys Ala Leu
    290                 295                 300

Glu Ser Pro Leu Gly Leu Arg Pro His Leu Pro Leu Leu Met Gly Gly
305                 310                 315                 320

Gln Ala Ala Leu Lys Pro Glu Pro Gly Arg Pro Gly Glu Glu Ser Pro
                325                 330                 335

Ala Pro Lys Gln Glu Leu His Gln Pro Ser Phe Pro Thr Pro Gln Leu
            340                 345                 350

Ser Pro Leu Pro Met Pro Gly Asn Pro Ala Asp Tyr Asn Gly Leu Cys
        355                 360                 365

Val Gly Pro Glu Leu Thr Ala Leu Gly Ser Phe Tyr Leu Tyr Cys Gly
    370                 375                 380

Gln Glu Gly Leu Gln Cys Gly Gly Tyr Ser Pro Cys Pro Met Leu Pro
385                 390                 395                 400

Glu Gly Lys Leu Ser Pro Val Ala Ala Pro His Glu Glu Gly Leu Leu
                405                 410                 415

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

Trp Gly Ser Ser Arg Tyr Cys Ser Ser Glu Asp Thr Gly Val Asn Gly
        435                 440                 445

Tyr Ser Ile Cys Gly Val Leu Pro Leu Ser Val Thr His Ala Gly Thr
    450                 455                 460

Thr Cys Gly Gly Cys Pro Tyr Lys Met Pro Phe Ala Ala Glu Gly Cys
465                 470                 475                 480

Arg Ser Leu Gly Gln Leu Glu Phe Pro Leu Pro Glu Ala Gly His Pro
                485                 490                 495
```

```
Ala Ser Pro Ala His Pro Leu Leu Gly Cys Pro Val Pro Ser Val Pro
            500                 505                 510

Pro Ala Ala Glu Pro Val Pro His Leu Gln Thr Pro Thr Ser Glu Pro
        515                 520                 525

Gln Thr Val Ala Arg Ala Cys Pro Gln Ser Ala Lys Pro Pro Ser Gly
    530                 535                 540

Ser Lys Ser Gly Leu Arg Thr Gly Ser Ser Cys Arg His Thr Ala Arg
545                 550                 555                 560

Ser Lys Ala Ala Arg Arg Pro Ser His Pro Lys Gln Pro Arg Val Gln
                565                 570                 575

Arg Pro Arg Pro Arg Arg Arg Arg Arg Arg Arg Thr Asn Gly Trp Val
            580                 585                 590

Pro Val Gly Ala Ala Cys Glu Lys Ala Val Tyr Val Leu Asp Glu Pro
        595                 600                 605

Glu Pro Ala Ile Arg Lys Ser Tyr Gln Ala Val Glu Arg His Gly Glu
    610                 615                 620

Thr Ile Arg Val Arg Asp Thr Val Leu Leu Lys Ser Gly Pro Arg Lys
625                 630                 635                 640

Thr Ser Thr Pro Tyr Val Ala Lys Ile Ser Ala Leu Trp Glu Asn Pro
                645                 650                 655

Glu Ser Gly Glu Leu Met Met Ser Leu Leu Trp Tyr Tyr Arg Pro Glu
            660                 665                 670

His Leu Gln Gly Gly Arg Ser Pro Ser Met His Glu Asn Glu Val Phe
        675                 680                 685

Ala Ser Arg His Gln Asp Gln Asn Ser Val Ala Cys Ile Glu Glu Lys
    690                 695                 700

Cys Tyr Val Leu Thr Phe Ala Glu Tyr Cys Arg Phe Cys Ala Met Ala
705                 710                 715                 720

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

725 730 735

Pro Ser Ala Asp Tyr Ser Thr Pro Pro His Arg Thr Val Pro Glu Asp
740 745 750

Thr Asp Pro Glu Leu Val Phe Leu Cys Arg His Val Tyr Asp Phe Arg
755 760 765

His Gly Arg Ile Leu Lys Asn Pro Gln
770 775

<210> 9723
<211> 779
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1971; "

<220>
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<223> /note="Gene Symbol: BAHD1; "

<220>
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<223> /note="Gene Name:
bromo adjacent homology
domain containing 1; "

<220>
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<223> /note="Uniprot ID: Q8TBE0; "

<220>
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Met Thr His Thr Arg Arg Lys Ser Leu Pro Met Leu Ser Ser Gly Leu
1 5 10 15

Thr Gly Arg Arg Glu Pro Leu Gln Met Glu Asp Ser Asn Met Glu Gln
20 25 30

Gly Val Glu Gly Val Glu Pro Gly Met Pro Glu Ser Pro Gly His Leu
35 40 45

Thr Gly Arg Arg Lys Asn Tyr Pro Leu Arg Lys Arg Pro Leu Val Pro
50 55 60

```
Glu Lys Pro Lys Ala Cys Lys Val Leu Leu Thr Arg Leu Glu Asn Val
65                  70                  75                  80

Ala Gly Pro Arg Ser Ala Asp Glu Ala Asp Glu Leu Pro Pro Asp Leu
                85                  90                  95

Pro Lys Pro Pro Ser Pro Ala Pro Ser Ser Glu Asp Pro Gly Leu Ala
            100                 105                 110

Gln Pro Arg Lys Arg Arg Leu Ala Ser Leu Asn Ala Glu Ala Leu Asn
        115                 120                 125

Asn Leu Leu Leu Glu Arg Glu Asp Thr Ser Ser Leu Ala Gly Thr Arg
    130                 135                 140

Arg Ser Arg Ala Gly Asp Pro His Arg Ser Arg Asp Arg Asp Arg Ala
145                 150                 155                 160

Thr Gly Gly Trp Ser Ser Ser Lys Lys Arg Pro Arg Leu Gly Asp Leu
                165                 170                 175

Gly Gly Gly Ser Arg Asp Leu Ser Pro Glu Pro Ala Pro Asp Glu Gly
            180                 185                 190

Pro Arg Arg Asp Gly Asp Pro Ala Pro Lys Arg Leu Ala Ser Leu Asn
        195                 200                 205

Ala Ala Ala Phe Leu Lys Leu Ser Gln Glu Arg Glu Leu Pro Leu Arg
    210                 215                 220

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

Ala Pro Lys Ala Pro Arg Pro Lys Trp Pro Lys Val Asn Gly Lys Asn
                245                 250                 255

Tyr Pro Lys Ala Trp Gln Gly Ala Ser Ser Gly Glu Ala Ala Gly Pro
            260                 265                 270

Pro Gly Trp Gln Gly Cys Pro Asp Glu Pro Trp Pro Ser Ala Thr Pro
        275                 280                 285
```

```
Cys Gly Pro Ser Val Gln Pro Ser His Gln Pro Leu Ser Lys Ala Leu
    290                 295                 300

Glu Ser Pro Leu Gly Leu Arg Pro His Leu Pro Leu Leu Met Gly Gly
305                 310                 315                 320

Gln Ala Ala Leu Lys Pro Glu Pro Gly Arg Pro Gly Glu Glu Ser Pro
                325                 330                 335

Ala Pro Lys Gln Glu Leu His Gln Pro Ser Phe Pro Thr Pro Gln Leu
            340                 345                 350

Ser Pro Leu Pro Met Pro Gly Asn Pro Ala Asp Tyr Asn Gly Leu Cys
        355                 360                 365

Val Gly Pro Glu Leu Thr Ala Leu Gly Ser Phe Tyr Leu Tyr Cys Gly
    370                 375                 380

Gln Glu Gly Leu Gln Cys Gly Gly Tyr Ser Pro Cys Pro Met Leu Pro
385                 390                 395                 400

Glu Gly Lys Leu Ser Pro Val Ala Ala Pro His Glu Glu Gly Leu Leu
                405                 410                 415

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

Trp Gly Ser Ser Arg Tyr Cys Ser Ser Glu Asp Thr Gly Val Asn Gly
        435                 440                 445

Tyr Ser Ile Cys Gly Val Leu Pro Leu Ser Val Thr His Ala Gly Thr
    450                 455                 460

Thr Cys Gly Gly Cys Pro Tyr Lys Met Pro Phe Ala Ala Gly Cys Arg
465                 470                 475                 480

Ser Leu Gly Gln Leu Glu Phe Pro Leu Pro Glu Ala Gly His Pro Ala
                485                 490                 495

Ser Pro Ala His Pro Leu Leu Gly Cys Pro Val Pro Ser Val Pro Pro
            500                 505                 510
```

```
Ala Ala Glu Pro Val Pro His Leu Gln Thr Pro Thr Ser Glu Pro Gln
        515                 520                 525

Thr Val Ala Arg Ala Cys Pro Gln Ser Ala Lys Pro Pro Ser Gly Ser
    530                 535                 540

Lys Ser Gly Leu Arg Thr Gly Ser Ser Cys Arg His Thr Ala Arg Ser
545                 550                 555                 560

Lys Ala Ala Arg Arg Pro Ser His Pro Lys Gln Pro Arg Val Gln Arg
                565                 570                 575

Pro Arg Pro Arg Arg Arg Arg Arg Arg Arg Thr Asn Gly Trp Val Pro
            580                 585                 590

Val Gly Ala Ala Cys Glu Lys Ala Val Tyr Val Leu Asp Glu Pro Glu
        595                 600                 605

Pro Ala Ile Arg Lys Ser Tyr Gln Ala Val Glu Arg His Gly Glu Thr
    610                 615                 620

Ile Arg Val Arg Asp Thr Val Leu Leu Lys Ser Gly Pro Arg Lys Thr
625                 630                 635                 640

Ser Thr Pro Tyr Val Ala Lys Ile Ser Ala Leu Trp Glu Asn Pro Glu
                645                 650                 655

Ser Gly Glu Leu Met Met Ser Leu Leu Trp Tyr Tyr Arg Pro Glu His
            660                 665                 670

Leu Gln Gly Gly Arg Ser Pro Ser Met His Glu Pro Leu Gln Asn Glu
        675                 680                 685

Val Phe Ala Ser Arg His Gln Asp Gln Asn Ser Val Ala Cys Ile Glu
    690                 695                 700

Glu Lys Cys Tyr Val Leu Thr Phe Ala Glu Tyr Cys Arg Phe Cys Ala
705                 710                 715                 720

Met Ala Lys Arg Arg Gly Glu Gly Leu Pro Ser Arg Lys Thr Ala Leu
                725                 730                 735

Val Pro Pro Ser Ala Asp Tyr Ser Thr Pro Pro His Arg Thr Val Pro
```

740 745 750

Glu Asp Thr Asp Pro Glu Leu Val Phe Leu Cys Arg His Val Tyr Asp
755 760 765

Phe Arg His Gly Arg Ile Leu Lys Asn Pro Gln
770 775

<210> 9724
<211> 1524
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1972; "

<220>
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<223> /note="Gene Symbol: BAZ1A; "

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<223> /note="Gene Name:
bromodomain adjacent to zinc finger domain, 1A; "

<220>
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<223> /note="Uniprot ID: Q9NRL2; "

<220>
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Met Pro Leu Leu His Arg Lys Pro Phe Val Arg Gln Lys Pro Pro Ala
1 5 10 15

Asp Leu Arg Pro Asp Glu Glu Val Phe Tyr Cys Lys Val Thr Asn Glu
20 25 30

Ile Phe Arg His Tyr Asp Asp Phe Phe Glu Arg Thr Ile Leu Cys Asn
35 40 45

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

Gln Glu Ala Leu Glu Ser Glu Lys Lys Ala Arg Gln Asn Leu Gln Ser
65 70 75 80

Phe Pro Glu Pro Leu Ile Ile Pro Val Leu Tyr Leu Thr Ser Leu Thr
85 90 95

His Arg Ser Arg Leu His Glu Ile Cys Asp Asp Ile Phe Ala Tyr Val
100 105 110

Lys Asp Arg Tyr Phe Val Glu Glu Thr Val Glu Val Ile Arg Asn Asn
115 120 125

Gly Ala Arg Leu Gln Cys Arg Ile Leu Glu Val Leu Pro Pro Ser His
130 135 140

Gln Asn Gly Phe Ala Asn Gly His Val Asn Ser Val Asp Gly Glu Thr
145 150 155 160

Ile Ile Ile Ser Asp Ser Asp Asp Ser Glu Thr Gln Ser Cys Ser Phe
165 170 175

Gln Asn Gly Lys Lys Lys Asp Ala Ile Asp Pro Leu Leu Phe Lys Tyr
180 185 190

Lys Val Gln Pro Thr Lys Lys Glu Leu His Glu Ser Ala Ile Val Lys
195 200 205

Ala Thr Gln Ile Ser Arg Arg Lys His Leu Phe Ser Arg Asp Lys Leu
210 215 220

Lys Leu Phe Leu Lys Gln His Cys Glu Pro Gln Asp Gly Val Ile Lys
225 230 235 240

Ile Lys Ala Ser Ser Leu Ser Thr Tyr Lys Ile Ala Glu Gln Asp Phe
245 250 255

Ser Tyr Phe Phe Pro Asp Asp Pro Pro Thr Phe Ile Phe Ser Pro Ala
260 265 270

Asn Arg Arg Arg Gly Arg Pro Pro Lys Arg Ile His Ile Ser Gln Glu
275 280 285

Asp Asn Val Ala Asn Lys Gln Thr Leu Ala Ser Tyr Arg Ser Lys Ala
290 295 300

```
Thr Lys Glu Arg Asp Lys Leu Leu Lys Gln Glu Glu Met Lys Ser Leu
305                 310                 315                 320

Ala Phe Glu Lys Ala Lys Leu Lys Arg Glu Lys Ala Asp Ala Leu Glu
                325                 330                 335

Ala Lys Lys Lys Glu Lys Glu Asp Lys Glu Lys Lys Arg Glu Glu Leu
            340                 345                 350

Lys Lys Ile Val Glu Glu Glu Arg Leu Lys Lys Lys Glu Glu Lys Glu
        355                 360                 365

Arg Leu Lys Val Glu Arg Glu Lys Glu Arg Glu Lys Leu Arg Glu Glu
    370                 375                 380

Lys Arg Lys Tyr Val Glu Tyr Leu Lys Gln Trp Ser Lys Pro Arg Glu
385                 390                 395                 400

Asp Met Glu Cys Asp Asp Leu Lys Glu Leu Pro Glu Pro Thr Pro Val
                405                 410                 415

Lys Thr Arg Leu Pro Pro Glu Ile Phe Gly Asp Ala Leu Met Val Leu
            420                 425                 430

Glu Phe Leu Asn Ala Phe Gly Glu Leu Phe Asp Leu Gln Asp Glu Phe
        435                 440                 445

Pro Asp Gly Val Thr Leu Glu Val Leu Glu Glu Ala Leu Val Gly Asn
    450                 455                 460

Asp Ser Glu Gly Pro Leu Cys Glu Leu Leu Phe Phe Phe Leu Thr Ala
465                 470                 475                 480

Ile Phe Gln Ala Ile Ala Glu Glu Glu Glu Glu Val Ala Lys Glu Gln
                485                 490                 495

Leu Thr Asp Ala Asp Thr Lys Gly Cys Ser Leu Lys Ser Leu Asp Leu
            500                 505                 510

Asp Ser Cys Thr Leu Ser Glu Ile Leu Arg Leu His Ile Leu Ala Ser
        515                 520                 525

Gly Ala Asp Val Thr Ser Ala Asn Ala Lys Tyr Arg Tyr Gln Lys Arg
```

```
    530                 535                 540

Gly Gly Phe Asp Ala Thr Asp Asp Ala Cys Met Glu Leu Arg Leu Ser
545                 550                 555                 560

Asn Pro Ser Leu Val Lys Lys Leu Ser Ser Thr Ser Val Tyr Asp Leu
                565                 570                 575

Thr Pro Gly Glu Lys Met Lys Ile Leu His Ala Leu Cys Gly Lys Leu
            580                 585                 590

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

Leu Arg Gln Ala Lys Gln Glu Phe Arg Glu Leu Lys Ala Glu Gln His
    610                 615                 620

Arg Lys Glu Arg Glu Glu Ala Ala Ala Arg Ile Arg Lys Arg Lys Glu
625                 630                 635                 640

Glu Lys Leu Lys Glu Gln Glu Gln Lys Met Lys Glu Lys Gln Glu Lys
                645                 650                 655

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

Glu Glu Glu Arg Glu Asp Phe Asp Thr Ser Ile Glu Ser Lys Asp Thr
        675                 680                 685

Glu Gln Lys Glu Leu Asp Gln Asp Met Val Thr Glu Asp Glu Asp Asp
    690                 695                 700

Pro Gly Ser His Lys Arg Gly Arg Arg Gly Lys Arg Gly Gln Asn Gly
705                 710                 715                 720

Phe Lys Glu Phe Thr Arg Gln Glu Gln Ile Asn Cys Val Thr Arg Glu
                725                 730                 735

Pro Leu Thr Ala Asp Glu Glu Glu Ala Leu Lys Gln Glu His Gln Arg
            740                 745                 750

Lys Glu Lys Glu Leu Leu Glu Lys Ile Gln Ser Ala Ile Ala Cys Thr
        755                 760                 765
```

```
Asn Ile Phe Pro Leu Gly Arg Asp Arg Met Tyr Arg Arg Tyr Trp Ile
    770                 775                 780

Phe Pro Ser Ile Pro Gly Leu Phe Ile Glu Glu Asp Tyr Ser Gly Leu
785                 790                 795                 800

Thr Glu Asp Met Leu Leu Pro Arg Pro Ser Ser Phe Gln Asn Asn Val
                805                 810                 815

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

Ser Glu Ser Thr Ser Asn Ile Asp Gln Gly Pro Arg Asp His Ser Val
        835                 840                 845

Gln Leu Pro Lys Pro Val His Lys Pro Asn Arg Trp Cys Phe Tyr Ser
    850                 855                 860

Ser Cys Glu Gln Leu Asp Gln Leu Ile Glu Ala Leu Asn Ser Arg Gly
865                 870                 875                 880

His Arg Glu Ser Ala Leu Lys Glu Thr Leu Leu Gln Glu Lys Ser Arg
                885                 890                 895

Ile Cys Ala Gln Leu Ala Arg Phe Ser Glu Glu Lys Phe His Phe Ser
            900                 905                 910

Asp Lys Pro Gln Pro Asp Ser Lys Pro Thr Tyr Ser Arg Gly Arg Ser
        915                 920                 925

Ser Asn Ala Tyr Asp Pro Ser Gln Met Cys Ala Glu Lys Gln Leu Glu
    930                 935                 940

Leu Arg Leu Arg Asp Phe Leu Leu Asp Ile Glu Asp Arg Ile Tyr Gln
945                 950                 955                 960

Gly Thr Leu Gly Ala Ile Lys Val Thr Asp Arg His Ile Trp Arg Ser
                965                 970                 975

Ala Leu Glu Ser Gly Arg Tyr Glu Leu Leu Ser Glu Glu Asn Lys Glu
            980                 985                 990
```

Asn Gly Ile Ile Lys Thr Val Asn Glu Asp Val Glu Glu Met Glu Ile
995 1000 1005

Asp Glu Gln Thr Lys Val Ile Val Lys Asp Arg Leu Leu Gly Ile
1010 1015 1020

Lys Thr Glu Thr Pro Ser Thr Val Ser Thr Asn Ala Ser Thr Pro
1025 1030 1035

Gln Ser Val Ser Ser Val Val His Tyr Leu Ala Met Ala Leu Phe
1040 1045 1050

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

Asp Ala Ser Asp Ser Gly Arg Ser Tyr Lys Thr Val Leu Asp Arg
1070 1075 1080

Trp Arg Glu Ser Leu Leu Ser Ser Ala Ser Leu Ser Gln Val Phe
1085 1090 1095

Leu His Leu Ser Thr Leu Asp Arg Ser Val Ile Trp Ser Lys Ser
1100 1105 1110

Ile Leu Asn Ala Arg Cys Lys Ile Cys Arg Lys Lys Gly Asp Ala
1115 1120 1125

Glu Asn Met Val Leu Cys Asp Gly Cys Asp Arg Gly His His Thr
1130 1135 1140

Tyr Cys Val Arg Pro Lys Leu Lys Thr Val Pro Glu Gly Asp Trp
1145 1150 1155

Phe Cys Pro Glu Cys Arg Pro Lys Gln Arg Ser Arg Arg Leu Ser
1160 1165 1170

Ser Arg Gln Arg Pro Ser Leu Glu Ser Asp Glu Asp Val Glu Asp
1175 1180 1185

Ser Met Gly Gly Glu Asp Asp Glu Val Asp Gly Asp Glu Glu Glu
1190 1195 1200

```
Gly Gln  Ser Glu Glu Glu Glu  Tyr Glu Val Glu Gln  Asp Glu Asp
    1205                 1210                 1215

Asp Ser  Gln Glu Glu Glu Glu  Val Ser Leu Pro Lys  Arg Gly Arg
    1220                 1225                 1230

Pro Gln  Val Arg Leu Pro Val  Lys Thr Arg Gly Lys  Leu Ser Ser
    1235                 1240                 1245

Ser Phe  Ser Ser Arg Gly Gln  Gln Gln Glu Pro Gly  Arg Tyr Pro
    1250                 1255                 1260

Ser Arg  Ser Gln Gln Ser Thr  Pro Lys Thr Thr Val  Ser Ser Lys
    1265                 1270                 1275

Thr Gly  Arg Ser Leu Arg Lys  Ile Asn Ser Ala Pro  Pro Thr Glu
    1280                 1285                 1290

Thr Lys  Ser Leu Arg Ile Ala  Ser Arg Ser Thr Arg  His Ser His
    1295                 1300                 1305

Gly Pro  Leu Gln Ala Asp Val  Phe Val Glu Leu Leu  Ser Pro Arg
    1310                 1315                 1320

Arg Lys  Arg Arg Gly Arg Lys  Ser Ala Asn Asn Thr  Pro Glu Asn
    1325                 1330                 1335

Ser Pro  Asn Phe Pro Asn Phe  Arg Val Ile Ala Thr  Lys Ser Ser
    1340                 1345                 1350

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

Glu Ser  Glu Ser Lys Arg Arg  Cys Arg Lys Arg Gln  Ser Pro Glu
    1370                 1375                 1380

Pro Ser  Pro Val Thr Leu Gly  Arg Arg Ser Ser Gly  Arg Gln Gly
    1385                 1390                 1395

Gly Val  His Glu Leu Ser Ala  Phe Glu Gln Leu Val  Val Glu Leu
    1400                 1405                 1410
```

```
Val Arg  His Asp Asp Ser Trp  Pro Phe Leu Lys Leu  Val Ser Lys
    1415                1420                1425

Ile Gln  Val Pro Asp Tyr Tyr  Asp Ile Ile Lys Lys  Pro Ile Ala
    1430                1435                1440

Leu Asn  Ile Ile Arg Glu Lys  Val Asn Lys Cys Glu  Tyr Lys Leu
    1445                1450                1455

Ala Ser  Glu Phe Ile Asp Asp  Ile Glu Leu Met Phe  Ser Asn Cys
    1460                1465                1470

Phe Glu  Tyr Asn Pro Arg Asn  Thr Ser Glu Ala Lys  Ala Gly Thr
    1475                1480                1485

Arg Leu  Gln Ala Phe Phe His  Ile Gln Ala Gln Lys  Leu Gly Leu
    1490                1495                1500

His Val  Thr Pro Ser Asn Val  Asp Gln Val Ser Thr  Pro Pro Ala
    1505                1510                1515

Ala Lys  Lys Ser Arg Ile
    1520


<210> 9725
<211> 1556
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 1972; "

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<223> /note="Gene Symbol: BAZ1A; "

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Met Pro Leu Leu His Arg Lys Pro Phe Val Arg Gln Lys Pro Pro Ala
1 5 10 15

Asp Leu Arg Pro Asp Glu Glu Val Phe Tyr Cys Lys Val Thr Asn Glu
20 25 30

Ile Phe Arg His Tyr Asp Asp Phe Phe Glu Arg Thr Ile Leu Cys Asn
35 40 45

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

Gln Glu Ala Leu Glu Ser Glu Lys Lys Ala Arg Gln Asn Leu Gln Ser
65 70 75 80

Phe Pro Glu Pro Leu Ile Ile Pro Val Leu Tyr Leu Thr Ser Leu Thr
85 90 95

His Arg Ser Arg Leu His Glu Ile Cys Asp Asp Ile Phe Ala Tyr Val
100 105 110

Lys Asp Arg Tyr Phe Val Glu Glu Thr Val Glu Val Ile Arg Asn Asn
115 120 125

Gly Ala Arg Leu Gln Cys Arg Ile Leu Glu Val Leu Pro Pro Ser His
130 135 140

Gln Asn Gly Phe Ala Asn Gly His Val Asn Ser Val Asp Gly Glu Thr
145 150 155 160

Ile Ile Ile Ser Asp Ser Asp Asp Ser Glu Thr Gln Ser Cys Ser Phe
165 170 175

Gln Asn Gly Lys Lys Lys Asp Ala Ile Asp Pro Leu Leu Phe Lys Tyr
180 185 190

Lys Val Gln Pro Thr Lys Lys Glu Leu His Glu Ser Ala Ile Val Lys
195 200 205

Ala Thr Gln Ile Ser Arg Arg Lys His Leu Phe Ser Arg Asp Lys Leu
210 215 220

```
Lys Leu Phe Leu Lys Gln His Cys Glu Pro Gln Asp Gly Val Ile Lys
225                 230                 235                 240

Ile Lys Ala Ser Ser Leu Ser Thr Tyr Lys Ile Ala Glu Gln Asp Phe
                245                 250                 255

Ser Tyr Phe Phe Pro Asp Asp Pro Pro Thr Phe Ile Phe Ser Pro Ala
            260                 265                 270

Asn Arg Arg Arg Gly Arg Pro Pro Lys Arg Ile His Ile Ser Gln Glu
        275                 280                 285

Asp Asn Val Ala Asn Lys Gln Thr Leu Ala Ser Tyr Arg Ser Lys Ala
    290                 295                 300

Thr Lys Glu Arg Asp Lys Leu Leu Lys Gln Glu Glu Met Lys Ser Leu
305                 310                 315                 320

Ala Phe Glu Lys Ala Lys Leu Lys Arg Glu Lys Ala Asp Ala Leu Glu
                325                 330                 335

Ala Lys Lys Lys Glu Lys Glu Asp Lys Glu Lys Lys Arg Glu Glu Leu
            340                 345                 350

Lys Lys Ile Val Glu Glu Glu Arg Leu Lys Lys Lys Glu Glu Lys Glu
        355                 360                 365

Arg Leu Lys Val Glu Arg Glu Lys Glu Arg Glu Lys Leu Arg Glu Glu
    370                 375                 380

Lys Arg Lys Tyr Val Glu Tyr Leu Lys Gln Trp Ser Lys Pro Arg Glu
385                 390                 395                 400

Asp Met Glu Cys Asp Asp Leu Lys Glu Leu Pro Glu Pro Thr Pro Val
                405                 410                 415

Lys Thr Arg Leu Pro Pro Glu Ile Phe Gly Asp Ala Leu Met Val Leu
            420                 425                 430

Glu Phe Leu Asn Ala Phe Gly Glu Leu Phe Asp Leu Gln Asp Glu Phe
        435                 440                 445
```

```
Pro Asp Gly Val Thr Leu Glu Val Leu Glu Glu Ala Leu Val Gly Asn
    450                 455                 460

Asp Ser Glu Gly Pro Leu Cys Glu Leu Leu Phe Phe Phe Leu Thr Ala
465                 470                 475                 480

Ile Phe Gln Ala Ile Ala Glu Glu Glu Glu Glu Val Ala Lys Glu Gln
                485                 490                 495

Leu Thr Asp Ala Asp Thr Lys Asp Leu Thr Glu Ala Leu Asp Glu Asp
            500                 505                 510

Ala Asp Pro Thr Lys Ser Ala Leu Ser Ala Val Ala Ser Leu Ala Ala
        515                 520                 525

Ala Trp Pro Gln Leu His Gln Gly Cys Ser Leu Lys Ser Leu Asp Leu
    530                 535                 540

Asp Ser Cys Thr Leu Ser Glu Ile Leu Arg Leu His Ile Leu Ala Ser
545                 550                 555                 560

Gly Ala Asp Val Thr Ser Ala Asn Ala Lys Tyr Arg Tyr Gln Lys Arg
                565                 570                 575

Gly Gly Phe Asp Ala Thr Asp Asp Ala Cys Met Glu Leu Arg Leu Ser
            580                 585                 590

Asn Pro Ser Leu Val Lys Lys Leu Ser Ser Thr Ser Val Tyr Asp Leu
        595                 600                 605

Thr Pro Gly Glu Lys Met Lys Ile Leu His Ala Leu Cys Gly Lys Leu
    610                 615                 620

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

Leu Arg Gln Ala Lys Gln Glu Phe Arg Glu Leu Lys Ala Glu Gln His
                645                 650                 655

Arg Lys Glu Arg Glu Glu Ala Ala Ala Arg Ile Arg Lys Arg Lys Glu
            660                 665                 670

Glu Lys Leu Lys Glu Gln Glu Gln Lys Met Lys Glu Lys Gln Glu Lys
```

675 680 685

Leu Lys Glu Asp Glu Gln Arg Asn Ser Thr Ala Asp Ile Ser Ile Gly
690 695 700

Glu Glu Glu Arg Glu Asp Phe Asp Thr Ser Ile Glu Ser Lys Asp Thr
705 710 715 720

Glu Gln Lys Glu Leu Asp Gln Asp Met Val Thr Glu Asp Glu Asp Asp
725 730 735

Pro Gly Ser His Lys Arg Gly Arg Arg Gly Lys Arg Gly Gln Asn Gly
740 745 750

Phe Lys Glu Phe Thr Arg Gln Glu Gln Ile Asn Cys Val Thr Arg Glu
755 760 765

Pro Leu Thr Ala Asp Glu Glu Glu Ala Leu Lys Gln Glu His Gln Arg
770 775 780

Lys Glu Lys Glu Leu Leu Glu Lys Ile Gln Ser Ala Ile Ala Cys Thr
785 790 795 800

Asn Ile Phe Pro Leu Gly Arg Asp Arg Met Tyr Arg Arg Tyr Trp Ile
805 810 815

Phe Pro Ser Ile Pro Gly Leu Phe Ile Glu Glu Asp Tyr Ser Gly Leu
820 825 830

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

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

Ser Glu Ser Thr Ser Asn Ile Asp Gln Gly Pro Arg Asp His Ser Val
865 870 875 880

Gln Leu Pro Lys Pro Val His Lys Pro Asn Arg Trp Cys Phe Tyr Ser
885 890 895

Ser Cys Glu Gln Leu Asp Gln Leu Ile Glu Ala Leu Asn Ser Arg Gly
900 905 910

```
His Arg Glu Ser Ala Leu Lys Glu Thr Leu Leu Gln Glu Lys Ser Arg
        915                 920                 925

Ile Cys Ala Gln Leu Ala Arg Phe Ser Glu Glu Lys Phe His Phe Ser
    930                 935                 940

Asp Lys Pro Gln Pro Asp Ser Lys Pro Thr Tyr Ser Arg Gly Arg Ser
945                 950                 955                 960

Ser Asn Ala Tyr Asp Pro Ser Gln Met Cys Ala Glu Lys Gln Leu Glu
                965                 970                 975

Leu Arg Leu Arg Asp Phe Leu Leu Asp Ile Glu Asp Arg Ile Tyr Gln
            980                 985                 990

Gly Thr Leu Gly Ala Ile Lys Val  Thr Asp Arg His Ile  Trp Arg
Ser
        995                 1000                1005

Ala Leu  Glu Ser Gly Arg Tyr  Glu Leu Leu Ser Glu  Glu Asn Lys
    1010                1015                1020

Glu Asn  Gly Ile Ile Lys Thr  Val Asn Glu Asp Val  Glu Glu Met
    1025                1030                1035

Glu Ile  Asp Glu Gln Thr Lys  Val Ile Val Lys Asp  Arg Leu Leu
    1040                1045                1050

Gly Ile  Lys Thr Glu Thr Pro  Ser Thr Val Ser Thr  Asn Ala Ser
    1055                1060                1065

Thr Pro  Gln Ser Val Ser Ser  Val Val His Tyr Leu  Ala Met Ala
    1070                1075                1080

Leu Phe  Gln Ile Glu Gln Gly  Ile Glu Arg Arg Phe  Leu Lys Ala
    1085                1090                1095

Pro Leu  Asp Ala Ser Asp Ser  Gly Arg Ser Tyr Lys  Thr Val Leu
    1100                1105                1110

Asp Arg  Trp Arg Glu Ser Leu  Leu Ser Ser Ala Ser  Leu Ser Gln
    1115                1120                1125
```

```
Val Phe  Leu His Leu Ser Thr  Leu Asp Arg Ser Val  Ile Trp Ser
    1130                1135                1140

Lys Ser  Ile Leu Asn Ala Arg  Cys Lys Ile Cys Arg  Lys Lys Gly
    1145                1150                1155

Asp Ala  Glu Asn Met Val Leu  Cys Asp Gly Cys Asp  Arg Gly His
    1160                1165                1170

His Thr  Tyr Cys Val Arg Pro  Lys Leu Lys Thr Val  Pro Glu Gly
    1175                1180                1185

Asp Trp  Phe Cys Pro Glu Cys  Arg Pro Lys Gln Arg  Ser Arg Arg
    1190                1195                1200

Leu Ser  Ser Arg Gln Arg Pro  Ser Leu Glu Ser Asp  Glu Asp Val
    1205                1210                1215

Glu Asp  Ser Met Gly Gly Glu  Asp Asp Glu Val Asp  Gly Asp Glu
    1220                1225                1230

Glu Glu  Gly Gln Ser Glu Glu  Glu Glu Tyr Glu Val  Glu Gln Asp
    1235                1240                1245

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

Gly Arg  Pro Gln Val Arg Leu  Pro Val Lys Thr Arg  Gly Lys Leu
    1265                1270                1275

Ser Ser  Ser Phe Ser Ser Arg  Gly Gln Gln Gln Glu  Pro Gly Arg
    1280                1285                1290

Tyr Pro  Ser Arg Ser Gln Gln  Ser Thr Pro Lys Thr  Thr Val Ser
    1295                1300                1305

Ser Lys  Thr Gly Arg Ser Leu  Arg Lys Ile Asn Ser  Ala Pro Pro
    1310                1315                1320

Thr Glu  Thr Lys Ser Leu Arg  Ile Ala Ser Arg Ser  Thr Arg His
    1325                1330                1335
```

```
Ser His  Gly Pro Leu Gln Ala  Asp Val Phe Val Glu  Leu Leu Ser
    1340                1345                1350

Pro Arg  Arg Lys Arg Arg Gly  Arg Lys Ser Ala Asn  Asn Thr Pro
    1355                1360                1365

Glu Asn  Ser Pro Asn Phe Pro  Asn Phe Arg Val Ile  Ala Thr Lys
    1370                1375                1380

Ser Ser  Glu Gln Ser Arg Ser  Val Asn Ile Ala Ser  Lys Leu Ser
    1385                1390                1395

Leu Gln  Glu Ser Glu Ser Lys  Arg Arg Cys Arg Lys  Arg Gln Ser
    1400                1405                1410

Pro Glu  Pro Ser Pro Val Thr  Leu Gly Arg Arg Ser  Ser Gly Arg
    1415                1420                1425

Gln Gly  Gly Val His Glu Leu  Ser Ala Phe Glu Gln  Leu Val Val
    1430                1435                1440

Glu Leu  Val Arg His Asp Asp  Ser Trp Pro Phe Leu  Lys Leu Val
    1445                1450                1455

Ser Lys  Ile Gln Val Pro Asp  Tyr Tyr Asp Ile Ile  Lys Lys Pro
    1460                1465                1470

Ile Ala  Leu Asn Ile Ile Arg  Glu Lys Val Asn Lys  Cys Glu Tyr
    1475                1480                1485

Lys Leu  Ala Ser Glu Phe Ile  Asp Asp Ile Glu Leu  Met Phe Ser
    1490                1495                1500

Asn Cys  Phe Glu Tyr Asn Pro  Arg Asn Thr Ser Glu  Ala Lys Ala
    1505                1510                1515

Gly Thr  Arg Leu Gln Ala Phe  Phe His Ile Gln Ala  Gln Lys Leu
    1520                1525                1530

Gly Leu  His Val Thr Pro Ser  Asn Val Asp Gln Val  Ser Thr Pro
    1535                1540                1545
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Pro Ala Ala Lys Lys Ser Arg Ile
1550 1555

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<211> 1556
<212> PRT
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<223> /note="Gene Name:
bromodomain adjacent to zinc finger domain, 1A; "

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Met Pro Leu Leu His Arg Lys Pro Phe Val Arg Gln Lys Pro Pro Ala
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Asp Leu Arg Pro Asp Glu Glu Val Phe Tyr Cys Lys Val Thr Asn Glu
20 25 30

Ile Phe Arg His Tyr Asp Asp Phe Phe Glu Arg Thr Ile Leu Cys Asn
35 40 45

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

Gln Glu Ala Leu Glu Ser Glu Lys Lys Ala Arg Gln Asn Leu Gln Ser
65 70 75 80

Phe Pro Glu Pro Leu Ile Ile Pro Val Leu Tyr Leu Thr Ser Leu Thr
85 90 95

His Arg Ser Arg Leu His Glu Ile Cys Asp Asp Ile Phe Ala Tyr Val
100 105 110

```
Lys Asp Arg Tyr Phe Val Glu Glu Thr Val Glu Val Ile Arg Asn Asn
        115                 120                 125

Gly Ala Arg Leu Gln Cys Arg Ile Leu Glu Val Leu Pro Pro Ser His
    130                 135                 140

Gln Asn Gly Phe Ala Asn Gly His Val Asn Ser Val Asp Gly Glu Thr
145                 150                 155                 160

Ile Ile Ile Ser Asp Ser Asp Asp Ser Glu Thr Gln Ser Cys Ser Phe
                165                 170                 175

Gln Asn Gly Lys Lys Lys Asp Ala Ile Asp Pro Leu Leu Phe Lys Tyr
            180                 185                 190

Lys Val Gln Pro Thr Lys Lys Glu Leu His Glu Ser Ala Ile Val Lys
        195                 200                 205

Ala Thr Gln Ile Ser Arg Arg Lys His Leu Phe Ser Arg Asp Lys Leu
    210                 215                 220

Lys Leu Phe Leu Lys Gln His Cys Glu Pro Gln Asp Gly Val Ile Lys
225                 230                 235                 240

Ile Lys Ala Ser Ser Leu Ser Thr Tyr Lys Ile Ala Glu Gln Asp Phe
                245                 250                 255

Ser Tyr Phe Phe Pro Asp Asp Pro Pro Thr Phe Ile Phe Ser Pro Ala
            260                 265                 270

Asn Arg Arg Arg Gly Arg Pro Pro Lys Arg Ile His Ile Ser Gln Glu
        275                 280                 285

Asp Asn Val Ala Asn Lys Gln Thr Leu Ala Ser Tyr Arg Ser Lys Ala
    290                 295                 300

Thr Lys Glu Arg Asp Lys Leu Leu Lys Gln Glu Glu Met Lys Ser Leu
305                 310                 315                 320

Ala Phe Glu Lys Ala Lys Leu Lys Arg Glu Lys Ala Asp Ala Leu Glu
                325                 330                 335
```

```
Ala Lys Lys Lys Glu Lys Glu Asp Lys Glu Lys Lys Arg Glu Glu Leu
            340                 345                 350

Lys Lys Ile Val Glu Glu Glu Arg Leu Lys Lys Lys Glu Glu Lys Glu
        355                 360                 365

Arg Leu Lys Val Glu Arg Glu Lys Glu Arg Glu Lys Leu Arg Glu Glu
    370                 375                 380

Lys Arg Lys Tyr Val Glu Tyr Leu Lys Gln Trp Ser Lys Pro Arg Glu
385                 390                 395                 400

Asp Met Glu Cys Asp Asp Leu Lys Glu Leu Pro Glu Pro Thr Pro Val
                405                 410                 415

Lys Thr Arg Leu Pro Pro Glu Ile Phe Gly Asp Ala Leu Met Val Leu
            420                 425                 430

Glu Phe Leu Asn Ala Phe Gly Glu Leu Phe Asp Leu Gln Asp Glu Phe
        435                 440                 445

Pro Asp Gly Val Thr Leu Glu Val Leu Glu Glu Ala Leu Val Gly Asn
    450                 455                 460

Asp Ser Glu Gly Pro Leu Cys Glu Leu Leu Phe Phe Phe Leu Thr Ala
465                 470                 475                 480

Ile Phe Gln Ala Ile Ala Glu Glu Glu Glu Glu Val Ala Lys Glu Gln
                485                 490                 495

Leu Thr Asp Ala Asp Thr Lys Asp Leu Thr Glu Ala Leu Asp Glu Asp
            500                 505                 510

Ala Asp Pro Thr Lys Ser Ala Leu Ser Ala Val Ala Ser Leu Ala Ala
        515                 520                 525

Ala Trp Pro Gln Leu His Gln Gly Cys Ser Leu Lys Ser Leu Asp Leu
    530                 535                 540

Asp Ser Cys Thr Leu Ser Glu Ile Leu Arg Leu His Ile Leu Ala Ser
545                 550                 555                 560
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```
Gly Ala Asp Val Thr Ser Ala Asn Ala Lys Tyr Arg Tyr Gln Lys Arg
                565                 570                 575

Gly Gly Phe Asp Ala Thr Asp Asp Ala Cys Met Glu Leu Arg Leu Ser
            580                 585                 590

Asn Pro Ser Leu Val Lys Lys Leu Ser Ser Thr Ser Val Tyr Asp Leu
        595                 600                 605

Thr Pro Gly Glu Lys Met Lys Ile Leu His Ala Leu Cys Gly Lys Leu
    610                 615                 620

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

Leu Arg Gln Ala Lys Gln Glu Phe Arg Glu Leu Lys Ala Glu Gln His
                645                 650                 655

Arg Lys Glu Arg Glu Glu Ala Ala Ala Arg Ile Arg Lys Arg Lys Glu
            660                 665                 670

Glu Lys Leu Lys Glu Gln Glu Gln Lys Met Lys Glu Lys Gln Glu Lys
        675                 680                 685

Leu Lys Glu Asp Glu Gln Arg Asn Ser Thr Ala Asp Ile Ser Ile Gly
    690                 695                 700

Glu Glu Glu Arg Glu Asp Phe Asp Thr Ser Ile Glu Ser Lys Asp Thr
705                 710                 715                 720

Glu Gln Lys Glu Leu Asp Gln Asp Met Val Thr Glu Asp Glu Asp Asp
                725                 730                 735

Pro Gly Ser His Lys Arg Gly Arg Arg Gly Lys Arg Gly Gln Asn Gly
            740                 745                 750

Phe Lys Glu Phe Thr Arg Gln Glu Gln Ile Asn Cys Val Thr Arg Glu
        755                 760                 765

Pro Leu Thr Ala Asp Glu Glu Glu Ala Leu Lys Gln Glu His Gln Arg
    770                 775                 780

Lys Glu Lys Glu Leu Leu Glu Lys Ile Gln Ser Ala Ile Ala Cys Thr
```

785 790 795 800

Asn Ile Phe Pro Leu Gly Arg Asp Arg Met Tyr Arg Arg Tyr Trp Ile
805 810 815

Phe Pro Ser Ile Pro Gly Leu Phe Ile Glu Glu Asp Tyr Ser Gly Leu
820 825 830

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

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

Ser Glu Ser Thr Ser Asn Ile Asp Gln Gly Pro Arg Asp His Ser Val
865 870 875 880

Gln Leu Pro Lys Pro Val His Lys Pro Asn Arg Trp Cys Phe Tyr Ser
885 890 895

Ser Cys Glu Gln Leu Asp Gln Leu Ile Glu Ala Leu Asn Ser Arg Gly
900 905 910

His Arg Glu Ser Ala Leu Lys Glu Thr Leu Leu Gln Glu Lys Ser Arg
915 920 925

Ile Cys Ala Gln Leu Ala Arg Phe Ser Glu Glu Lys Phe His Phe Ser
930 935 940

Asp Lys Pro Gln Pro Asp Ser Lys Pro Thr Tyr Ser Arg Gly Arg Ser
945 950 955 960

Ser Asn Ala Tyr Asp Pro Ser Gln Met Cys Ala Glu Lys Gln Leu Glu
965 970 975

Leu Arg Leu Arg Asp Phe Leu Leu Asp Ile Glu Asp Arg Ile Tyr Gln
980 985 990

Gly Thr Leu Gly Ala Ile Lys Val Thr Asp Arg His Ile Trp Arg
Ser
995 1000 1005

Ala Leu Glu Ser Gly Arg Tyr Glu Leu Leu Ser Glu Glu Asn Lys

1010 1015 1020

Glu Asn Gly Ile Ile Lys Thr Val Asn Glu Asp Val Glu Glu Met
1025 1030 1035

Glu Ile Asp Glu Gln Thr Lys Val Ile Val Lys Asp Arg Leu Leu
1040 1045 1050

Gly Ile Lys Thr Glu Thr Pro Ser Thr Val Ser Thr Asn Ala Ser
1055 1060 1065

Thr Pro Gln Ser Val Ser Ser Val Val His Tyr Leu Ala Met Ala
1070 1075 1080

Leu Phe Gln Ile Glu Gln Gly Ile Glu Arg Arg Phe Leu Lys Ala
1085 1090 1095

Pro Leu Asp Ala Ser Asp Ser Gly Arg Ser Tyr Lys Thr Val Leu
1100 1105 1110

Asp Arg Trp Arg Glu Ser Leu Leu Ser Ser Ala Ser Leu Ser Gln
1115 1120 1125

Val Phe Leu His Leu Ser Thr Leu Asp Arg Ser Val Ile Trp Ser
1130 1135 1140

Lys Ser Ile Leu Asn Ala Arg Cys Lys Ile Cys Arg Lys Lys Gly
1145 1150 1155

Asp Ala Glu Asn Met Val Leu Cys Asp Gly Cys Asp Arg Gly His
1160 1165 1170

His Thr Tyr Cys Val Arg Pro Lys Leu Lys Thr Val Pro Glu Gly
1175 1180 1185

Asp Trp Phe Cys Pro Glu Cys Arg Pro Lys Gln Arg Ser Arg Arg
1190 1195 1200

Leu Ser Ser Arg Gln Arg Pro Ser Leu Glu Ser Asp Glu Asp Val
1205 1210 1215

Glu Asp Ser Met Gly Gly Glu Asp Asp Glu Val Asp Gly Asp Glu
1220 1225 1230

```
Glu Glu  Gly Gln Ser Glu Glu  Glu Glu Tyr Glu Val  Glu Gln Asp
    1235                1240                1245

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

Gly Arg  Pro Gln Val Arg Leu  Pro Val Lys Thr Arg  Gly Lys Leu
    1265                1270                1275

Ser Ser  Ser Phe Ser Ser Arg  Gly Gln Gln Gln Glu  Pro Gly Arg
    1280                1285                1290

Tyr Pro  Ser Arg Ser Gln Gln  Ser Thr Pro Lys Thr  Thr Val Ser
    1295                1300                1305

Ser Lys  Thr Gly Arg Ser Leu  Arg Lys Ile Asn Ser  Ala Pro Pro
    1310                1315                1320

Thr Glu  Thr Lys Ser Leu Arg  Ile Ala Ser Arg Ser  Thr Arg His
    1325                1330                1335

Ser His  Gly Pro Leu Gln Ala  Asp Val Phe Val Glu  Leu Leu Ser
    1340                1345                1350

Pro Arg  Arg Lys Arg Arg Gly  Arg Lys Ser Ala Asn  Asn Thr Pro
    1355                1360                1365

Glu Asn  Ser Pro Asn Phe Pro  Asn Phe Arg Val Ile  Ala Thr Lys
    1370                1375                1380

Ser Ser  Glu Gln Ser Arg Ser  Val Asn Ile Ala Ser  Lys Leu Ser
    1385                1390                1395

Leu Gln  Glu Ser Glu Ser Lys  Arg Arg Cys Arg Lys  Arg Gln Ser
    1400                1405                1410

Pro Glu  Pro Ser Pro Val Thr  Leu Gly Arg Arg Ser  Ser Gly Arg
    1415                1420                1425

Gln Gly  Gly Val His Glu Leu  Ser Ala Phe Glu Gln  Leu Val Val
    1430                1435                1440
```

```
Glu Leu  Val Arg His Asp Asp  Ser Trp Pro Phe Leu  Lys Leu Val
    1445                1450                1455

Ser Lys  Ile Gln Val Pro Asp  Tyr Tyr Asp Ile Ile  Lys Lys Pro
    1460                1465                1470

Ile Ala  Leu Asn Ile Ile Arg  Glu Lys Val Asn Lys  Cys Glu Tyr
    1475                1480                1485

Lys Leu  Ala Ser Glu Phe Ile  Asp Asp Ile Glu Leu  Met Phe Ser
    1490                1495                1500

Asn Cys  Phe Glu Tyr Asn Pro  Arg Asn Thr Ser Glu  Ala Lys Ala
    1505                1510                1515

Gly Thr  Arg Leu Gln Ala Phe  Phe His Ile Gln Ala  Gln Lys Leu
    1520                1525                1530

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

Pro Ala  Ala Lys Lys Ser Arg  Ile
    1550                1555


<210> 9727
<211> 12
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      bromodomain adjacent to zinc finger domain, 1A; "

<220>
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<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9727
Xaa Arg Lys Arg Gln Ser Pro Gly Pro Arg Leu Leu
1 5 10

<210> 9728
<211> 76
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<220>
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<400> 9728
Xaa Leu Leu Gly Ile Lys Thr Glu Thr Pro Ser Thr Val Ser Thr Asn
1 5 10 15

Ala Ser Thr Pro Gln Ser Val Ser Ser Val Val His Tyr Leu Ala Met
20 25 30

Ala Leu Phe Gln Ile Glu Gln Gly Ile Glu Arg Arg Phe Leu Lys Ala
35 40 45

Pro Leu Gly Lys Thr Glu Ile Asn Lys Asp Gln Lys Gly Asp Arg Lys
50 55 60

Lys Lys Gly Gln Glu Lys Glu Arg Gly Arg Ser Ile
65 70 75

<210> 9729
<211> 77
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<220>
<221> MOD_RES
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<223> Any amino acid

<400> 9729
Xaa Tyr Val Lys Asp Arg Tyr Phe Val Glu Glu Thr Val Glu Val Ile
1 5 10 15

Arg Asn Asn Gly Ala Arg Leu Gln Cys Arg Ile Leu Glu Val Leu Pro
20 25 30

Pro Ser His Gln Asn Gly Phe Ala Asn Gly His Val Asn Ser Val Asp
35 40 45

Gly Glu Thr Ile Ile Ile Ser Asp Ser Asp Asp Ser Glu Thr Gln Ser
50 55 60

Cys Ser Phe Gln Asn Gly Phe Pro Leu Leu Thr Ala Lys
65 70 75

<210> 9730
<211> 218
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1972; "

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<223> Any amino acid

<400> 9730

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Xaa Ser Cys Thr Leu Ser Glu Ile Leu Arg Leu His Ile Leu Ala Ser
1               5                   10                  15

Gly Ala Asp Val Thr Ser Ala Asn Ala Lys Tyr Arg Tyr Gln Lys Arg
            20                  25                  30

Gly Gly Phe Asp Ala Thr Asp Asp Ala Cys Met Glu Leu Arg Leu Ser
        35                  40                  45

Asn Pro Ser Leu Val Lys Lys Leu Ser Ser Thr Ser Val Tyr Asp Leu
    50                  55                  60

Thr Pro Gly Glu Lys Met Lys Ile Leu His Ala Leu Cys Gly Lys Leu
65                  70                  75                  80

Leu Thr Leu Val Ser Thr Arg Asp Phe Ile Glu Asp Tyr Val Asp Ile
                85                  90                  95

Leu Arg Gln Ala Lys Gln Glu Phe Arg Glu Leu Lys Ala Glu Gln His
            100                 105                 110

Arg Lys Glu Arg Glu Glu Ala Ala Ala Arg Ile Arg Lys Arg Lys Glu
        115                 120                 125

Glu Lys Leu Lys Glu Gln Glu Gln Lys Met Lys Glu Lys Gln Glu Lys
    130                 135                 140
```

```
Leu Lys Glu Asp Glu Gln Arg Asn Ser Thr Ala Asp Ile Ser Ile Gly
145                 150                 155                 160


Glu Glu Glu Arg Glu Asp Phe Asp Thr Ser Ile Glu Ser Lys Asp Thr
                165                 170                 175


Glu Gln Lys Glu Leu Asp Gln Asp Met Val Thr Glu Asp Glu Asp Asp
            180                 185                 190


Pro Gly Ser His Lys Arg Gly Arg Arg Gly Asn Thr Glu Ile Ser Leu
        195                 200                 205


Gly His Ser Cys Val Phe Val Phe Asn Gln
    210                 215


<210> 9731
<211> 1483
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BAZ1B; "

<220>
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      bromodomain adjacent to zinc finger domain, 1B; "

<220>
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<223> /note="Uniprot ID:  Q9UIG0; "

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<400> 9731
Met Ala Pro Leu Leu Gly Arg Lys Pro Phe Pro Leu Val Lys Pro Leu
1               5                   10                  15


Pro Gly Glu Glu Pro Leu Phe Thr Ile Pro His Thr Gln Glu Ala Phe
            20                  25                  30


Arg Thr Arg Glu Glu Tyr Glu Ala Arg Leu Glu Arg Tyr Ser Glu Arg
```

```
        35                  40                  45

Ile Trp Thr Cys Lys Ser Thr Gly Ser Ser Gln Leu Thr His Lys Glu
    50                  55                  60

Ala Trp Glu Glu Glu Gln Glu Val Ala Glu Leu Leu Lys Glu Glu Phe
65                  70                  75                  80

Pro Ala Trp Tyr Glu Lys Leu Val Leu Glu Met Val His His Asn Thr
                85                  90                  95

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

Lys Tyr Ala Val Gly Glu Glu Cys Asp Phe Glu Val Gly Lys Glu Lys
        115                 120                 125

Met Leu Lys Val Lys Ile Val Lys Ile His Pro Leu Glu Lys Val Asp
    130                 135                 140

Glu Glu Ala Thr Glu Lys Lys Ser Asp Gly Ala Cys Asp Ser Pro Ser
145                 150                 155                 160

Ser Asp Lys Glu Asn Ser Ser Gln Ile Ala Gln Asp His Gln Lys Lys
                165                 170                 175

Glu Thr Val Val Lys Glu Asp Glu Gly Arg Arg Glu Ser Ile Asn Asp
            180                 185                 190

Arg Ala Arg Arg Ser Pro Arg Lys Leu Pro Thr Ser Leu Lys Lys Gly
        195                 200                 205

Glu Arg Lys Trp Ala Pro Pro Lys Phe Leu Pro His Lys Tyr Asp Val
    210                 215                 220

Lys Leu Gln Asn Glu Asp Lys Ile Ile Ser Asn Val Pro Ala Asp Ser
225                 230                 235                 240

Leu Ile Arg Thr Glu Arg Pro Pro Asn Lys Glu Ile Val Arg Tyr Phe
                245                 250                 255

Ile Arg His Asn Ala Leu Arg Ala Gly Thr Gly Glu Asn Ala Pro Trp
            260                 265                 270
```

```
Val Val Glu Asp Glu Leu Val Lys Lys Tyr Ser Leu Pro Ser Lys Phe
        275                 280                 285

Ser Asp Phe Leu Leu Asp Pro Tyr Lys Tyr Met Thr Leu Asn Pro Ser
    290                 295                 300

Thr Lys Arg Lys Asn Thr Gly Ser Pro Asp Arg Lys Pro Ser Lys Lys
305                 310                 315                 320

Ser Lys Thr Asp Asn Ser Ser Leu Ser Ser Pro Leu Asn Pro Lys Leu
                325                 330                 335

Trp Cys His Val His Leu Lys Lys Ser Leu Ser Gly Ser Pro Leu Lys
            340                 345                 350

Val Lys Asn Ser Lys Asn Ser Lys Ser Pro Glu Glu His Leu Glu Glu
        355                 360                 365

Met Met Lys Met Met Ser Pro Asn Lys Leu His Thr Asn Phe His Ile
    370                 375                 380

Pro Lys Lys Gly Pro Pro Ala Lys Lys Pro Gly Lys His Ser Asp Lys
385                 390                 395                 400

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

Ser Thr Gly Asn Ser Lys Ser Pro Lys Lys Gly Leu Lys Thr Pro Lys
            420                 425                 430

Thr Lys Met Lys Gln Met Thr Leu Leu Asp Met Ala Lys Gly Thr Gln
        435                 440                 445

Lys Met Thr Arg Ala Pro Arg Asn Ser Gly Gly Thr Pro Arg Thr Ser
    450                 455                 460

Ser Lys Pro His Lys His Leu Pro Pro Ala Ala Leu His Leu Ile Ala
465                 470                 475                 480

Tyr Tyr Lys Glu Asn Lys Asp Arg Glu Asp Lys Arg Ser Ala Leu Ser
                485                 490                 495
```

```
Cys Val Ile Ser Lys Thr Ala Arg Leu Leu Ser Ser Glu Asp Arg Ala
            500                 505                 510

Arg Leu Pro Glu Glu Leu Arg Ser Leu Val Gln Lys Arg Tyr Glu Leu
        515                 520                 525

Leu Glu His Lys Lys Arg Trp Ala Ser Met Ser Glu Glu Gln Arg Lys
    530                 535                 540

Glu Tyr Leu Lys Lys Lys Arg Glu Glu Leu Lys Lys Lys Leu Lys Glu
545                 550                 555                 560

Lys Ala Lys Glu Arg Arg Glu Lys Glu Met Leu Glu Arg Leu Glu Lys
                565                 570                 575

Gln Lys Arg Tyr Glu Asp Gln Glu Leu Thr Gly Lys Asn Leu Pro Ala
            580                 585                 590

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

Asp Val Ala Met Val Val Glu Phe Leu Ser Cys Tyr Ser Gly Leu Leu
    610                 615                 620

Leu Pro Asp Ala Gln Tyr Pro Ile Thr Ala Val Ser Leu Met Glu Ala
625                 630                 635                 640

Leu Ser Ala Asp Lys Gly Gly Phe Leu Tyr Leu Asn Arg Val Leu Val
                645                 650                 655

Ile Leu Leu Gln Thr Leu Leu Gln Asp Glu Ile Ala Glu Asp Tyr Gly
            660                 665                 670

Glu Leu Gly Met Lys Leu Ser Glu Ile Pro Leu Thr Leu His Ser Val
        675                 680                 685

Ser Glu Leu Val Arg Leu Cys Leu Arg Arg Ser Asp Val Gln Glu Glu
    690                 695                 700

Ser Glu Gly Ser Asp Thr Asp Asp Asn Lys Asp Ser Ala Ala Phe Glu
705                 710                 715                 720
```

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

Phe Phe Glu Leu Thr Ser Glu Glu Lys Leu Gln Ile Leu Thr Ala Leu
            740                 745                 750

Cys His Arg Ile Leu Met Thr Tyr Ser Val Gln Asp His Met Glu Thr
        755                 760                 765

Arg Gln Gln Met Ser Ala Glu Leu Trp Lys Glu Arg Leu Ala Val Leu
    770                 775                 780

Lys Glu Glu Asn Asp Lys Lys Arg Ala Glu Lys Gln Lys Arg Lys Glu
785                 790                 795                 800

Met Glu Ala Lys Asn Lys Glu Asn Gly Lys Val Glu Asn Gly Leu Gly
                805                 810                 815

Lys Thr Asp Arg Lys Lys Glu Ile Val Lys Phe Glu Pro Gln Val Asp
            820                 825                 830

Thr Glu Ala Glu Asp Met Ile Ser Ala Val Lys Ser Arg Arg Leu Leu
        835                 840                 845

Ala Ile Gln Ala Lys Lys Glu Arg Glu Ile Gln Glu Arg Glu Met Lys
    850                 855                 860

Val Lys Leu Glu Arg Gln Ala Glu Glu Glu Arg Ile Arg Lys His Lys
865                 870                 875                 880

Ala Ala Ala Glu Lys Ala Phe Gln Glu Gly Ile Ala Lys Ala Lys Leu
                885                 890                 895

Val Met Arg Arg Thr Pro Ile Gly Thr Asp Arg Asn His Asn Arg Tyr
            900                 905                 910

Trp Leu Phe Ser Asp Glu Val Pro Gly Leu Phe Ile Glu Lys Gly Trp
        915                 920                 925

Val His Asp Ser Ile Asp Tyr Arg Phe Asn His His Cys Lys Asp His
    930                 935                 940

Thr Val Ser Gly Asp Glu Asp Tyr Cys Pro Arg Ser Lys Lys Ala Asn
```

945 950 955 960

Leu Gly Lys Asn Ala Ser Met Asn Thr Gln His Gly Thr Ala Thr Glu
965 970 975

Val Ala Val Glu Thr Thr Thr Pro Lys Gln Gly Gln Asn Leu Trp Phe
980 985 990

Leu Cys Asp Ser Gln Lys Glu Leu Asp Glu Leu Leu Asn Cys Leu
His
995 1000 1005

Pro Gln Gly Ile Arg Glu Ser Gln Leu Lys Glu Arg Leu Glu Lys
1010 1015 1020

Arg Tyr Gln Asp Ile Ile His Ser Ile His Leu Ala Arg Lys Pro
1025 1030 1035

Asn Leu Gly Leu Lys Ser Cys Asp Gly Asn Gln Glu Leu Leu Asn
1040 1045 1050

Phe Leu Arg Ser Asp Leu Ile Glu Val Ala Thr Arg Leu Gln Lys
1055 1060 1065

Gly Gly Leu Gly Tyr Val Glu Glu Thr Ser Glu Phe Glu Ala Arg
1070 1075 1080

Val Ile Ser Leu Glu Lys Leu Lys Asp Phe Gly Glu Cys Val Ile
1085 1090 1095

Ala Leu Gln Ala Ser Val Ile Lys Lys Phe Leu Gln Gly Phe Met
1100 1105 1110

Ala Pro Lys Gln Lys Arg Arg Lys Leu Gln Ser Glu Asp Ser Ala
1115 1120 1125

Lys Thr Glu Glu Val Asp Glu Glu Lys Lys Met Val Glu Glu Ala
1130 1135 1140

Lys Val Ala Ser Ala Leu Glu Lys Trp Lys Thr Ala Ile Arg Glu
1145 1150 1155

Ala Gln Thr Phe Ser Arg Met His Val Leu Leu Gly Met Leu Asp

1160 1165 1170

Ala Cys Ile Lys Trp Asp Met Ser Ala Glu Asn Ala Arg Cys Lys
1175 1180 1185

Val Cys Arg Lys Lys Gly Glu Asp Asp Lys Leu Ile Leu Cys Asp
1190 1195 1200

Glu Cys Asn Lys Ala Phe His Leu Phe Cys Leu Arg Pro Ala Leu
1205 1210 1215

Tyr Glu Val Pro Asp Gly Glu Trp Gln Cys Pro Ala Cys Gln Pro
1220 1225 1230

Ala Thr Ala Arg Arg Asn Ser Arg Gly Arg Asn Tyr Thr Glu Glu
1235 1240 1245

Ser Ala Ser Glu Asp Ser Glu Asp Asp Glu Ser Asp Glu Glu Glu
1250 1255 1260

Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Asp Tyr Glu Val Ala
1265 1270 1275

Gly Leu Arg Leu Arg Pro Arg Lys Thr Ile Arg Gly Lys His Ser
1280 1285 1290

Val Ile Pro Pro Ala Ala Arg Ser Gly Arg Arg Pro Gly Lys Lys
1295 1300 1305

Pro His Ser Thr Arg Arg Ser Gln Pro Lys Ala Pro Pro Val Asp
1310 1315 1320

Asp Ala Glu Val Asp Glu Leu Val Leu Gln Thr Lys Arg Ser Ser
1325 1330 1335

Arg Arg Gln Ser Leu Glu Leu Gln Lys Cys Glu Glu Ile Leu His
1340 1345 1350

Lys Ile Val Lys Tyr Arg Phe Ser Trp Pro Phe Arg Glu Pro Val
1355 1360 1365

Thr Arg Asp Glu Ala Glu Asp Tyr Tyr Asp Val Ile Thr His Pro
1370 1375 1380

```
Met Asp  Phe Gln Thr Val Gln  Asn Lys Cys Ser Cys  Gly Ser Tyr
    1385                1390                1395

Arg Ser  Val Gln Glu Phe Leu  Thr Asp Met Lys Gln  Val Phe Thr
    1400                1405                1410

Asn Ala  Glu Val Tyr Asn Cys  Arg Gly Ser His Val  Leu Ser Cys
    1415                1420                1425

Met Val  Lys Thr Glu Gln Cys  Leu Val Ala Leu Leu  His Lys His
    1430                1435                1440

Leu Pro  Gly His Pro Tyr Val  Arg Arg Lys Arg Lys  Lys Phe Pro
    1445                1450                1455

Asp Arg  Leu Ala Glu Asp Glu  Gly Asp Ser Glu Pro  Glu Ala Val
    1460                1465                1470

Gly Gln  Ser Arg Gly Arg Arg  Gln Lys Lys
    1475                1480
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<210> 9732
<211> 1483
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1973; "

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<220>
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<220>
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<220>
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<400> 9732

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Met Ala Pro Leu Leu Gly Arg Lys Pro Phe Pro Leu Val Lys Pro Leu
1               5                  10                  15

Pro Gly Glu Glu Pro Leu Phe Thr Ile Pro His Thr Gln Glu Ala Phe
            20                  25                  30

Arg Thr Arg Glu Glu Tyr Glu Ala Arg Leu Glu Arg Tyr Ser Glu Arg
        35                  40                  45

Ile Trp Thr Cys Lys Ser Thr Gly Ser Ser Gln Leu Thr His Lys Glu
    50                  55                  60

Ala Trp Glu Glu Glu Gln Glu Val Ala Glu Leu Leu Lys Glu Glu Phe
65                  70                  75                  80

Pro Ala Trp Tyr Glu Lys Leu Val Leu Glu Met Val His His Asn Thr
                85                  90                  95

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

Lys Tyr Ala Val Gly Glu Glu Cys Asp Phe Glu Val Gly Lys Glu Lys
        115                 120                 125

Met Leu Lys Val Lys Ile Val Lys Ile His Pro Leu Glu Lys Val Asp
    130                 135                 140

Glu Glu Ala Thr Glu Lys Lys Ser Asp Gly Ala Cys Asp Ser Pro Ser
145                 150                 155                 160

Ser Asp Lys Glu Asn Ser Ser Gln Ile Ala Gln Asp His Gln Lys Lys
                165                 170                 175

Glu Thr Val Val Lys Glu Asp Glu Gly Arg Arg Glu Ser Ile Asn Asp
            180                 185                 190

Arg Ala Arg Arg Ser Pro Arg Lys Leu Pro Thr Ser Leu Lys Lys Gly
        195                 200                 205

Glu Arg Lys Trp Ala Pro Pro Lys Phe Leu Pro His Lys Tyr Asp Val
    210                 215                 220

Lys Leu Gln Asn Glu Asp Lys Ile Ile Ser Asn Val Pro Ala Asp Ser
```

225 230 235 240

Leu Ile Arg Thr Glu Arg Pro Pro Asn Lys Glu Ile Val Arg Tyr Phe
245 250 255

Ile Arg His Asn Ala Leu Arg Ala Gly Thr Gly Glu Asn Ala Pro Trp
260 265 270

Val Val Glu Asp Glu Leu Val Lys Lys Tyr Ser Leu Pro Ser Lys Phe
275 280 285

Ser Asp Phe Leu Leu Asp Pro Tyr Lys Tyr Met Thr Leu Asn Pro Ser
290 295 300

Thr Lys Arg Lys Asn Thr Gly Ser Pro Asp Arg Lys Pro Ser Lys Lys
305 310 315 320

Ser Lys Thr Asp Asn Ser Ser Leu Ser Ser Pro Leu Asn Pro Lys Leu
325 330 335

Trp Cys His Val His Leu Lys Lys Ser Leu Ser Gly Ser Pro Leu Lys
340 345 350

Val Lys Asn Ser Lys Asn Ser Lys Ser Pro Glu Glu His Leu Glu Glu
355 360 365

Met Met Lys Met Met Ser Pro Asn Lys Leu His Thr Asn Phe His Ile
370 375 380

Pro Lys Lys Gly Pro Pro Ala Lys Lys Pro Gly Lys His Ser Asp Lys
385 390 395 400

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

Ser Thr Gly Asn Ser Lys Ser Pro Lys Lys Gly Leu Lys Thr Pro Lys
420 425 430

Thr Lys Met Lys Gln Met Thr Leu Leu Asp Met Ala Lys Gly Thr Gln
435 440 445

Lys Met Thr Arg Ala Pro Arg Asn Ser Gly Gly Thr Pro Arg Thr Ser
450 455 460

```
Ser Lys Pro His Lys His Leu Pro Pro Ala Ala Leu His Leu Ile Ala
465                 470                 475                 480

Tyr Tyr Lys Glu Asn Lys Asp Arg Glu Asp Lys Arg Ser Ala Leu Ser
                485                 490                 495

Cys Val Ile Ser Lys Thr Ala Arg Leu Leu Ser Ser Glu Asp Arg Ala
            500                 505                 510

Arg Leu Pro Glu Glu Leu Arg Ser Leu Val Gln Lys Arg Tyr Glu Leu
        515                 520                 525

Leu Glu His Lys Lys Arg Trp Ala Ser Met Ser Glu Glu Gln Arg Lys
    530                 535                 540

Glu Tyr Leu Lys Lys Lys Arg Glu Glu Leu Lys Lys Lys Leu Lys Glu
545                 550                 555                 560

Lys Ala Lys Glu Arg Arg Glu Lys Glu Met Leu Glu Arg Leu Glu Lys
                565                 570                 575

Gln Lys Arg Tyr Glu Asp Gln Glu Leu Thr Gly Lys Asn Leu Pro Ala
            580                 585                 590

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

Asp Val Ala Met Val Val Glu Phe Leu Ser Cys Tyr Ser Gly Leu Leu
    610                 615                 620

Leu Pro Asp Ala Gln Tyr Pro Ile Thr Ala Val Ser Leu Met Glu Ala
625                 630                 635                 640

Leu Ser Ala Asp Lys Gly Gly Phe Leu Tyr Leu Asn Arg Val Leu Val
                645                 650                 655

Ile Leu Leu Gln Thr Leu Leu Gln Asp Glu Ile Ala Glu Asp Tyr Gly
            660                 665                 670

Glu Leu Gly Met Lys Leu Ser Glu Ile Pro Leu Thr Leu His Ser Val
        675                 680                 685
```

```
Ser Glu Leu Val Arg Leu Cys Leu Arg Arg Ser Asp Val Gln Glu Glu
    690                 695                 700

Ser Glu Gly Ser Asp Thr Asp Asp Asn Lys Asp Ser Ala Ala Phe Glu
705                 710                 715                 720

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

Phe Phe Glu Leu Thr Ser Glu Glu Lys Leu Gln Ile Leu Thr Ala Leu
            740                 745                 750

Cys His Arg Ile Leu Met Thr Tyr Ser Val Gln Asp His Met Glu Thr
        755                 760                 765

Arg Gln Gln Met Ser Ala Glu Leu Trp Lys Glu Arg Leu Ala Val Leu
    770                 775                 780

Lys Glu Glu Asn Asp Lys Lys Arg Ala Glu Lys Gln Lys Arg Lys Glu
785                 790                 795                 800

Met Glu Ala Lys Asn Lys Glu Asn Gly Lys Val Glu Asn Gly Leu Gly
                805                 810                 815

Lys Thr Asp Arg Lys Lys Glu Ile Val Lys Phe Glu Pro Gln Val Asp
            820                 825                 830

Thr Glu Ala Glu Asp Met Ile Ser Ala Val Lys Ser Arg Arg Leu Leu
        835                 840                 845

Ala Ile Gln Ala Lys Lys Glu Arg Glu Ile Gln Glu Arg Glu Met Lys
    850                 855                 860

Val Lys Leu Glu Arg Gln Ala Glu Glu Glu Arg Ile Arg Lys His Lys
865                 870                 875                 880

Ala Ala Ala Glu Lys Ala Phe Gln Glu Gly Ile Ala Lys Ala Lys Leu
                885                 890                 895

Val Met Arg Arg Thr Pro Ile Gly Thr Asp Arg Asn His Asn Arg Tyr
            900                 905                 910
```

```
Trp Leu Phe Ser Asp Glu Val Pro Gly Leu Phe Ile Glu Lys Gly Trp
        915                 920                 925

Val His Asp Ser Ile Asp Tyr Arg Phe Asn His His Cys Lys Asp His
    930                 935                 940

Thr Val Ser Gly Asp Glu Asp Tyr Cys Pro Arg Ser Lys Lys Ala Asn
945                 950                 955                 960

Leu Gly Lys Asn Ala Ser Met Asn Thr Gln His Gly Thr Ala Thr Glu
                965                 970                 975

Val Ala Val Glu Thr Thr Thr Pro Lys Gln Gly Gln Asn Leu Trp Phe
            980                 985                 990

Leu Cys Asp Ser Gln Lys Glu Leu  Asp Glu Leu Leu Asn  Cys Leu
His
        995                 1000                1005

Pro Gln  Gly Ile Arg Glu Ser  Gln Leu Lys Glu Arg  Leu Glu Lys
    1010                1015                1020

Arg Tyr  Gln Asp Ile Ile His  Ser Ile His Leu Ala  Arg Lys Pro
    1025                1030                1035

Asn Leu  Gly Leu Lys Ser Cys  Asp Gly Asn Gln Glu  Leu Leu Asn
    1040                1045                1050

Phe Leu  Arg Ser Asp Leu Ile  Glu Val Ala Thr Arg  Leu Gln Lys
    1055                1060                1065

Gly Gly  Leu Gly Tyr Val Glu  Glu Thr Ser Glu Phe  Glu Ala Arg
    1070                1075                1080

Val Ile  Ser Leu Glu Lys Leu  Lys Asp Phe Gly Glu  Cys Val Ile
    1085                1090                1095

Ala Leu  Gln Ala Ser Val Ile  Lys Lys Phe Leu Gln  Gly Phe Met
    1100                1105                1110

Ala Pro  Lys Gln Lys Arg Arg  Lys Leu Gln Ser Glu  Asp Ser Ala
    1115                1120                1125
```

```
Lys Thr  Glu Glu Val Asp Glu  Glu Lys Lys Met Val  Glu Glu Ala
    1130                1135                1140

Lys Val  Ala Ser Ala Leu Glu  Lys Trp Lys Thr Ala  Ile Arg Glu
    1145                1150                1155

Ala Gln  Thr Phe Ser Arg Met  His Val Leu Leu Gly  Met Leu Asp
    1160                1165                1170

Ala Cys  Ile Lys Trp Asp Met  Ser Ala Glu Asn Ala  Arg Cys Lys
    1175                1180                1185

Val Cys  Arg Lys Lys Gly Glu  Asp Asp Lys Leu Ile  Leu Cys Asp
    1190                1195                1200

Glu Cys  Asn Lys Ala Phe His  Leu Phe Cys Leu Arg  Pro Ala Leu
    1205                1210                1215

Tyr Glu  Val Pro Asp Gly Glu  Trp Gln Cys Pro Ala  Cys Gln Pro
    1220                1225                1230

Ala Thr  Ala Arg Arg Asn Ser  Arg Gly Arg Asn Tyr  Thr Glu Glu
    1235                1240                1245

Ser Ala  Ser Glu Asp Ser Glu  Asp Asp Glu Ser Asp  Glu Glu Glu
    1250                1255                1260

Glu Glu  Glu Glu Glu Glu Glu  Glu Glu Glu Asp Tyr  Glu Val Ala
    1265                1270                1275

Gly Leu  Arg Leu Arg Pro Arg  Lys Thr Ile Arg Gly  Lys His Ser
    1280                1285                1290

Val Ile  Pro Pro Ala Ala Arg  Ser Gly Arg Arg Pro  Gly Lys Lys
    1295                1300                1305

Pro His  Ser Thr Arg Arg Ser  Gln Pro Lys Ala Pro  Pro Val Asp
    1310                1315                1320

Asp Ala  Glu Val Asp Glu Leu  Val Leu Gln Thr Lys  Arg Ser Ser
    1325                1330                1335

Arg Arg  Gln Ser Leu Glu Leu  Gln Lys Cys Glu Glu  Ile Leu His
```

```
    1340                1345                1350

Lys Ile  Val Lys Tyr Arg Phe  Ser Trp Pro Phe Arg  Glu Pro Val
    1355                1360                1365

Thr Arg  Asp Glu Ala Glu Asp  Tyr Tyr Asp Val Ile  Thr His Pro
    1370                1375                1380

Met Asp  Phe Gln Thr Val Gln  Asn Lys Cys Ser Cys  Gly Ser Tyr
    1385                1390                1395

Arg Ser  Val Gln Glu Phe Leu  Thr Asp Met Lys Gln  Val Phe Thr
    1400                1405                1410

Asn Ala  Glu Val Tyr Asn Cys  Arg Gly Ser His Val  Leu Ser Cys
    1415                1420                1425

Met Val  Lys Thr Glu Gln Cys  Leu Val Ala Leu Leu  His Lys His
    1430                1435                1440

Leu Pro  Gly His Pro Tyr Val  Arg Arg Lys Arg Lys  Lys Phe Pro
    1445                1450                1455

Asp Arg  Leu Ala Glu Asp Glu  Gly Asp Ser Glu Pro  Glu Ala Val
    1460                1465                1470

Gly Gln  Ser Arg Gly Arg Arg  Gln Lys Lys
    1475                1480


<210> 9733
<211> 1875
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1974; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2A; "

<220>
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<223> /note="Gene Name:
      bromodomain adjacent to zinc finger domain, 2A; "
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<220>
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<400> 9733
Met Glu Met Glu Ala Asn Asp His Phe Asn Phe Thr Gly Leu Pro Pro
1 5 10 15

Ala Pro Ala Ala Ser Gly Leu Lys Pro Ser Pro Ser Ser Gly Glu Gly
20 25 30

Leu Tyr Thr Asn Gly Ser Pro Met Asn Phe Pro Gln Gln Gly Lys Ser
35 40 45

Leu Asn Gly Asp Val Asn Val Asn Gly Leu Ser Thr Val Ser His Thr
50 55 60

Thr Thr Ser Gly Ile Leu Asn Ser Ala Pro His Ser Ser Ser Thr Ser
65 70 75 80

His Leu His His Pro Ser Val Ala Tyr Asp Cys Leu Trp Asn Tyr Ser
85 90 95

Gln Tyr Pro Ser Ala Asn Pro Gly Ser Asn Leu Lys Asp Pro Pro Leu
100 105 110

Leu Ser Gln Phe Ser Gly Gly Gln Tyr Pro Leu Asn Gly Ile Leu Gly
115 120 125

Gly Ser Arg Gln Pro Ser Ser Pro Ser His Asn Thr Asn Leu Arg Ala
130 135 140

Gly Ser Gln Glu Phe Trp Ala Asn Gly Thr Gln Ser Pro Met Gly Leu
145 150 155 160

Asn Phe Asp Ser Gln Glu Leu Tyr Asp Ser Phe Pro Asp Gln Asn Phe
165 170 175

Glu Glu Val Gly Ser Gly Ile His Pro Asp Glu Ala Ala Glu Lys Glu
180 185 190

Met Thr Ser Val Val Ala Glu Asn Gly Thr Gly Leu Val Gly Ser Leu
195 200 205

```
Glu Leu Glu Glu Glu Gln Pro Glu Leu Lys Met Cys Gly Tyr Asn Gly
    210                 215                 220

Ser Val Pro Ser Val Glu Ser Leu His Gln Glu Val Ser Val Leu Val
225                 230                 235                 240

Pro Asp Pro Thr Val Ser Cys Leu Asp Asp Pro Ser His Leu Pro Asp
                245                 250                 255

Gln Leu Glu Asp Thr Pro Ile Leu Ser Glu Asp Ser Leu Glu Pro Phe
            260                 265                 270

Asn Ser Leu Ala Pro Glu Pro Val Ser Gly Gly Leu Tyr Gly Ile Asp
        275                 280                 285

Asp Thr Glu Leu Met Gly Ala Glu Asp Lys Leu Pro Leu Glu Asp Ser
    290                 295                 300

Pro Val Ile Ser Ala Leu Asp Cys Pro Ser Leu Asn Asn Ala Thr Ala
305                 310                 315                 320

Phe Ser Leu Leu Ala Asp Asp Ser Gln Thr Ser Thr Ser Ile Phe Ala
                325                 330                 335

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

Ser Phe Asp Leu Asn Asn Gly Ser Asp Ala Glu Gln Glu Glu Met Glu
        355                 360                 365

Thr Gln Ser Ser Asp Phe Pro Pro Ser Leu Thr Gln Pro Ala Pro Asp
    370                 375                 380

Gln Ser Ser Thr Ile Gln Leu His Pro Ala Thr Ser Pro Ala Val Ser
385                 390                 395                 400

Pro Thr Thr Ser Pro Ala Val Ser Leu Val Val Ser Pro Ala Ala Ser
                405                 410                 415

Pro Glu Ile Ser Pro Glu Val Cys Pro Ala Ala Ser Thr Val Val Ser
            420                 425                 430

Pro Ala Val Phe Ser Val Val Ser Pro Ala Ser Ser Ala Val Leu Pro
```

```
        435                 440                 445

Ala Val Ser Leu Glu Val Pro Leu Thr Ala Ser Val Thr Ser Pro Lys
    450                 455                 460

Ala Ser Pro Val Thr Ser Pro Ala Ala Ala Phe Pro Thr Ala Ser Pro
465                 470                 475                 480

Ala Asn Lys Asp Val Ser Ser Phe Leu Glu Thr Thr Ala Asp Val Glu
                485                 490                 495

Glu Ile Thr Gly Glu Gly Leu Thr Ala Ser Gly Ser Gly Asp Val Met
            500                 505                 510

Arg Arg Arg Ile Ala Thr Pro Glu Glu Val Arg Leu Pro Leu Gln His
        515                 520                 525

Gly Trp Arg Arg Glu Val Arg Ile Lys Lys Gly Ser His Arg Trp Gln
    530                 535                 540

Gly Glu Thr Trp Tyr Tyr Gly Pro Cys Gly Lys Arg Met Lys Gln Phe
545                 550                 555                 560

Pro Glu Val Ile Lys Tyr Leu Ser Arg Asn Val Val His Ser Val Arg
                565                 570                 575

Arg Glu His Phe Ser Phe Ser Pro Arg Met Pro Val Gly Asp Phe Phe
            580                 585                 590

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

Glu Glu Ile Pro Ser Arg Ile Gln Ala Ile Thr Gly Lys Arg Gly Arg
    610                 615                 620

Pro Arg Asn Thr Glu Lys Ala Lys Thr Lys Glu Val Pro Lys Val Lys
625                 630                 635                 640

Arg Gly Arg Gly Arg Pro Pro Lys Val Lys Ile Thr Glu Leu Leu Asn
                645                 650                 655

Lys Thr Asp Asn Arg Pro Leu Lys Lys Leu Glu Ala Gln Glu Thr Leu
            660                 665                 670
```

```
Asn Glu Glu Asp Lys Ala Lys Ile Ala Lys Ser Lys Lys Lys Met Arg
        675                 680                 685

Gln Lys Val Gln Arg Gly Glu Cys Gln Thr Thr Ile Gln Gly Gln Ala
    690                 695                 700

Arg Asn Lys Arg Lys Gln Glu Thr Lys Ser Leu Lys Gln Lys Glu Ala
705                 710                 715                 720

Lys Lys Lys Ser Lys Ala Glu Lys Glu Lys Gly Lys Thr Lys Gln Glu
                725                 730                 735

Lys Leu Lys Glu Lys Val Lys Arg Glu Lys Lys Glu Lys Val Lys Met
            740                 745                 750

Lys Glu Lys Glu Glu Val Thr Lys Ala Lys Pro Ala Cys Lys Ala Asp
        755                 760                 765

Lys Thr Leu Ala Thr Gln Arg Arg Leu Glu Glu Arg Gln Arg Gln Gln
    770                 775                 780

Met Ile Leu Glu Glu Met Lys Lys Pro Thr Glu Asp Met Cys Leu Thr
785                 790                 795                 800

Asp His Gln Pro Leu Pro Asp Phe Ser Arg Val Pro Gly Leu Thr Leu
                805                 810                 815

Pro Ser Gly Ala Phe Ser Asp Cys Leu Thr Ile Val Glu Phe Leu His
            820                 825                 830

Ser Phe Gly Lys Val Leu Gly Phe Asp Pro Ala Lys Asp Val Pro Ser
        835                 840                 845

Leu Gly Val Leu Gln Glu Gly Leu Leu Cys Gln Gly Asp Ser Leu Gly
    850                 855                 860

Glu Val Gln Asp Leu Leu Val Arg Leu Leu Lys Ala Ala Leu His Asp
865                 870                 875                 880

Pro Gly Phe Pro Ser Tyr Cys Gln Ser Leu Lys Ile Leu Gly Glu Lys
                885                 890                 895
```

```
Val Ser Glu Ile Pro Leu Thr Arg Asp Asn Val Ser Glu Ile Leu Arg
            900                 905                 910

Cys Phe Leu Met Ala Tyr Gly Val Glu Pro Ala Leu Cys Asp Arg Leu
        915                 920                 925

Arg Thr Gln Pro Phe Gln Ala Gln Pro Pro Gln Gln Lys Ala Ala Val
    930                 935                 940

Leu Ala Phe Leu Val His Glu Leu Asn Gly Ser Thr Leu Ile Ile Asn
945                 950                 955                 960

Glu Ile Asp Lys Thr Leu Glu Ser Met Ser Ser Tyr Arg Lys Asn Lys
                965                 970                 975

Trp Ile Val Glu Gly Arg Leu Arg Arg Leu Lys Thr Val Leu Ala Lys
            980                 985                 990

Arg Thr Gly Arg Ser Glu Val Glu  Met Glu Gly Pro Glu  Glu Cys
Leu
        995                 1000                1005

Gly Arg  Arg Arg Ser Ser Arg  Ile Met Glu Glu Thr  Ser Gly Met
    1010                1015                1020

Glu Glu  Glu Glu Glu Glu Glu  Ser Ile Ala Ala Val  Pro Gly Arg
    1025                1030                1035

Arg Gly  Arg Arg Asp Gly Glu  Val Asp Ala Thr Ala  Ser Ser Ile
    1040                1045                1050

Pro Glu  Leu Glu Arg Gln Ile  Glu Lys Leu Ser Lys  Arg Gln Leu
    1055                1060                1065

Phe Phe  Arg Lys Lys Leu Leu  His Ser Ser Gln Met  Leu Arg Ala
    1070                1075                1080

Val Ser  Leu Gly Gln Asp Arg  Tyr Arg Arg Arg Tyr  Trp Val Leu
    1085                1090                1095

Pro Tyr  Leu Ala Gly Ile Phe  Val Glu Gly Thr Glu  Gly Asn Leu
    1100                1105                1110
```

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

Ala Ala His Ala Ser Leu Asn Pro Ala Leu Phe Ser Met Lys Met
1130 1135 1140

Glu Leu Ala Gly Ser Asn Thr Thr Ala Ser Ser Pro Ala Arg Ala
1145 1150 1155

Arg Gly Arg Pro Arg Lys Thr Lys Pro Gly Ser Met Gln Pro Arg
1160 1165 1170

His Leu Lys Ser Pro Val Arg Gly Gln Asp Ser Glu Gln Pro Gln
1175 1180 1185

Ala Gln Leu Gln Pro Glu Ala Gln Leu His Ala Pro Ala Gln Pro
1190 1195 1200

Gln Pro Gln Leu Gln Leu Gln Leu Gln Ser His Lys Gly Phe Leu
1205 1210 1215

Glu Gln Glu Gly Ser Pro Leu Ser Leu Gly Gln Ser Gln His Asp
1220 1225 1230

Leu Ser Gln Ser Ala Phe Leu Ser Trp Leu Ser Gln Thr Gln Ser
1235 1240 1245

His Ser Ser Leu Leu Ser Ser Ser Val Leu Thr Pro Asp Ser Ser
1250 1255 1260

Pro Gly Lys Leu Asp Pro Ala Pro Ser Gln Pro Pro Glu Glu Pro
1265 1270 1275

Glu Pro Asp Glu Ala Glu Ser Ser Pro Asp Pro Gln Ala Leu Trp
1280 1285 1290

Phe Asn Ile Ser Ala Gln Met Pro Cys Asn Ala Ala Pro Thr Pro
1295 1300 1305

Pro Pro Ala Val Ser Glu Asp Gln Pro Thr Pro Ser Pro Gln Gln
1310 1315 1320

```
Leu Ala  Ser Ser Lys Pro Met  Asn Arg Pro Ser Ala  Ala Asn Pro
    1325                1330                1335

Cys Ser  Pro Val Gln Phe Ser  Ser Thr Pro Leu Ala  Gly Leu Ala
    1340                1345                1350

Pro Lys  Arg Arg Ala Gly Asp  Pro Gly Glu Met Pro  Gln Ser Pro
    1355                1360                1365

Thr Gly  Leu Gly Gln Pro Lys  Arg Arg Gly Arg Pro  Pro Ser Lys
    1370                1375                1380

Phe Phe  Lys Gln Met Glu Gln  Arg Tyr Leu Thr Gln  Leu Thr Ala
    1385                1390                1395

Gln Pro  Val Pro Pro Glu Met  Cys Ser Gly Trp Trp  Trp Ile Arg
    1400                1405                1410

Asp Pro  Glu Met Leu Asp Ala  Met Leu Lys Ala Leu  His Pro Arg
    1415                1420                1425

Gly Ile  Arg Glu Lys Ala Leu  His Lys His Leu Asn  Lys His Arg
    1430                1435                1440

Asp Phe  Leu Gln Glu Val Cys  Leu Arg Pro Ser Ala  Asp Pro Ile
    1445                1450                1455

Phe Glu  Pro Arg Gln Leu Pro  Ala Phe Gln Glu Gly  Ile Met Ser
    1460                1465                1470

Trp Ser  Pro Lys Glu Lys Thr  Tyr Glu Thr Asp Leu  Ala Val Leu
    1475                1480                1485

Gln Trp  Val Glu Glu Leu Glu  Gln Arg Val Ile Met  Ser Asp Leu
    1490                1495                1500

Gln Ile  Arg Gly Trp Thr Cys  Pro Ser Pro Asp Ser  Thr Arg Glu
    1505                1510                1515

Asp Leu  Ala Tyr Cys Glu His  Leu Ser Asp Ser Gln  Glu Asp Ile
    1520                1525                1530

Thr Trp  Arg Gly Arg Gly Arg  Glu Gly Leu Ala Pro  Gln Arg Lys
```

1535 1540 1545

Thr Thr Asn Pro Leu Asp Leu Ala Val Met Arg Leu Ala Ala Leu
1550 1555 1560

Glu Gln Asn Val Glu Arg Arg Tyr Leu Arg Glu Pro Leu Trp Pro
1565 1570 1575

Thr His Glu Val Val Leu Glu Lys Ala Leu Leu Ser Thr Pro Asn
1580 1585 1590

Gly Ala Pro Glu Gly Thr Thr Thr Glu Ile Ser Tyr Glu Ile Thr
1595 1600 1605

Pro Arg Ile Arg Val Trp Arg Gln Thr Leu Glu Arg Cys Arg Ser
1610 1615 1620

Ala Ala Gln Val Cys Leu Cys Leu Gly Gln Leu Glu Arg Ser Ile
1625 1630 1635

Ala Trp Glu Lys Ser Val Asn Lys Val Thr Cys Leu Val Cys Arg
1640 1645 1650

Lys Gly Asp Asn Asp Glu Phe Leu Leu Leu Cys Asp Gly Cys Asp
1655 1660 1665

Arg Gly Cys His Ile Tyr Cys His Arg Pro Lys Met Glu Ala Val
1670 1675 1680

Pro Glu Gly Asp Trp Phe Cys Thr Val Cys Leu Ala Gln Gln Val
1685 1690 1695

Glu Gly Glu Phe Thr Gln Lys Pro Gly Phe Pro Lys Arg Gly Gln
1700 1705 1710

Lys Arg Lys Ser Gly Tyr Ser Leu Asn Phe Ser Glu Gly Asp Gly
1715 1720 1725

Arg Arg Arg Arg Val Leu Leu Arg Gly Arg Glu Ser Pro Ala Ala
1730 1735 1740

Gly Pro Arg Tyr Ser Glu Glu Gly Leu Ser Pro Ser Lys Arg Arg
1745 1750 1755

```
Arg Leu  Ser Met Arg Asn His  His Ser Asp Leu Thr  Phe Cys Glu
    1760                1765                1770

Ile Ile  Leu Met Glu Met Glu  Ser His Asp Ala Ala  Trp Pro Phe
    1775                1780                1785

Leu Glu  Pro Val Asn Pro Arg  Leu Val Ser Gly Tyr  Arg Arg Ile
    1790                1795                1800

Ile Lys  Asn Pro Met Asp Phe  Ser Thr Met Arg Glu  Arg Leu Leu
    1805                1810                1815

Arg Gly  Gly Tyr Thr Ser Ser  Glu Glu Phe Ala Ala  Asp Ala Leu
    1820                1825                1830

Leu Val  Phe Asp Asn Cys Gln  Thr Phe Asn Glu Asp  Asp Ser Glu
    1835                1840                1845

Val Gly  Lys Ala Gly His Ile  Met Arg Arg Phe Phe  Glu Ser Arg
    1850                1855                1860

Trp Glu  Glu Phe Tyr Gln Gly  Lys Gln Ala Asn Leu
    1865                1870                1875


<210> 9734
<211> 1905
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: BAZ2A; "

<220>
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<223> /note="Gene Name:
      bromodomain adjacent to zinc finger domain, 2A; "

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<223> /note="Uniprot ID:  Q9UIF9; "

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<221> source
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Met Glu Met Glu Ala Asn Asp His Phe Asn Phe Thr Gly Leu Pro Pro
1 5 10 15

Ala Pro Ala Ala Ser Gly Leu Lys Pro Ser Pro Ser Ser Gly Glu Gly
20 25 30

Leu Tyr Thr Asn Gly Ser Pro Met Asn Phe Pro Gln Gln Gly Lys Ser
35 40 45

Leu Asn Gly Asp Val Asn Val Asn Gly Leu Ser Thr Val Ser His Thr
50 55 60

Thr Thr Ser Gly Ile Leu Asn Ser Ala Pro His Ser Ser Ser Thr Ser
65 70 75 80

His Leu His His Pro Ser Val Ala Tyr Asp Cys Leu Trp Asn Tyr Ser
85 90 95

Gln Tyr Pro Ser Ala Asn Pro Gly Ser Asn Leu Lys Asp Pro Pro Leu
100 105 110

Leu Ser Gln Phe Ser Gly Gly Gln Tyr Pro Leu Asn Gly Ile Leu Gly
115 120 125

Gly Ser Arg Gln Pro Ser Ser Pro Ser His Asn Thr Asn Leu Arg Ala
130 135 140

Gly Ser Gln Glu Phe Trp Ala Asn Gly Thr Gln Ser Pro Met Gly Leu
145 150 155 160

Asn Phe Asp Ser Gln Glu Leu Tyr Asp Ser Phe Pro Asp Gln Asn Phe
165 170 175

Glu Val Met Pro Asn Gly Pro Pro Ser Phe Phe Thr Ser Pro Gln Thr
180 185 190

Ser Pro Met Leu Gly Ser Ser Ile Gln Thr Phe Ala Pro Ser Gln Glu
195 200 205

Val Gly Ser Gly Ile His Pro Asp Glu Ala Ala Glu Lys Glu Met Thr

210 215 220

Ser Val Val Ala Glu Asn Gly Thr Gly Leu Val Gly Ser Leu Glu Leu
225 230 235 240

Glu Glu Glu Gln Pro Glu Leu Lys Met Cys Gly Tyr Asn Gly Ser Val
245 250 255

Pro Ser Val Glu Ser Leu His Gln Glu Val Ser Val Leu Val Pro Asp
260 265 270

Pro Thr Val Ser Cys Leu Asp Asp Pro Ser His Leu Pro Asp Gln Leu
275 280 285

Glu Asp Thr Pro Ile Leu Ser Glu Asp Ser Leu Glu Pro Phe Asn Ser
290 295 300

Leu Ala Pro Glu Pro Val Ser Gly Gly Leu Tyr Gly Ile Asp Asp Thr
305 310 315 320

Glu Leu Met Gly Ala Glu Asp Lys Leu Pro Leu Glu Asp Ser Pro Val
325 330 335

Ile Ser Ala Leu Asp Cys Pro Ser Leu Asn Asn Ala Thr Ala Phe Ser
340 345 350

Leu Leu Ala Asp Asp Ser Gln Thr Ser Thr Ser Ile Phe Ala Ser Pro
355 360 365

Thr Ser Pro Pro Val Leu Gly Glu Ser Val Leu Gln Asp Asn Ser Phe
370 375 380

Asp Leu Asn Asn Gly Ser Asp Ala Glu Gln Glu Glu Met Glu Thr Gln
385 390 395 400

Ser Ser Asp Phe Pro Pro Ser Leu Thr Gln Pro Ala Pro Asp Gln Ser
405 410 415

Ser Thr Ile Gln Leu His Pro Ala Thr Ser Pro Ala Val Ser Pro Thr
420 425 430

Thr Ser Pro Ala Val Ser Leu Val Val Ser Pro Ala Ala Ser Pro Glu
435 440 445

```
Ile Ser Pro Glu Val Cys Pro Ala Ala Ser Thr Val Val Ser Pro Ala
    450                 455                 460

Val Phe Ser Val Val Ser Pro Ala Ser Ser Ala Val Leu Pro Ala Val
465                 470                 475                 480

Ser Leu Glu Val Pro Leu Thr Ala Ser Val Thr Ser Pro Lys Ala Ser
                485                 490                 495

Pro Val Thr Ser Pro Ala Ala Ala Phe Pro Thr Ala Ser Pro Ala Asn
            500                 505                 510

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

Thr Gly Glu Gly Leu Thr Ala Ser Gly Ser Gly Asp Val Met Arg Arg
    530                 535                 540

Arg Ile Ala Thr Pro Glu Glu Val Arg Leu Pro Leu Gln His Gly Trp
545                 550                 555                 560

Arg Arg Glu Val Arg Ile Lys Lys Gly Ser His Arg Trp Gln Gly Glu
                565                 570                 575

Thr Trp Tyr Tyr Gly Pro Cys Gly Lys Arg Met Lys Gln Phe Pro Glu
            580                 585                 590

Val Ile Lys Tyr Leu Ser Arg Asn Val Val His Ser Val Arg Arg Glu
        595                 600                 605

His Phe Ser Phe Ser Pro Arg Met Pro Val Gly Asp Phe Phe Glu Glu
    610                 615                 620

Arg Asp Thr Pro Glu Gly Leu Gln Trp Val Gln Leu Ser Ala Glu Glu
625                 630                 635                 640

Ile Pro Ser Arg Ile Gln Ala Ile Thr Gly Lys Arg Gly Arg Pro Arg
                645                 650                 655

Asn Thr Glu Lys Ala Lys Thr Lys Glu Val Pro Lys Val Lys Arg Gly
            660                 665                 670
```

```
Arg Gly Arg Pro Pro Lys Val Lys Ile Thr Glu Leu Leu Asn Lys Thr
        675                 680                 685

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

Glu Asp Lys Ala Lys Ile Ala Lys Ser Lys Lys Lys Met Arg Gln Lys
705                 710                 715                 720

Val Gln Arg Gly Glu Cys Gln Thr Thr Ile Gln Gly Gln Ala Arg Asn
                725                 730                 735

Lys Arg Lys Gln Glu Thr Lys Ser Leu Lys Gln Lys Glu Ala Lys Lys
            740                 745                 750

Lys Ser Lys Ala Glu Lys Glu Lys Gly Lys Thr Lys Gln Glu Lys Leu
        755                 760                 765

Lys Glu Lys Val Lys Arg Glu Lys Lys Glu Lys Val Lys Met Lys Glu
    770                 775                 780

Lys Glu Glu Val Thr Lys Ala Lys Pro Ala Cys Lys Ala Asp Lys Thr
785                 790                 795                 800

Leu Ala Thr Gln Arg Arg Leu Glu Glu Arg Gln Arg Gln Gln Met Ile
                805                 810                 815

Leu Glu Glu Met Lys Lys Pro Thr Glu Asp Met Cys Leu Thr Asp His
            820                 825                 830

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

Gly Ala Phe Ser Asp Cys Leu Thr Ile Val Glu Phe Leu His Ser Phe
    850                 855                 860

Gly Lys Val Leu Gly Phe Asp Pro Ala Lys Asp Val Pro Ser Leu Gly
865                 870                 875                 880

Val Leu Gln Glu Gly Leu Leu Cys Gln Gly Asp Ser Leu Gly Glu Val
                885                 890                 895
```

```
Gln Asp Leu Leu Val Arg Leu Leu Lys Ala Ala Leu His Asp Pro Gly
            900                 905                 910

Phe Pro Ser Tyr Cys Gln Ser Leu Lys Ile Leu Gly Glu Lys Val Ser
        915                 920                 925

Glu Ile Pro Leu Thr Arg Asp Asn Val Ser Glu Ile Leu Arg Cys Phe
    930                 935                 940

Leu Met Ala Tyr Gly Val Glu Pro Ala Leu Cys Asp Arg Leu Arg Thr
945                 950                 955                 960

Gln Pro Phe Gln Ala Gln Pro Pro Gln Gln Lys Ala Ala Val Leu Ala
                965                 970                 975

Phe Leu Val His Glu Leu Asn Gly Ser Thr Leu Ile Ile Asn Glu Ile
            980                 985                 990

Asp Lys Thr Leu Glu Ser Met Ser  Ser Tyr Arg Lys Asn  Lys Trp
Ile
        995                 1000                1005

Val Glu  Gly Arg Leu Arg Arg  Leu Lys Thr Val Leu  Ala Lys Arg
    1010                1015                1020

Thr Gly  Arg Ser Glu Val Glu  Met Glu Gly Pro Glu  Glu Cys Leu
    1025                1030                1035

Gly Arg  Arg Arg Ser Ser Arg  Ile Met Glu Glu Thr  Ser Gly Met
    1040                1045                1050

Glu Glu  Glu Glu Glu Glu Glu  Ser Ile Ala Ala Val  Pro Gly Arg
    1055                1060                1065

Arg Gly  Arg Arg Asp Gly Glu  Val Asp Ala Thr Ala  Ser Ser Ile
    1070                1075                1080

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

Phe Phe  Arg Lys Lys Leu Leu  His Ser Ser Gln Met  Leu Arg Ala
    1100                1105                1110
```

Val Ser Leu Gly Gln Asp Arg Tyr Arg Arg Arg Tyr Trp Val Leu
1115 1120 1125

Pro Tyr Leu Ala Gly Ile Phe Val Glu Gly Thr Glu Gly Asn Leu
1130 1135 1140

Val Pro Glu Glu Val Ile Lys Lys Glu Thr Asp Ser Leu Lys Val
1145 1150 1155

Ala Ala His Ala Ser Leu Asn Pro Ala Leu Phe Ser Met Lys Met
1160 1165 1170

Glu Leu Ala Gly Ser Asn Thr Thr Ala Ser Ser Pro Ala Arg Ala
1175 1180 1185

Arg Gly Arg Pro Arg Lys Thr Lys Pro Gly Ser Met Gln Pro Arg
1190 1195 1200

His Leu Lys Ser Pro Val Arg Gly Gln Asp Ser Glu Gln Pro Gln
1205 1210 1215

Ala Gln Leu Gln Pro Glu Ala Gln Leu His Ala Pro Ala Gln Pro
1220 1225 1230

Gln Pro Gln Leu Gln Leu Gln Leu Gln Ser His Lys Gly Phe Leu
1235 1240 1245

Glu Gln Glu Gly Ser Pro Leu Ser Leu Gly Gln Ser Gln His Asp
1250 1255 1260

Leu Ser Gln Ser Ala Phe Leu Ser Trp Leu Ser Gln Thr Gln Ser
1265 1270 1275

His Ser Ser Leu Leu Ser Ser Ser Val Leu Thr Pro Asp Ser Ser
1280 1285 1290

Pro Gly Lys Leu Asp Pro Ala Pro Ser Gln Pro Pro Glu Glu Pro
1295 1300 1305

Glu Pro Asp Glu Ala Glu Ser Ser Pro Asp Pro Gln Ala Leu Trp
1310 1315 1320

Phe Asn Ile Ser Ala Gln Met Pro Cys Asn Ala Ala Pro Thr Pro

1325 1330 1335

Pro Pro Ala Val Ser Glu Asp Gln Pro Thr Pro Ser Pro Gln Gln
1340 1345 1350

Leu Ala Ser Ser Lys Pro Met Asn Arg Pro Ser Ala Ala Asn Pro
1355 1360 1365

Cys Ser Pro Val Gln Phe Ser Ser Thr Pro Leu Ala Gly Leu Ala
1370 1375 1380

Pro Lys Arg Arg Ala Gly Asp Pro Gly Glu Met Pro Gln Ser Pro
1385 1390 1395

Thr Gly Leu Gly Gln Pro Lys Arg Arg Gly Arg Pro Pro Ser Lys
1400 1405 1410

Phe Phe Lys Gln Met Glu Gln Arg Tyr Leu Thr Gln Leu Thr Ala
1415 1420 1425

Gln Pro Val Pro Pro Glu Met Cys Ser Gly Trp Trp Trp Ile Arg
1430 1435 1440

Asp Pro Glu Met Leu Asp Ala Met Leu Lys Ala Leu His Pro Arg
1445 1450 1455

Gly Ile Arg Glu Lys Ala Leu His Lys His Leu Asn Lys His Arg
1460 1465 1470

Asp Phe Leu Gln Glu Val Cys Leu Arg Pro Ser Ala Asp Pro Ile
1475 1480 1485

Phe Glu Pro Arg Gln Leu Pro Ala Phe Gln Glu Gly Ile Met Ser
1490 1495 1500

Trp Ser Pro Lys Glu Lys Thr Tyr Glu Thr Asp Leu Ala Val Leu
1505 1510 1515

Gln Trp Val Glu Glu Leu Glu Gln Arg Val Ile Met Ser Asp Leu
1520 1525 1530

Gln Ile Arg Gly Trp Thr Cys Pro Ser Pro Asp Ser Thr Arg Glu
1535 1540 1545

```
Asp Leu  Ala Tyr Cys Glu His  Leu Ser Asp Ser Gln  Glu Asp Ile
    1550                1555                1560

Thr Trp  Arg Gly Arg Gly Arg  Glu Gly Leu Ala Pro  Gln Arg Lys
    1565                1570                1575

Thr Thr  Asn Pro Leu Asp Leu  Ala Val Met Arg Leu  Ala Ala Leu
    1580                1585                1590

Glu Gln  Asn Val Glu Arg Arg  Tyr Leu Arg Glu Pro  Leu Trp Pro
    1595                1600                1605

Thr His  Glu Val Val Leu Glu  Lys Ala Leu Leu Ser  Thr Pro Asn
    1610                1615                1620

Gly Ala  Pro Glu Gly Thr Thr  Thr Glu Ile Ser Tyr  Glu Ile Thr
    1625                1630                1635

Pro Arg  Ile Arg Val Trp Arg  Gln Thr Leu Glu Arg  Cys Arg Ser
    1640                1645                1650

Ala Ala  Gln Val Cys Leu Cys  Leu Gly Gln Leu Glu  Arg Ser Ile
    1655                1660                1665

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

Lys Gly  Asp Asn Asp Glu Phe  Leu Leu Leu Cys Asp  Gly Cys Asp
    1685                1690                1695

Arg Gly  Cys His Ile Tyr Cys  His Arg Pro Lys Met  Glu Ala Val
    1700                1705                1710

Pro Glu  Gly Asp Trp Phe Cys  Thr Val Cys Leu Ala  Gln Gln Val
    1715                1720                1725

Glu Gly  Glu Phe Thr Gln Lys  Pro Gly Phe Pro Lys  Arg Gly Gln
    1730                1735                1740

Lys Arg  Lys Ser Gly Tyr Ser  Leu Asn Phe Ser Glu  Gly Asp Gly
    1745                1750                1755
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```
Arg Arg  Arg Arg Val Leu Leu  Arg Gly Arg Glu Ser  Pro Ala Ala
    1760                1765                1770

Gly Pro  Arg Tyr Ser Glu Glu  Gly Leu Ser Pro Ser  Lys Arg Arg
    1775                1780                1785

Arg Leu  Ser Met Arg Asn His  His Ser Asp Leu Thr  Phe Cys Glu
    1790                1795                1800

Ile Ile  Leu Met Glu Met Glu  Ser His Asp Ala Ala  Trp Pro Phe
    1805                1810                1815

Leu Glu  Pro Val Asn Pro Arg  Leu Val Ser Gly Tyr  Arg Arg Ile
    1820                1825                1830

Ile Lys  Asn Pro Met Asp Phe  Ser Thr Met Arg Glu  Arg Leu Leu
    1835                1840                1845

Arg Gly  Gly Tyr Thr Ser Ser  Glu Glu Phe Ala Ala  Asp Ala Leu
    1850                1855                1860

Leu Val  Phe Asp Asn Cys Gln  Thr Phe Asn Glu Asp  Asp Ser Glu
    1865                1870                1875

Val Gly  Lys Ala Gly His Ile  Met Arg Arg Phe Phe  Glu Ser Arg
    1880                1885                1890

Trp Glu  Glu Phe Tyr Gln Gly  Lys Gln Ala Asn Leu
    1895                1900                1905


<210> 9735
<211> 116
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<220>
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bromodomain adjacent to zinc finger domain, 2A; "

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<400> 9735
Met Glu Ala Asn Asp His Phe Asn Phe Thr Gly Leu Pro Pro Ala Pro
1 5 10 15

Ala Ala Ser Gly Leu Lys Pro Ser Pro Ser Ser Gly Glu Gly Leu Tyr
20 25 30

Thr Asn Gly Ser Pro Met Asn Phe Pro Gln Gln Gly Lys Ser Leu Asn
35 40 45

Gly Asp Val Asn Val Asn Gly Leu Ser Thr Val Ser His Thr Thr Thr
50 55 60

Ser Gly Ile Leu Asn Ser Ala Pro His Ser Ser Ser Thr Ser His Leu
65 70 75 80

His His Pro Ser Val Ala Tyr Asp Cys Leu Trp Asn Tyr Ser Gln Tyr
85 90 95

Pro Ser Ala Asn Pro Gly Ser Asn Leu Lys Asp Pro Pro Leu Leu Ser
100 105 110

Gln Phe Ser Gly
115

<210> 9736
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<220>
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<400> 9736
Xaa Asn Ala Ala Pro Thr Pro Pro Pro Ala Val Ser Glu Asp Gln Pro
1 5 10 15

Thr Pro Ser Pro Gln Gln Leu Ala Ser Ser Lys Pro Met Asn Arg Pro
20 25 30

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

Ala Gly Leu Ala Pro Lys Arg Arg Ala Gly Asp Pro Gly Glu Met Pro
50 55 60

Gln Ser Pro Thr Gly Leu Gly Gln Pro Lys Arg Arg Gly Arg Pro Pro
65 70 75 80

Lys Met Cys Ser Gly Trp Trp Trp Ile Arg Asp Pro Glu Met Leu Asp
85 90 95

Ala Met Leu Lys Ala Leu His Pro Arg Gly Ile Arg Glu Lys Ala Leu
100 105 110

His Lys His Leu Asn Lys His Arg Asp Phe Leu Gln Glu Val Cys Leu
115 120 125

Arg Pro Ser Ala Asp Pro Ile Phe Glu Pro Arg Gln Leu Pro Ala Phe
130 135 140

Gln Glu Gly Ile Met Ser Trp Ser Pro Lys Glu Lys Thr Tyr Glu Thr
145 150 155 160

Asp Leu

<210> 9737
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<400> 9737

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Xaa Leu Ala Asp Asp Ser Gln Thr Ser Thr Ser Ile Phe Ala Ser Pro
1               5                  10                  15

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

Asp Leu Asn Asn Gly Ser Asp Ala Glu Gln Glu Glu Met Glu Thr Gln
        35                  40                  45

Ser Ser Asp Phe Pro Pro Ser Leu Thr Gln Pro Ala Pro Asp Gln Ser
    50                  55                  60

Ser Thr Ile Gln Leu His Pro Ala Thr Ser Pro Ala Val Ser Pro Thr
65                  70                  75                  80

Thr Ser Pro Ala Val Ser Leu Val Val Ser Pro Ala Ala Ser Pro Glu
                85                  90                  95

Ile Ser Pro Glu Val Cys Pro Ala Ala Ser Thr Val Val Ser Pro Ala
            100                 105                 110

Val Phe Ser Val Val Ser Pro Ala Ser Ser Ala Val Leu Pro Ala Val
        115                 120                 125
```

```
Ser Leu Glu Val Pro Leu Thr Ala Ser Val Thr Ser Pro Lys Ala Ser
    130                 135                 140

Pro Val Thr Ser Pro Ala Ala Ala Phe Pro Thr Ala Ser Pro Ala Asn
145                 150                 155                 160

Lys Asp Val Ser Ser Phe Leu Glu Thr Thr Ala Asp Val Glu Glu Ile
                165                 170                 175

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

Arg Ile Ala Thr Pro Glu Glu Val Arg Leu Pro Leu Gln His Gly Ala
        195                 200                 205

His Val Leu Leu Trp Gln Val Ala Glu Arg Gly Ala His Gln Glu Gly
    210                 215                 220

Gln Pro Pro Met Ala Gly Gly Asp Leu Val Leu Trp Pro Leu Trp Glu
225                 230                 235                 240

Glu Asp Glu Ala Ile Ser Arg Ser Asp Gln Val Pro Glu Pro Gln Arg
                245                 250                 255

Gly Thr Gln Cys Pro Pro Arg Ala Leu Gln Leu Gln Ser Pro Tyr Ala
            260                 265                 270

Cys Trp Arg Phe Leu
        275
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<210> 9738
<211> 1903
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<400> 9738

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Met Glu Ala Asn Asp His Phe Asn Phe Thr Gly Leu Pro Pro Ala Pro
1               5                  10                  15

Ala Ala Ser Gly Leu Lys Pro Ser Pro Ser Ser Gly Glu Gly Leu Tyr
            20                  25                  30

Thr Asn Gly Ser Pro Met Asn Phe Pro Gln Gln Gly Lys Ser Leu Asn
        35                  40                  45

Gly Asp Val Asn Val Asn Gly Leu Ser Thr Val Ser His Thr Thr Thr
    50                  55                  60

Ser Gly Ile Leu Asn Ser Ala Pro His Ser Ser Ser Thr Ser His Leu
65                  70                  75                  80

His His Pro Ser Val Ala Tyr Asp Cys Leu Trp Asn Tyr Ser Gln Tyr
                85                  90                  95

Pro Ser Ala Asn Pro Gly Ser Asn Leu Lys Asp Pro Pro Leu Leu Ser
            100                 105                 110

Gln Phe Ser Gly Gly Gln Tyr Pro Leu Asn Gly Ile Leu Gly Gly Ser
        115                 120                 125

Arg Gln Pro Ser Ser Pro Ser His Asn Thr Asn Leu Arg Ala Gly Ser
    130                 135                 140

Gln Glu Phe Trp Ala Asn Gly Thr Gln Ser Pro Met Gly Leu Asn Phe
145                 150                 155                 160

Asp Ser Gln Glu Leu Tyr Asp Ser Phe Pro Asp Gln Asn Phe Glu Val
                165                 170                 175

Met Pro Asn Gly Pro Pro Ser Phe Phe Thr Ser Pro Gln Thr Ser Pro
            180                 185                 190

Met Leu Gly Ser Ser Ile Gln Thr Phe Ala Pro Ser Gln Glu Val Gly
```

```
        195                 200                 205

Ser Gly Ile His Pro Asp Glu Ala Ala Glu Lys Glu Met Thr Ser Val
    210                 215                 220

Val Ala Glu Asn Gly Thr Gly Leu Val Gly Ser Leu Glu Leu Glu Glu
225                 230                 235                 240

Glu Gln Pro Glu Leu Lys Met Cys Gly Tyr Asn Gly Ser Val Pro Ser
                245                 250                 255

Val Glu Ser Leu His Gln Glu Val Ser Val Leu Val Pro Asp Pro Thr
            260                 265                 270

Val Ser Cys Leu Asp Asp Pro Ser His Leu Pro Asp Gln Leu Glu Asp
        275                 280                 285

Thr Pro Ile Leu Ser Glu Asp Ser Leu Glu Pro Phe Asn Ser Leu Ala
    290                 295                 300

Pro Glu Pro Val Ser Gly Gly Leu Tyr Gly Ile Asp Asp Thr Glu Leu
305                 310                 315                 320

Met Gly Ala Glu Asp Lys Leu Pro Leu Glu Asp Ser Pro Val Ile Ser
                325                 330                 335

Ala Leu Asp Cys Pro Ser Leu Asn Asn Ala Thr Ala Phe Ser Leu Leu
            340                 345                 350

Ala Asp Asp Ser Gln Thr Ser Thr Ser Ile Phe Ala Ser Pro Thr Ser
        355                 360                 365

Pro Pro Val Leu Gly Glu Ser Val Leu Gln Asp Asn Ser Phe Asp Leu
    370                 375                 380

Asn Asn Gly Ser Asp Ala Glu Gln Glu Glu Met Glu Thr Gln Ser Ser
385                 390                 395                 400

Asp Phe Pro Pro Ser Leu Thr Gln Pro Ala Pro Asp Gln Ser Ser Thr
                405                 410                 415

Ile Gln Leu His Pro Ala Thr Ser Pro Ala Val Ser Pro Thr Thr Ser
            420                 425                 430
```

```
Pro Ala Val Ser Leu Val Val Ser Pro Ala Ala Ser Pro Glu Ile Ser
        435                 440                 445

Pro Glu Val Cys Pro Ala Ala Ser Thr Val Val Ser Pro Ala Val Phe
    450                 455                 460

Ser Val Val Ser Pro Ala Ser Ser Ala Val Leu Pro Ala Val Ser Leu
465                 470                 475                 480

Glu Val Pro Leu Thr Ala Ser Val Thr Ser Pro Lys Ala Ser Pro Val
                485                 490                 495

Thr Ser Pro Ala Ala Ala Phe Pro Thr Ala Ser Pro Ala Asn Lys Asp
            500                 505                 510

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

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

Ala Thr Pro Glu Glu Val Arg Leu Pro Leu Gln His Gly Trp Arg Arg
545                 550                 555                 560

Glu Val Arg Ile Lys Lys Gly Ser His Arg Trp Gln Gly Glu Thr Trp
                565                 570                 575

Tyr Tyr Gly Pro Cys Gly Lys Arg Met Lys Gln Phe Pro Glu Val Ile
            580                 585                 590

Lys Tyr Leu Ser Arg Asn Val Val His Ser Val Arg Arg Glu His Phe
        595                 600                 605

Ser Phe Ser Pro Arg Met Pro Val Gly Asp Phe Phe Glu Glu Arg Asp
    610                 615                 620

Thr Pro Glu Gly Leu Gln Trp Val Gln Leu Ser Ala Glu Glu Ile Pro
625                 630                 635                 640

Ser Arg Ile Gln Ala Ile Thr Gly Lys Arg Gly Arg Pro Arg Asn Thr
                645                 650                 655
```

Glu Lys Ala Lys Thr Lys Glu Val Pro Lys Val Lys Arg Gly Arg Gly
660 665 670

Arg Pro Pro Lys Val Lys Ile Thr Glu Leu Leu Asn Lys Thr Asp Asn
675 680 685

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

Lys Ala Lys Ile Ala Lys Ser Lys Lys Lys Met Arg Gln Lys Val Gln
705 710 715 720

Arg Gly Glu Cys Gln Thr Thr Ile Gln Gly Gln Ala Arg Asn Lys Arg
725 730 735

Lys Gln Glu Thr Lys Ser Leu Lys Gln Lys Glu Ala Lys Lys Lys Ser
740 745 750

Lys Ala Glu Lys Glu Lys Gly Lys Thr Lys Gln Glu Lys Leu Lys Glu
755 760 765

Lys Val Lys Arg Glu Lys Lys Glu Lys Val Lys Met Lys Glu Lys Glu
770 775 780

Glu Val Thr Lys Ala Lys Pro Ala Cys Lys Ala Asp Lys Thr Leu Ala
785 790 795 800

Thr Gln Arg Arg Leu Glu Glu Arg Gln Arg Gln Gln Met Ile Leu Glu
805 810 815

Glu Met Lys Lys Pro Thr Glu Asp Met Cys Leu Thr Asp His Gln Pro
820 825 830

Leu Pro Asp Phe Ser Arg Val Pro Gly Leu Thr Leu Pro Ser Gly Ala
835 840 845

Phe Ser Asp Cys Leu Thr Ile Val Glu Phe Leu His Ser Phe Gly Lys
850 855 860

Val Leu Gly Phe Asp Pro Ala Lys Asp Val Pro Ser Leu Gly Val Leu
865 870 875 880

```
Gln Glu Gly Leu Leu Cys Gln Gly Asp Ser Leu Gly Glu Val Gln Asp
                885                 890                 895

Leu Leu Val Arg Leu Leu Lys Ala Ala Leu His Asp Pro Gly Phe Pro
            900                 905                 910

Ser Tyr Cys Gln Ser Leu Lys Ile Leu Gly Glu Lys Val Ser Glu Ile
        915                 920                 925

Pro Leu Thr Arg Asp Asn Val Ser Glu Ile Leu Arg Cys Phe Leu Met
    930                 935                 940

Ala Tyr Gly Val Glu Pro Ala Leu Cys Asp Arg Leu Arg Thr Gln Pro
945                 950                 955                 960

Phe Gln Ala Gln Pro Pro Gln Gln Lys Ala Ala Val Leu Ala Phe Leu
                965                 970                 975

Val His Glu Leu Asn Gly Ser Thr Leu Ile Ile Asn Glu Ile Asp Lys
            980                 985                 990

Thr Leu Glu Ser Met Ser Ser Tyr  Arg Lys Asn Lys Trp  Ile Val
Glu
        995                 1000                1005

Gly Arg  Leu Arg Arg Leu Lys  Thr Val Leu Ala Lys  Arg Thr Gly
    1010                1015                1020

Arg Ser  Glu Val Glu Met Glu  Gly Pro Glu Glu Cys  Leu Gly Arg
    1025                1030                1035

Arg Arg  Ser Ser Arg Ile Met  Glu Glu Thr Ser Gly  Met Glu Glu
    1040                1045                1050

Glu Glu  Glu Glu Glu Ser Ile  Ala Ala Val Pro Gly  Arg Arg Gly
    1055                1060                1065

Arg Arg  Asp Gly Glu Val Asp  Ala Thr Ala Ser Ser  Ile Pro Glu
    1070                1075                1080

Leu Glu  Arg Gln Ile Glu Lys  Leu Ser Lys Arg Gln  Leu Phe Phe
    1085                1090                1095
```

```
Arg Lys  Lys Leu Leu His Ser  Ser Gln Met Leu Arg  Ala Val Ser
    1100                 1105                 1110

Leu Gly  Gln Asp Arg Tyr Arg  Arg Arg Tyr Trp Val  Leu Pro Tyr
    1115                 1120                 1125

Leu Ala  Gly Ile Phe Val Glu  Gly Thr Glu Gly Asn  Leu Val Pro
    1130                 1135                 1140

Glu Glu  Val Ile Lys Lys Glu  Thr Asp Ser Leu Lys  Val Ala Ala
    1145                 1150                 1155

His Ala  Ser Leu Asn Pro Ala  Leu Phe Ser Met Lys  Met Glu Leu
    1160                 1165                 1170

Ala Gly  Ser Asn Thr Thr Ala  Ser Ser Pro Ala Arg  Ala Arg Gly
    1175                 1180                 1185

Arg Pro  Arg Lys Thr Lys Pro  Gly Ser Met Gln Pro  Arg His Leu
    1190                 1195                 1200

Lys Ser  Pro Val Arg Gly Gln  Asp Ser Glu Gln Pro  Gln Ala Gln
    1205                 1210                 1215

Leu Gln  Pro Glu Ala Gln Leu  His Ala Pro Ala Gln  Pro Gln Pro
    1220                 1225                 1230

Gln Leu  Gln Leu Gln Leu Gln  Ser His Lys Gly Phe  Leu Glu Gln
    1235                 1240                 1245

Glu Gly  Ser Pro Leu Ser Leu  Gly Gln Ser Gln His  Asp Leu Ser
    1250                 1255                 1260

Gln Ser  Ala Phe Leu Ser Trp  Leu Ser Gln Thr Gln  Ser His Ser
    1265                 1270                 1275

Ser Leu  Leu Ser Ser Ser Val  Leu Thr Pro Asp Ser  Ser Pro Gly
    1280                 1285                 1290

Lys Leu  Asp Pro Ala Pro Ser  Gln Pro Pro Glu Glu  Pro Glu Pro
    1295                 1300                 1305

Asp Glu  Ala Glu Ser Ser Pro  Asp Pro Gln Ala Leu  Trp Phe Asn
```

1310 1315 1320

Ile Ser Ala Gln Met Pro Cys Asn Ala Ala Pro Thr Pro Pro Pro
1325 1330 1335

Ala Val Ser Glu Asp Gln Pro Thr Pro Ser Pro Gln Gln Leu Ala
1340 1345 1350

Ser Ser Lys Pro Met Asn Arg Pro Ser Ala Ala Asn Pro Cys Ser
1355 1360 1365

Pro Val Gln Phe Ser Ser Thr Pro Leu Ala Gly Leu Ala Pro Lys
1370 1375 1380

Arg Arg Ala Gly Asp Pro Gly Glu Met Pro Gln Ser Pro Thr Gly
1385 1390 1395

Leu Gly Gln Pro Lys Arg Arg Gly Arg Pro Pro Ser Lys Phe Phe
1400 1405 1410

Lys Gln Met Glu Gln Arg Tyr Leu Thr Gln Leu Thr Ala Gln Pro
1415 1420 1425

Val Pro Pro Glu Met Cys Ser Gly Trp Trp Trp Ile Arg Asp Pro
1430 1435 1440

Glu Met Leu Asp Ala Met Leu Lys Ala Leu His Pro Arg Gly Ile
1445 1450 1455

Arg Glu Lys Ala Leu His Lys His Leu Asn Lys His Arg Asp Phe
1460 1465 1470

Leu Gln Glu Val Cys Leu Arg Pro Ser Ala Asp Pro Ile Phe Glu
1475 1480 1485

Pro Arg Gln Leu Pro Ala Phe Gln Glu Gly Ile Met Ser Trp Ser
1490 1495 1500

Pro Lys Glu Lys Thr Tyr Glu Thr Asp Leu Ala Val Leu Gln Trp
1505 1510 1515

Val Glu Glu Leu Glu Gln Arg Val Ile Met Ser Asp Leu Gln Ile
1520 1525 1530

```
Arg Gly  Trp Thr Cys Pro Ser  Pro Asp Ser Thr Arg  Glu Asp Leu
    1535                1540                1545

Ala Tyr  Cys Glu His Leu Ser  Asp Ser Gln Glu Asp  Ile Thr Trp
    1550                1555                1560

Arg Gly  Arg Gly Arg Glu Gly  Leu Ala Pro Gln Arg  Lys Thr Thr
    1565                1570                1575

Asn Pro  Leu Asp Leu Ala Val  Met Arg Leu Ala Ala  Leu Glu Gln
    1580                1585                1590

Asn Val  Glu Arg Arg Tyr Leu  Arg Glu Pro Leu Trp  Pro Thr His
    1595                1600                1605

Glu Val  Val Leu Glu Lys Ala  Leu Leu Ser Thr Pro  Asn Gly Ala
    1610                1615                1620

Pro Glu  Gly Thr Thr Thr Glu  Ile Ser Tyr Glu Ile  Thr Pro Arg
    1625                1630                1635

Ile Arg  Val Trp Arg Gln Thr  Leu Glu Arg Cys Arg  Ser Ala Ala
    1640                1645                1650

Gln Val  Cys Leu Cys Leu Gly  Gln Leu Glu Arg Ser  Ile Ala Trp
    1655                1660                1665

Glu Lys  Ser Val Asn Lys Val  Thr Cys Leu Val Cys  Arg Lys Gly
    1670                1675                1680

Asp Asn  Asp Glu Phe Leu Leu  Leu Cys Asp Gly Cys  Asp Arg Gly
    1685                1690                1695

Cys His  Ile Tyr Cys His Arg  Pro Lys Met Glu Ala  Val Pro Glu
    1700                1705                1710

Gly Asp  Trp Phe Cys Thr Val  Cys Leu Ala Gln Gln  Val Glu Gly
    1715                1720                1725

Glu Phe  Thr Gln Lys Pro Gly  Phe Pro Lys Arg Gly  Gln Lys Arg
    1730                1735                1740
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```
Lys Ser  Gly Tyr Ser Leu Asn  Phe Ser Glu Gly Asp  Gly Arg Arg
    1745                1750                1755

Arg Arg  Val Leu Leu Arg Gly  Arg Glu Ser Pro Ala  Ala Gly Pro
    1760                1765                1770

Arg Tyr  Ser Glu Glu Gly Leu  Ser Pro Ser Lys Arg  Arg Arg Leu
    1775                1780                1785

Ser Met  Arg Asn His His Ser  Asp Leu Thr Phe Cys  Glu Ile Ile
    1790                1795                1800

Leu Met  Glu Met Glu Ser His  Asp Ala Ala Trp Pro  Phe Leu Glu
    1805                1810                1815

Pro Val  Asn Pro Arg Leu Val  Ser Gly Tyr Arg Arg  Ile Ile Lys
    1820                1825                1830

Asn Pro  Met Asp Phe Ser Thr  Met Arg Glu Arg Leu  Leu Arg Gly
    1835                1840                1845

Gly Tyr  Thr Ser Ser Glu Glu  Phe Ala Ala Asp Ala  Leu Leu Val
    1850                1855                1860

Phe Asp  Asn Cys Gln Thr Phe  Asn Glu Asp Asp Ser  Glu Val Gly
    1865                1870                1875

Lys Ala  Gly His Ile Met Arg  Arg Phe Phe Glu Ser  Arg Trp Glu
    1880                1885                1890

Glu Phe  Tyr Gln Gly Lys Gln  Ala Asn Leu
    1895                1900


<210> 9739
<211> 837
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Symbol: BAZ2A; "
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<220>
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<400> 9739

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Val Pro Gly Arg Arg Gly Arg Arg Asp Gly Glu Val Asp Ala Thr Ala
1               5                  10                  15

Ser Ser Ile Pro Glu Leu Glu Arg Gln Ile Glu Lys Leu Ser Lys Arg
            20                  25                  30

Gln Leu Phe Phe Arg Lys Lys Leu Leu His Ser Ser Gln Met Leu Arg
        35                  40                  45

Ala Val Ser Leu Gly Gln Asp Arg Tyr Arg Arg Arg Tyr Trp Val Leu
    50                  55                  60

Pro Tyr Leu Ala Gly Ile Phe Val Glu Gly Thr Glu Gly Asn Leu Val
65                  70                  75                  80

Pro Glu Glu Val Ile Lys Lys Glu Thr Asp Ser Leu Lys Val Ala Ala
                85                  90                  95

His Ala Ser Leu Asn Pro Ala Leu Phe Ser Met Lys Met Glu Leu Ala
            100                 105                 110

Gly Ser Asn Thr Thr Ala Ser Ser Pro Ala Arg Ala Arg Gly Arg Pro
        115                 120                 125

Arg Lys Thr Lys Pro Gly Ser Met Gln Pro Arg His Leu Lys Ser Pro
    130                 135                 140

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

Ala Gln Leu His Ala Pro Ala Gln Pro Gln Pro Gln Leu Gln Leu Gln
                165                 170                 175

Leu Gln Ser His Lys Gly Phe Leu Glu Gln Glu Gly Ser Pro Leu Ser
            180                 185                 190
```

```
Leu Gly Gln Ser Gln His Asp Leu Ser Gln Ser Ala Phe Leu Ser Trp
        195                 200                 205

Leu Ser Gln Thr Gln Ser His Ser Ser Leu Leu Ser Ser Ser Val Leu
    210                 215                 220

Thr Pro Asp Ser Ser Pro Gly Lys Leu Asp Pro Ala Pro Ser Gln Pro
225                 230                 235                 240

Pro Glu Glu Pro Glu Pro Asp Glu Ala Glu Ser Ser Pro Asp Pro Gln
                245                 250                 255

Ala Leu Trp Phe Asn Ile Ser Ala Gln Met Pro Cys Asn Ala Ala Pro
            260                 265                 270

Thr Pro Pro Pro Ala Val Ser Glu Asp Gln Pro Thr Pro Ser Pro Gln
        275                 280                 285

Gln Leu Ala Ser Ser Lys Pro Met Asn Arg Pro Ser Ala Ala Asn Pro
    290                 295                 300

Cys Ser Pro Val Gln Phe Ser Ser Thr Pro Leu Ala Gly Leu Ala Pro
305                 310                 315                 320

Lys Arg Arg Ala Gly Asp Pro Gly Glu Met Pro Gln Ser Pro Thr Gly
                325                 330                 335

Leu Gly Gln Pro Lys Arg Arg Gly Arg Pro Pro Ser Lys Phe Phe Lys
            340                 345                 350

Gln Met Glu Gln Arg Tyr Leu Thr Gln Leu Thr Ala Gln Pro Val Pro
        355                 360                 365

Pro Gly Trp Trp Trp Ile Arg Asp Pro Glu Met Leu Asp Ala Met Leu
    370                 375                 380

Lys Ala Leu His Pro Arg Gly Ile Arg Glu Lys Ala Leu His Lys His
385                 390                 395                 400

Leu Asn Lys His Arg Asp Phe Leu Gln Glu Val Cys Leu Arg Pro Ser
                405                 410                 415
```

```
Ala Asp Pro Ile Phe Glu Pro Arg Gln Leu Pro Ala Phe Gln Glu Gly
            420                 425                 430

Ile Met Ser Trp Ser Pro Lys Glu Lys Thr Tyr Glu Thr Asp Leu Ala
        435                 440                 445

Val Leu Gln Trp Val Glu Glu Leu Glu Gln Arg Val Ile Met Ser Asp
    450                 455                 460

Leu Gln Ile Arg Gly Trp Thr Cys Pro Ser Pro Asp Ser Thr Arg Glu
465                 470                 475                 480

Asp Leu Ala Tyr Cys Glu His Leu Ser Asp Ser Gln Glu Asp Ile Thr
                485                 490                 495

Trp Arg Gly Arg Gly Arg Glu Gly Leu Ala Pro Gln Arg Lys Thr Thr
            500                 505                 510

Asn Pro Leu Asp Leu Ala Val Met Arg Leu Ala Ala Leu Glu Gln Asn
        515                 520                 525

Val Glu Arg Arg Tyr Leu Arg Glu Pro Leu Trp Pro Thr His Glu Val
    530                 535                 540

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

Thr Thr Thr Glu Ile Ser Tyr Glu Ile Thr Pro Arg Ile Arg Val Trp
                565                 570                 575

Arg Gln Thr Leu Glu Arg Cys Arg Ser Ala Ala Gln Val Cys Leu Cys
            580                 585                 590

Leu Gly Gln Leu Glu Arg Ser Ile Ala Trp Glu Lys Ser Val Asn Lys
        595                 600                 605

Val Thr Cys Leu Val Cys Arg Lys Gly Asp Asn Asp Glu Phe Leu Leu
    610                 615                 620

Leu Cys Asp Gly Cys Asp Arg Gly Cys His Ile Tyr Cys His Arg Pro
625                 630                 635                 640
```

```
Lys Met Glu Ala Val Pro Glu Gly Asp Trp Phe Cys Thr Val Cys Leu
                645                 650                 655

Ala Gln Gln Val Glu Gly Glu Phe Thr Gln Lys Pro Gly Phe Pro Lys
            660                 665                 670

Arg Gly Gln Lys Arg Lys Ser Gly Tyr Ser Leu Asn Phe Ser Glu Gly
        675                 680                 685

Asp Gly Arg Arg Arg Arg Val Leu Leu Arg Gly Arg Glu Ser Pro Ala
    690                 695                 700

Ala Gly Pro Arg Tyr Ser Glu Glu Gly Leu Ser Pro Ser Lys Arg Arg
705                 710                 715                 720

Arg Leu Ser Met Arg Asn His His Ser Asp Leu Thr Phe Cys Glu Ile
                725                 730                 735

Ile Leu Met Glu Met Glu Ser His Asp Ala Ala Trp Pro Phe Leu Glu
            740                 745                 750

Pro Val Asn Pro Arg Leu Val Ser Gly Tyr Arg Arg Ile Ile Lys Asn
        755                 760                 765

Pro Met Asp Phe Ser Thr Met Arg Glu Arg Leu Leu Arg Gly Gly Tyr
    770                 775                 780

Thr Ser Ser Glu Glu Phe Ala Ala Asp Ala Leu Leu Val Phe Asp Asn
785                 790                 795                 800

Cys Gln Thr Phe Asn Glu Asp Asp Ser Glu Val Gly Lys Ala Gly His
                805                 810                 815

Ile Met Arg Arg Phe Phe Glu Ser Arg Trp Glu Glu Phe Tyr Gln Gly
            820                 825                 830

Lys Gln Ala Asn Leu
        835
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<210> 9740
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<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000449473"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9740

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Xaa Trp Gln Gly Glu Thr Trp Tyr Tyr Gly Pro Cys Gly Lys Arg Met
1               5                  10                  15

Lys Gln Phe Pro Glu Val Ile Lys Tyr Leu Ser Arg Asn Val Val His
            20                  25                  30

Ser Val Arg Arg Glu His Phe Ser Phe Ser Pro Arg Met Pro Val Gly
        35                  40                  45

Asp Phe Phe Glu Glu Arg Asp Thr Pro Glu Trp Val Gln Leu Ser Ala
    50                  55                  60

Glu Glu Ile Pro Ser Arg Ile Gln Ala Ile Thr Gly Lys Arg Gly Arg
65                  70                  75                  80

Pro Arg Asn Thr Glu Lys Ala Lys Thr Lys Glu Val Pro Lys Val Lys
                85                  90                  95

Arg Gly Arg Gly Arg Pro Pro Lys Val Lys Ile Thr Glu Leu Leu Asn
            100                 105                 110

Lys Thr Asp Asn Arg Pro Leu Lys Lys Leu Glu Ala Gln Glu Thr Leu
        115                 120                 125

Asn Glu Glu Asp Lys Ala Lys Ile Ala Lys Ser Lys Lys Lys Met Arg
```

```
    130                 135                 140

Gln Lys Val Gln Arg Gly Glu Cys Gln Thr Thr Ile Gln Gly Gln Ala
145                 150                 155                 160

Arg Asn Lys Arg Lys Gln Glu Thr Lys Ser Leu Lys Gln Lys Glu Ala
                165                 170                 175

Lys Lys Lys Ser Lys Ala Glu Lys Glu Lys Gly Lys Thr Lys Gln Glu
            180                 185                 190

Lys Leu Lys Glu Lys Val Lys Arg Glu Lys Lys Glu Lys
        195                 200                 205


<210> 9741
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1974; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2A; "

<220>
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<223> /note="Gene Name:
      bromodomain adjacent to zinc finger domain, 2A; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449496"

<400> 9741
Met Glu Ala Asn Asp His Phe Asn Phe Thr Gly Leu Pro Pro Ala Pro
1               5                   10                  15

Ala Ala Ser Gly Leu Lys Pro Ser Pro Ser Ser Gly Glu Gly Leu Tyr
            20                  25                  30

Thr Asn Gly Ser Pro Met Asn Phe Pro Gln Gln Gly Lys Ser Leu Asn
        35                  40                  45

Gly Asp Val Asn Val Asn Gly Leu Ser Thr Val Ser His Thr Thr Thr
    50                  55                  60
```

```
Ser Gly Ile Leu Asn Ser Ala Pro His Ser Ser Ser Thr Ser His Leu
65                  70                  75                  80


His His Pro Ser Val Ala Tyr Asp Cys Leu Trp Asn Tyr Ser Gln Tyr
                85                  90                  95


Pro Ser Ala Asn Pro Gly Ser Asn Leu Lys Asp Pro Pro Leu Leu Ser
            100                 105                 110


Gln Phe Ser Gly Gly Gln Tyr Pro Leu Asn Gly Ile Leu Gly Gly Ser
        115                 120                 125


Arg Gln Pro
    130


<210> 9742
<211> 211
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1975; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2B; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain adjacent to zinc finger domain, 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000294905"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9742
Xaa Ile Gln Gln Ile Arg Met Glu Lys Glu Leu Arg Ala Gln Gln Ile
1               5                   10                  15


Leu Glu Ala Lys Lys Lys Lys Lys Glu Glu Ala Ala Asn Ala Lys Leu
            20                  25                  30
```

```
Leu Glu Ala Glu Lys Arg Ile Lys Glu Lys Glu Met Arg Arg Gln Gln
        35                  40                  45

Ala Val Leu Leu Lys His Gln Glu Leu Glu Arg His Arg Leu Asp Met
    50                  55                  60

Glu Arg Glu Arg Arg Arg Gln His Met Met Leu Met Lys Ala Met Glu
65                  70                  75                  80

Ala Arg Lys Lys Ala Glu Glu Lys Glu Arg Leu Lys Gln Glu Lys Arg
                85                  90                  95

Asp Glu Lys Arg Leu Asn Lys Glu Arg Lys Leu Glu Gln Arg Arg Leu
            100                 105                 110

Glu Leu Glu Met Ala Lys Glu Leu Lys Lys Pro Asn Glu Asp Met Cys
        115                 120                 125

Leu Ala Asp Gln Lys Pro Leu Pro Glu Leu Pro Arg Ile Pro Gly Leu
    130                 135                 140

Val Leu Ser Gly Ser Thr Phe Ser Asp Cys Leu Met Val Val Gln Phe
145                 150                 155                 160

Leu Arg Asn Phe Gly Lys Val Leu Gly Phe Asp Val Asn Ile Asp Val
                165                 170                 175

Pro Asn Leu Ser Val Leu Gln Glu Gly Leu Leu Asn Ile Gly Asp Ser
            180                 185                 190

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

Cys Asp Pro
    210
```

<210> 9743
<211> 643
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1975; "

<220>
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<223> /note="Gene Symbol: BAZ2B; "

<220>
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<223> /note="Gene Name:
bromodomain adjacent to zinc finger domain, 2B; "

<220>
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<223> /note="ENSP ID: ENSP00000339670"

<400> 9743

```
Met Gly Gln Thr Lys Ser Thr Ser Ser Gly Gly Gly Asn Arg Lys Cys
1               5                  10                  15

Asn Gln Glu Gln Ser Lys Asn Gln Pro Leu Asp Ala Arg Val Asp Lys
            20                  25                  30

Ile Lys Asp Lys Lys Pro Arg Lys Lys Ala Met Glu Ser Ser Ser Asn
        35                  40                  45

Ser Asp Ser Asp Ser Gly Thr Ser Ser Asp Thr Ser Ser Glu Gly Ile
    50                  55                  60

Ser Ser Ser Asp Ser Asp Asp Leu Glu Glu Asp Glu Glu Glu Glu Asp
65                  70                  75                  80

Gln Ser Ile Glu Glu Ser Glu Asp Asp Asp Ser Asp Ser Glu Ser Glu
                85                  90                  95

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

Pro Lys Ala Asp Gly Gln Lys Ala Thr Glu Lys Ala Gln Glu Lys Arg
        115                 120                 125

Ile His Gln Pro Leu Pro Leu Ala Ser Glu Ser Gln Thr His Ser Phe
    130                 135                 140

Gln Ser Gln Gln Lys Gln Pro Gln Val Leu Ser Gln Gln Leu Pro Phe
145                 150                 155                 160

Ile Phe Gln Ser Ser Gln Ala Lys Glu Glu Ser Val Asn Lys His Thr
                165                 170                 175
```

```
Ser Val Ile Gln Ser Thr Gly Leu Val Ser Asn Val Lys Pro Leu Ser
            180                 185                 190

Leu Val Asn Gln Ala Lys Lys Glu Thr Tyr Met Lys Leu Ile Val Pro
        195                 200                 205

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

Ser Leu Leu Thr Ser Glu Leu Arg Ser Lys Arg Glu Gln Tyr Lys Gln
225                 230                 235                 240

Ala Phe Pro Ser Gln Leu Lys Lys Gln Glu Ser Ser Lys Ser Leu Lys
                245                 250                 255

Lys Val Ile Ala Ala Leu Ser Asn Pro Lys Ala Thr Ser Ser Ser Pro
            260                 265                 270

Ala His Pro Lys Gln Thr Leu Glu Asn Asn His Pro Asn Pro Phe Leu
        275                 280                 285

Thr Asn Ala Leu Leu Gly Asn His Gln Pro Asn Gly Val Ile Gln Ser
    290                 295                 300

Val Ile Gln Glu Ala Pro Leu Ala Leu Thr Thr Lys Thr Lys Met Gln
305                 310                 315                 320

Ser Lys Ile Asn Glu Asn Ile Ala Ala Ala Ser Ser Thr Pro Phe Ser
                325                 330                 335

Ser Pro Val Asn Leu Ser Thr Ser Gly Arg Arg Thr Pro Gly Asn Gln
            340                 345                 350

Thr Pro Val Met Pro Ser Ala Ser Pro Ile Leu His Ser Gln Gly Lys
        355                 360                 365

Glu Lys Ala Val Ser Asn Asn Val Asn Pro Val Lys Thr Gln His His
    370                 375                 380

Ser His Pro Ala Lys Ser Leu Val Glu Gln Phe Arg Gly Thr Asp Ser
385                 390                 395                 400
```

Asp Ile Pro Ser Ser Lys Asp Ser Glu Asp Ser Asn Glu Asp Glu Glu
405 410 415

Glu Asp Asp Glu Glu Glu Asp Glu Glu Asp Asp Glu Asp Asp Glu Ser
420 425 430

Asp Asp Ser Gln Ser Gly Thr Ser Lys Arg Arg Arg Val Thr Asp Glu
435 440 445

Arg Glu Leu Arg Ile Pro Leu Glu Tyr Gly Trp Gln Arg Glu Thr Arg
450 455 460

Ile Arg Asn Phe Gly Gly Arg Leu Gln Gly Glu Val Ala Tyr Tyr Ala
465 470 475 480

Pro Cys Gly Lys Lys Leu Arg Gln Tyr Pro Glu Val Ile Lys Tyr Leu
485 490 495

Ser Arg Asn Gly Ile Met Asp Ile Ser Arg Asp Asn Phe Ser Phe Ser
500 505 510

Ala Lys Ile Arg Val Gly Asp Phe Tyr Glu Ala Arg Asp Gly Pro Gln
515 520 525

Gly Met Gln Trp Cys Leu Leu Lys Glu Glu Asp Val Ile Pro Arg Ile
530 535 540

Arg Ala Met Glu Gly Arg Arg Gly Arg Pro Pro Asn Pro Asp Arg Gln
545 550 555 560

Arg Ala Arg Glu Glu Ser Arg Met Arg Arg Arg Lys Gly Arg Pro Pro
565 570 575

Asn Val Gly Asn Ala Glu Phe Leu Asp Asn Ala Asp Ala Lys Leu Leu
580 585 590

Arg Lys Leu Gln Ala Gln Glu Ile Ala Arg Gln Ala Ala Gln Ile Lys
595 600 605

Leu Leu Arg Lys Leu Gln Lys Gln Glu Gln Ala Arg Val Ala Lys Glu
610 615 620

Ala Lys Lys Gln Gln Ala Ile Met Leu Leu Arg Arg Ser Gly Ser Lys
625 630 635 640

Lys Asn Arg

<210> 9744
<211> 2132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1975; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2B; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain adjacent to zinc finger domain, 2B; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UIF8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376533"

<400> 9744
Met Glu Ser Gly Glu Arg Leu Pro Ser Ser Ala Ala Ser Ser Thr Thr
1 5 10 15

Pro Thr Ser Ser Ser Thr Pro Ser Val Ala Ser Val Val Ser Lys Gly
20 25 30

Gly Leu Ser Thr Gly Val Ala Ser Leu Ser Ser Thr Ile Asn Pro Cys
35 40 45

Gly His Leu Phe Arg Thr Ala Gly Asp Gln Pro Phe Asn Leu Ser Thr
50 55 60

Val Ser Ser Ala Phe Pro Met Val Ser His Pro Val Phe Gly Leu His
65 70 75 80

Ser Ala Ser Ser Gly His Ser Glu Phe Gly Gly Leu Gly Thr Leu Gly
85 90 95

```
Thr Pro Thr Ala Leu Ala Ala His Pro Gln Leu Ala Ser Phe Pro Glu
            100                 105                 110

Trp Trp Arg Thr Thr Asp Ala His Thr Arg Thr Gly Ala Thr Phe Phe
        115                 120                 125

Pro Pro Leu Leu Gly Ile Pro Pro Leu Phe Ala Pro Pro Ala Gln Asn
    130                 135                 140

His Asp Ser Ser Ser Phe His Ser Arg Thr Ser Gly Lys Ser Asn Arg
145                 150                 155                 160

Asn Gly Pro Glu Lys Gly Val Asn Gly Ser Ile Asn Gly Ser Asn Thr
                165                 170                 175

Ser Ser Val Ile Gly Ile Asn Thr Ser Val Leu Ser Thr Thr Ala Ser
            180                 185                 190

Ser Ser Met Gly Gln Thr Lys Ser Thr Ser Ser Gly Gly Gly Asn Arg
        195                 200                 205

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

Asp Lys Ile Lys Asp Lys Lys Pro Arg Lys Lys Ala Met Glu Ser Ser
225                 230                 235                 240

Ser Asn Ser Asp Ser Asp Ser Gly Thr Ser Ser Asp Thr Ser Ser Glu
                245                 250                 255

Gly Ile Ser Ser Ser Asp Ser Asp Asp Leu Glu Glu Asp Glu Glu Glu
            260                 265                 270

Glu Asp Gln Ser Ile Glu Glu Ser Glu Asp Asp Asp Ser Asp Ser Glu
        275                 280                 285

Ser Glu Ala Gln His Lys Ser Asn Asn Gln Val Leu Leu His Gly Ile
    290                 295                 300

Ser Asp Pro Lys Ala Asp Gly Gln Lys Ala Thr Glu Lys Ala Gln Glu
305                 310                 315                 320
```

```
Lys Arg Ile His Gln Pro Leu Pro Leu Ala Ser Glu Ser Gln Thr His
                325                 330                 335

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

Pro Phe Ile Phe Gln Ser Ser Gln Ala Lys Glu Glu Ser Val Asn Lys
        355                 360                 365

His Thr Ser Val Ile Gln Ser Thr Gly Leu Val Ser Asn Val Lys Pro
    370                 375                 380

Leu Ser Leu Val Asn Gln Ala Lys Lys Glu Thr Tyr Met Lys Leu Ile
385                 390                 395                 400

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

Glu Ser Ser Leu Leu Thr Ser Glu Leu Arg Ser Lys Arg Glu Gln Tyr
            420                 425                 430

Lys Gln Ala Phe Pro Ser Gln Leu Lys Lys Gln Glu Ser Ser Lys Ser
        435                 440                 445

Leu Lys Lys Val Ile Ala Ala Leu Ser Asn Pro Lys Ala Thr Ser Ser
    450                 455                 460

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

Phe Leu Thr Asn Ala Leu Leu Gly Asn His Gln Pro Asn Gly Val Ile
                485                 490                 495

Gln Ser Val Ile Gln Glu Ala Pro Leu Ala Leu Thr Thr Lys Thr Lys
            500                 505                 510

Met Gln Ser Lys Ile Asn Glu Asn Ile Ala Ala Ala Ser Ser Thr Pro
        515                 520                 525

Phe Ser Ser Pro Val Asn Leu Ser Thr Ser Gly Arg Arg Thr Pro Gly
    530                 535                 540
```

```
Asn Gln Thr Pro Val Met Pro Ser Ala Ser Pro Ile Leu His Ser Gln
545                 550                 555                 560

Gly Lys Glu Lys Ala Val Ser Asn Asn Val Asn Pro Val Lys Thr Gln
                565                 570                 575

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

Asp Ser Asp Ile Pro Ser Ser Lys Asp Ser Glu Asp Ser Asn Glu Asp
        595                 600                 605

Glu Glu Glu Asp Asp Glu Glu Glu Asp Glu Glu Asp Asp Glu Asp Asp
    610                 615                 620

Glu Ser Asp Asp Ser Gln Ser Glu Ser Asp Ser Asn Ser Glu Ser Asp
625                 630                 635                 640

Thr Glu Gly Ser Glu Glu Glu Asp Asp Asp Asp Lys Asp Gln Asp Glu
                645                 650                 655

Ser Asp Ser Asp Thr Glu Gly Glu Lys Thr Ser Met Lys Leu Asn Lys
            660                 665                 670

Thr Thr Ser Ser Val Lys Ser Pro Ser Met Ser Leu Thr Gly His Ser
        675                 680                 685

Thr Pro Arg Asn Leu His Ile Ala Lys Ala Pro Gly Ser Ala Pro Ala
    690                 695                 700

Ala Leu Cys Ser Glu Ser Gln Ser Pro Ala Phe Leu Gly Thr Ser Ser
705                 710                 715                 720

Ser Thr Leu Thr Ser Ser Pro His Ser Gly Thr Ser Lys Arg Arg Arg
                725                 730                 735

Val Thr Asp Glu Arg Glu Leu Arg Ile Pro Leu Glu Tyr Gly Trp Gln
            740                 745                 750

Arg Glu Thr Arg Ile Arg Asn Phe Gly Gly Arg Leu Gln Gly Glu Val
        755                 760                 765

Ala Tyr Tyr Ala Pro Cys Gly Lys Lys Leu Arg Gln Tyr Pro Glu Val
```

770 775 780

Ile Lys Gly Met Gln Trp Cys Leu Leu Lys Glu Glu Asp Val Ile Pro
785 790 795 800

Arg Ile Arg Ala Met Glu Gly Arg Arg Gly Arg Pro Pro Asn Pro Asp
805 810 815

Arg Gln Arg Ala Arg Glu Glu Ser Arg Met Arg Arg Arg Lys Gly Arg
820 825 830

Pro Pro Asn Val Gly Asn Ala Glu Phe Leu Asp Asn Ala Asp Ala Lys
835 840 845

Leu Leu Arg Lys Leu Gln Ala Gln Glu Ile Ala Arg Gln Ala Ala Gln
850 855 860

Ile Lys Leu Leu Arg Lys Leu Gln Lys Gln Glu Gln Ala Arg Val Ala
865 870 875 880

Lys Glu Ala Lys Lys Gln Gln Ala Ile Met Ala Ala Glu Glu Lys Arg
885 890 895

Lys Gln Lys Glu Gln Ile Lys Ile Met Lys Gln Gln Glu Lys Ile Lys
900 905 910

Arg Ile Gln Gln Ile Arg Met Glu Lys Glu Leu Arg Ala Gln Gln Ile
915 920 925

Leu Glu Ala Lys Lys Lys Lys Lys Glu Glu Ala Ala Asn Ala Lys Leu
930 935 940

Leu Glu Ala Glu Lys Arg Ile Lys Glu Lys Glu Met Arg Arg Gln Gln
945 950 955 960

Ala Val Leu Leu Lys His Gln Glu Arg Glu Arg Arg Arg Gln His Met
965 970 975

Met Leu Met Lys Ala Met Glu Ala Arg Lys Lys Ala Glu Glu Lys Glu
980 985 990

Arg Leu Lys Gln Glu Lys Arg Asp Glu Lys Arg Leu Asn Lys Glu
Arg

995 1000 1005

Lys Leu Glu Gln Arg Arg Leu Glu Leu Glu Met Ala Lys Glu Leu
1010 1015 1020

Lys Lys Pro Asn Glu Asp Met Cys Leu Ala Asp Gln Lys Pro Leu
1025 1030 1035

Pro Glu Leu Pro Arg Ile Pro Gly Leu Val Leu Ser Gly Ser Thr
1040 1045 1050

Phe Ser Asp Cys Leu Met Val Val Gln Phe Leu Arg Asn Phe Gly
1055 1060 1065

Lys Val Leu Gly Phe Asp Val Asn Ile Asp Val Pro Asn Leu Ser
1070 1075 1080

Val Leu Gln Glu Gly Leu Leu Asn Ile Gly Asp Ser Met Gly Glu
1085 1090 1095

Val Gln Asp Leu Leu Val Arg Leu Leu Ser Ala Ala Val Cys Asp
1100 1105 1110

Pro Gly Leu Ile Thr Gly Tyr Lys Ala Lys Thr Ala Leu Gly Glu
1115 1120 1125

His Leu Leu Asn Val Gly Val Asn Arg Asp Asn Val Ser Glu Ile
1130 1135 1140

Leu Gln Ile Phe Met Glu Ala His Cys Gly Gln Thr Glu Leu Thr
1145 1150 1155

Glu Ser Leu Lys Thr Lys Ala Phe Gln Ala His Thr Pro Ala Gln
1160 1165 1170

Lys Ala Ser Val Leu Ala Phe Leu Ile Asn Glu Leu Ala Cys Ser
1175 1180 1185

Lys Ser Val Val Ser Glu Ile Asp Lys Asn Ile Asp Tyr Met Ser
1190 1195 1200

Asn Leu Arg Arg Asp Lys Trp Val Val Glu Gly Lys Leu Arg Lys
1205 1210 1215

```
Leu Arg  Ile Ile His Ala Lys  Lys Thr Gly Lys Arg  Asp Thr Ser
    1220                1225                1230

Gly Gly  Ile Asp Leu Gly Glu  Glu Gln His Pro Leu  Gly Thr Pro
    1235                1240                1245

Thr Pro  Gly Arg Lys Arg Arg  Arg Lys Gly Gly Asp  Ser Asp Tyr
    1250                1255                1260

Asp Asp  Asp Asp Asp Asp Asp  Ser Asp Asp Gln Gly  Asp Glu Asp
    1265                1270                1275

Asp Glu  Asp Glu Glu Asp Lys  Glu Asp Lys Lys Gly  Lys Lys Thr
    1280                1285                1290

Asp Ile  Cys Glu Asp Glu Asp  Glu Gly Asp Gln Ala  Ala Ser Val
    1295                1300                1305

Glu Glu  Leu Glu Lys Gln Ile  Glu Lys Leu Ser Lys  Gln Gln Ser
    1310                1315                1320

Gln Tyr  Arg Arg Lys Leu Phe  Asp Ala Ser His Ser  Leu Arg Ser
    1325                1330                1335

Val Met  Phe Gly Gln Asp Arg  Tyr Arg Arg Arg Tyr  Trp Ile Leu
    1340                1345                1350

Pro Gln  Cys Gly Gly Ile Phe  Val Glu Gly Met Glu  Ser Gly Glu
    1355                1360                1365

Gly Leu  Glu Glu Ile Ala Lys  Glu Arg Glu Lys Leu  Lys Lys Ala
    1370                1375                1380

Glu Ser  Val Gln Ile Lys Glu  Glu Met Phe Glu Thr  Ser Gly Asp
    1385                1390                1395

Ser Leu  Asn Cys Ser Asn Thr  Asp His Cys Glu Gln  Lys Glu Asp
    1400                1405                1410

Leu Lys  Glu Lys Asp Asn Thr  Asn Leu Phe Leu Gln  Lys Pro Gly
    1415                1420                1425
```

Ser Phe Ser Lys Leu Ser Lys Leu Leu Glu Val Ala Lys Met Pro
1430 1435 1440

Pro Glu Ser Glu Val Met Thr Pro Lys Pro Asn Ala Gly Ala Asn
1445 1450 1455

Gly Cys Thr Leu Ser Tyr Gln Asn Ser Gly Lys His Ser Leu Gly
1460 1465 1470

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

Ser Asn Asn Leu Phe Asn Thr Gly Ser Ser Gly Pro Gly Lys Phe
1490 1495 1500

Tyr Ser Pro Leu Pro Asn Asp Gln Leu Leu Lys Thr Leu Thr Glu
1505 1510 1515

Lys Asn Arg Gln Trp Phe Ser Leu Leu Pro Arg Thr Pro Cys Asp
1520 1525 1530

Asp Thr Ser Leu Thr His Ala Asp Met Ser Thr Ala Ser Leu Val
1535 1540 1545

Thr Pro Gln Ser Gln Pro Pro Ser Lys Ser Pro Ser Pro Thr Pro
1550 1555 1560

Ala Pro Leu Gly Ser Ser Ala Gln Asn Pro Val Gly Leu Asn Pro
1565 1570 1575

Phe Ala Leu Ser Pro Leu Gln Val Lys Gly Gly Val Ser Met Met
1580 1585 1590

Gly Leu Gln Phe Cys Gly Trp Pro Thr Gly Val Val Thr Ser Asn
1595 1600 1605

Ile Pro Phe Thr Ser Ser Val Pro Ser Leu Gly Ser Gly Leu Gly
1610 1615 1620

Leu Ser Glu Gly Asn Gly Asn Ser Phe Leu Thr Ser Asn Val Ala
1625 1630 1635

```
Ser Ser  Lys Ser Glu Ser Pro  Val Pro Gln Asn Glu  Lys Ala Thr
    1640                1645                1650

Ser Ala  Gln Pro Ala Ala Val  Glu Val Ala Lys Pro  Val Asp Phe
    1655                1660                1665

Pro Ser  Pro Lys Pro Ile Pro  Glu Glu Met Gln Phe  Gly Trp Trp
    1670                1675                1680

Arg Ile  Ile Asp Pro Glu Asp  Leu Lys Ala Leu Leu  Lys Val Leu
    1685                1690                1695

His Leu  Arg Gly Ile Arg Glu  Lys Ala Leu Gln Lys  Gln Ile Gln
    1700                1705                1710

Lys His  Leu Asp Tyr Ile Thr  Gln Ala Cys Leu Lys  Asn Lys Asp
    1715                1720                1725

Val Ala  Ile Ile Glu Leu Asn  Glu Asn Glu Glu Asn  Gln Val Thr
    1730                1735                1740

Arg Asp  Ile Val Glu Asn Trp  Ser Val Glu Glu Gln  Ala Met Glu
    1745                1750                1755

Met Asp  Leu Ser Val Leu Gln  Gln Val Glu Asp Leu  Glu Arg Arg
    1760                1765                1770

Val Ala  Ser Ala Ser Leu Gln  Val Lys Gly Trp Met  Cys Pro Glu
    1775                1780                1785

Pro Ala  Ser Glu Arg Glu Asp  Leu Val Tyr Phe Glu  His Lys Ser
    1790                1795                1800

Phe Thr  Lys Leu Cys Lys Glu  His Asp Gly Glu Phe  Thr Gly Glu
    1805                1810                1815

Asp Glu  Ser Ser Ala His Ala  Leu Glu Arg Lys Ser  Asp Asn Pro
    1820                1825                1830

Leu Asp  Ile Ala Val Thr Arg  Leu Ala Asp Leu Glu  Arg Asn Ile
    1835                1840                1845

Glu Arg  Arg Ile Glu Glu Asp  Ile Ala Pro Gly Leu  Arg Val Trp
```

1850 1855 1860

Arg Arg Ala Leu Ser Glu Ala Arg Ser Ala Ala Gln Val Ala Leu
1865 1870 1875

Cys Ile Gln Gln Leu Gln Lys Ser Ile Ala Trp Glu Lys Ser Ile
1880 1885 1890

Met Lys Val Tyr Cys Gln Ile Cys Arg Lys Gly Asp Asn Glu Glu
1895 1900 1905

Leu Leu Leu Leu Cys Asp Gly Cys Asp Lys Gly Cys His Thr Tyr
1910 1915 1920

Cys His Arg Pro Lys Ile Thr Thr Ile Pro Asp Gly Asp Trp Phe
1925 1930 1935

Cys Pro Ala Cys Ile Ala Lys Ala Ser Gly Gln Thr Leu Lys Ile
1940 1945 1950

Lys Lys Leu His Val Lys Gly Lys Lys Thr Asn Glu Ser Lys Lys
1955 1960 1965

Gly Lys Lys Val Thr Leu Thr Gly Asp Thr Glu Asp Glu Asp Ser
1970 1975 1980

Ala Ser Thr Ser Ser Ser Leu Lys Arg Gly Asn Lys Asp Leu Lys
1985 1990 1995

Lys Arg Lys Met Glu Glu Asn Thr Ser Ile Asn Leu Ser Lys Gln
2000 2005 2010

Glu Ser Phe Thr Ser Val Lys Lys Pro Lys Arg Asp Asp Ser Lys
2015 2020 2025

Asp Leu Ala Leu Cys Ser Met Ile Leu Thr Glu Met Glu Thr His
2030 2035 2040

Glu Asp Ala Trp Pro Phe Leu Leu Pro Val Asn Leu Lys Leu Val
2045 2050 2055

Pro Gly Tyr Lys Lys Val Ile Lys Lys Pro Met Asp Phe Ser Thr
2060 2065 2070

```
Ile Arg  Glu Lys Leu Ser Ser  Gly Gln Tyr Pro Asn  Leu Glu Thr
    2075                2080                2085


Phe Ala  Leu Asp Val Arg Leu  Val Phe Asp Asn Cys  Glu Thr Phe
    2090                2095                2100


Asn Glu  Asp Asp Ser Asp Ile  Gly Arg Ala Gly His  Asn Met Arg
    2105                2110                2115


Lys Tyr  Phe Glu Lys Lys Trp  Thr Asp Thr Phe Lys  Val Ser
    2120                2125                2130


<210> 9745
<211> 2168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1975; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2B; "

<220>
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<223> /note="Gene Name:
      bromodomain adjacent to zinc finger domain, 2B; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UIF8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376534"

<400> 9745
Met Glu Ser Gly Glu Arg Leu Pro Ser Ser Ala Ala Ser Ser Thr Thr
1               5                  10                  15


Pro Thr Ser Ser Ser Thr Pro Ser Val Ala Ser Val Val Ser Lys Gly
            20                  25                  30


Gly Leu Ser Thr Gly Val Ala Ser Leu Ser Ser Thr Ile Asn Pro Cys
        35                  40                  45
```

```
Gly His Leu Phe Arg Thr Ala Gly Asp Gln Pro Phe Asn Leu Ser Thr
    50                  55                  60

Val Ser Ser Ala Phe Pro Met Val Ser His Pro Val Phe Gly Leu His
65                  70                  75                  80

Ser Ala Ser Ser Gly His Ser Glu Phe Gly Gly Leu Gly Thr Leu Gly
                85                  90                  95

Thr Pro Thr Ala Leu Ala Ala His Pro Gln Leu Ala Ser Phe Pro Gly
            100                 105                 110

Ala Glu Trp Trp Arg Thr Thr Asp Ala His Thr Arg Thr Gly Ala Thr
        115                 120                 125

Phe Phe Pro Pro Leu Leu Gly Ile Pro Pro Leu Phe Ala Pro Pro Ala
    130                 135                 140

Gln Asn His Asp Ser Ser Ser Phe His Ser Arg Thr Ser Gly Lys Ser
145                 150                 155                 160

Asn Arg Asn Gly Pro Glu Lys Gly Val Asn Gly Ser Ile Asn Gly Ser
                165                 170                 175

Asn Thr Ser Ser Val Ile Gly Ile Asn Thr Ser Val Leu Ser Thr Thr
            180                 185                 190

Ala Ser Ser Ser Met Gly Gln Thr Lys Ser Thr Ser Ser Gly Gly Gly
        195                 200                 205

Asn Arg Lys Cys Asn Gln Glu Gln Ser Lys Asn Gln Pro Leu Asp Ala
    210                 215                 220

Arg Val Asp Lys Ile Lys Asp Lys Lys Pro Arg Lys Lys Ala Met Glu
225                 230                 235                 240

Ser Ser Ser Asn Ser Asp Ser Asp Ser Gly Thr Ser Ser Asp Thr Ser
                245                 250                 255

Ser Glu Gly Ile Ser Ser Ser Asp Ser Asp Asp Leu Glu Glu Asp Glu
            260                 265                 270

Glu Glu Glu Asp Gln Ser Ile Glu Glu Ser Glu Asp Asp Asp Ser Asp
```

```
        275                 280                 285

Ser Glu Ser Glu Ala Gln His Lys Ser Asn Asn Gln Val Leu Leu His
    290                 295                 300

Gly Ile Ser Asp Pro Lys Ala Asp Gly Gln Lys Ala Thr Glu Lys Ala
305                 310                 315                 320

Gln Glu Lys Arg Ile His Gln Pro Leu Pro Leu Ala Ser Glu Ser Gln
                325                 330                 335

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

Gln Leu Pro Phe Ile Phe Gln Ser Ser Gln Ala Lys Glu Glu Ser Val
        355                 360                 365

Asn Lys His Thr Ser Val Ile Gln Ser Thr Gly Leu Val Ser Asn Val
    370                 375                 380

Lys Pro Leu Ser Leu Val Asn Gln Ala Lys Lys Glu Thr Tyr Met Lys
385                 390                 395                 400

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

Ser Glu Glu Ser Ser Leu Leu Thr Ser Glu Leu Arg Ser Lys Arg Glu
            420                 425                 430

Gln Tyr Lys Gln Ala Phe Pro Ser Gln Leu Lys Lys Gln Glu Ser Ser
        435                 440                 445

Lys Ser Leu Lys Lys Val Ile Ala Ala Leu Ser Asn Pro Lys Ala Thr
    450                 455                 460

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

Asn Pro Phe Leu Thr Asn Ala Leu Leu Gly Asn His Gln Pro Asn Gly
                485                 490                 495

Val Ile Gln Ser Val Ile Gln Glu Ala Pro Leu Ala Leu Thr Thr Lys
            500                 505                 510
```

```
Thr Lys Met Gln Ser Lys Ile Asn Glu Asn Ile Ala Ala Ala Ser Ser
        515                 520                 525

Thr Pro Phe Ser Ser Pro Val Asn Leu Ser Thr Ser Gly Arg Arg Thr
    530                 535                 540

Pro Gly Asn Gln Thr Pro Val Met Pro Ser Ala Ser Pro Ile Leu His
545                 550                 555                 560

Ser Gln Gly Lys Glu Lys Ala Val Ser Asn Asn Val Asn Pro Val Lys
                565                 570                 575

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

Gly Thr Asp Ser Asp Ile Pro Ser Ser Lys Asp Ser Glu Asp Ser Asn
        595                 600                 605

Glu Asp Glu Glu Glu Asp Asp Glu Glu Glu Asp Glu Glu Asp Asp Glu
    610                 615                 620

Asp Asp Glu Ser Asp Asp Ser Gln Ser Glu Ser Asp Ser Asn Ser Glu
625                 630                 635                 640

Ser Asp Thr Glu Gly Ser Glu Glu Glu Asp Asp Asp Asp Lys Asp Gln
                645                 650                 655

Asp Glu Ser Asp Ser Asp Thr Glu Gly Glu Lys Thr Ser Met Lys Leu
            660                 665                 670

Asn Lys Thr Thr Ser Ser Val Lys Ser Pro Ser Met Ser Leu Thr Gly
        675                 680                 685

His Ser Thr Pro Arg Asn Leu His Ile Ala Lys Ala Pro Gly Ser Ala
    690                 695                 700

Pro Ala Ala Leu Cys Ser Glu Ser Gln Ser Pro Ala Phe Leu Gly Thr
705                 710                 715                 720

Ser Ser Ser Thr Leu Thr Ser Ser Pro His Ser Gly Thr Ser Lys Arg
                725                 730                 735
```

```
Arg Arg Val Thr Asp Glu Arg Glu Leu Arg Ile Pro Leu Glu Tyr Gly
            740                 745                 750

Trp Gln Arg Glu Thr Arg Ile Arg Asn Phe Gly Gly Arg Leu Gln Gly
        755                 760                 765

Glu Val Ala Tyr Tyr Ala Pro Cys Gly Lys Lys Leu Arg Gln Tyr Pro
    770                 775                 780

Glu Val Ile Lys Tyr Leu Ser Arg Asn Gly Ile Met Asp Ile Ser Arg
785                 790                 795                 800

Asp Asn Phe Ser Phe Ser Ala Lys Ile Arg Val Gly Asp Phe Tyr Glu
                805                 810                 815

Ala Arg Asp Gly Pro Gln Gly Met Gln Trp Cys Leu Leu Lys Glu Glu
            820                 825                 830

Asp Val Ile Pro Arg Ile Arg Ala Met Glu Gly Arg Arg Gly Arg Pro
        835                 840                 845

Pro Asn Pro Asp Arg Gln Arg Ala Arg Glu Glu Ser Arg Met Arg Arg
    850                 855                 860

Arg Lys Gly Arg Pro Pro Asn Val Gly Asn Ala Glu Phe Leu Asp Asn
865                 870                 875                 880

Ala Asp Ala Lys Leu Leu Arg Lys Leu Gln Ala Gln Glu Ile Ala Arg
                885                 890                 895

Gln Ala Ala Gln Ile Lys Leu Leu Arg Lys Leu Gln Lys Gln Glu Gln
            900                 905                 910

Ala Arg Val Ala Lys Glu Ala Lys Lys Gln Gln Ala Ile Met Ala Ala
        915                 920                 925

Glu Glu Lys Arg Lys Gln Lys Glu Gln Ile Lys Ile Met Lys Gln Gln
    930                 935                 940

Glu Lys Ile Lys Arg Ile Gln Gln Ile Arg Met Glu Lys Glu Leu Arg
945                 950                 955                 960
```

```
Ala Gln Gln Ile Leu Glu Ala Lys Lys Lys Lys Lys Glu Glu Ala Ala
                965                 970                 975

Asn Ala Lys Leu Leu Glu Ala Glu Lys Arg Ile Lys Glu Lys Glu Met
            980                 985                 990

Arg Arg Gln Gln Ala Val Leu Leu  Lys His Gln Glu Arg  Glu Arg
Arg
        995                 1000                1005

Arg Gln  His Met Met Leu Met  Lys Ala Met Glu Ala  Arg Lys Lys
    1010                1015                1020

Ala Glu  Glu Lys Glu Arg Leu  Lys Gln Glu Lys Arg  Asp Glu Lys
    1025                1030                1035

Arg Leu  Asn Lys Glu Arg Lys  Leu Glu Gln Arg Arg  Leu Glu Leu
    1040                1045                1050

Glu Met  Ala Lys Glu Leu Lys  Lys Pro Asn Glu Asp  Met Cys Leu
    1055                1060                1065

Ala Asp  Gln Lys Pro Leu Pro  Glu Leu Pro Arg Ile  Pro Gly Leu
    1070                1075                1080

Val Leu  Ser Gly Ser Thr Phe  Ser Asp Cys Leu Met  Val Val Gln
    1085                1090                1095

Phe Leu  Arg Asn Phe Gly Lys  Val Leu Gly Phe Asp  Val Asn Ile
    1100                1105                1110

Asp Val  Pro Asn Leu Ser Val  Leu Gln Glu Gly Leu  Leu Asn Ile
    1115                1120                1125

Gly Asp  Ser Met Gly Glu Val  Gln Asp Leu Leu Val  Arg Leu Leu
    1130                1135                1140

Ser Ala  Ala Val Cys Asp Pro  Gly Leu Ile Thr Gly  Tyr Lys Ala
    1145                1150                1155

Lys Thr  Ala Leu Gly Glu His  Leu Leu Asn Val Gly  Val Asn Arg
    1160                1165                1170
```

```
Asp Asn  Val Ser Glu Ile Leu  Gln Ile Phe Met Glu  Ala His Cys
    1175                1180                1185

Gly Gln  Thr Glu Leu Thr Glu  Ser Leu Lys Thr Lys  Ala Phe Gln
    1190                1195                1200

Ala His  Thr Pro Ala Gln Lys  Ala Ser Val Leu Ala  Phe Leu Ile
    1205                1210                1215

Asn Glu  Leu Ala Cys Ser Lys  Ser Val Val Ser Glu  Ile Asp Lys
    1220                1225                1230

Asn Ile  Asp Tyr Met Ser Asn  Leu Arg Arg Asp Lys  Trp Val Val
    1235                1240                1245

Glu Gly  Lys Leu Arg Lys Leu  Arg Ile Ile His Ala  Lys Lys Thr
    1250                1255                1260

Gly Lys  Arg Asp Thr Ser Gly  Gly Ile Asp Leu Gly  Glu Glu Gln
    1265                1270                1275

His Pro  Leu Gly Thr Pro Thr  Pro Gly Arg Lys Arg  Arg Arg Lys
    1280                1285                1290

Gly Gly  Asp Ser Asp Tyr Asp  Asp Asp Asp Asp Asp  Asp Ser Asp
    1295                1300                1305

Asp Gln  Gly Asp Glu Asp Asp  Glu Asp Glu Glu Asp  Lys Glu Asp
    1310                1315                1320

Lys Lys  Gly Lys Lys Thr Asp  Ile Cys Glu Asp Glu  Asp Glu Gly
    1325                1330                1335

Asp Gln  Ala Ala Ser Val Glu  Glu Leu Glu Lys Gln  Ile Glu Lys
    1340                1345                1350

Leu Ser  Lys Gln Gln Ser Gln  Tyr Arg Arg Lys Leu  Phe Asp Ala
    1355                1360                1365

Ser His  Ser Leu Arg Ser Val  Met Phe Gly Gln Asp  Arg Tyr Arg
    1370                1375                1380

Arg Arg  Tyr Trp Ile Leu Pro  Gln Cys Gly Gly Ile  Phe Val Glu
```

1385 1390 1395

Gly Met Glu Ser Gly Glu Gly Leu Glu Glu Ile Ala Lys Glu Arg
1400 1405 1410

Glu Lys Leu Lys Lys Ala Glu Ser Val Gln Ile Lys Glu Glu Met
1415 1420 1425

Phe Glu Thr Ser Gly Asp Ser Leu Asn Cys Ser Asn Thr Asp His
1430 1435 1440

Cys Glu Gln Lys Glu Asp Leu Lys Glu Lys Asp Asn Thr Asn Leu
1445 1450 1455

Phe Leu Gln Lys Pro Gly Ser Phe Ser Lys Leu Ser Lys Leu Leu
1460 1465 1470

Glu Val Ala Lys Met Pro Pro Glu Ser Glu Val Met Thr Pro Lys
1475 1480 1485

Pro Asn Ala Gly Ala Asn Gly Cys Thr Leu Ser Tyr Gln Asn Ser
1490 1495 1500

Gly Lys His Ser Leu Gly Ser Val Gln Ser Thr Ala Thr Gln Ser
1505 1510 1515

Asn Val Glu Lys Ala Asp Ser Asn Asn Leu Phe Asn Thr Gly Ser
1520 1525 1530

Ser Gly Pro Gly Lys Phe Tyr Ser Pro Leu Pro Asn Asp Gln Leu
1535 1540 1545

Leu Lys Thr Leu Thr Glu Lys Asn Arg Gln Trp Phe Ser Leu Leu
1550 1555 1560

Pro Arg Thr Pro Cys Asp Asp Thr Ser Leu Thr His Ala Asp Met
1565 1570 1575

Ser Thr Ala Ser Leu Val Thr Pro Gln Ser Gln Pro Pro Ser Lys
1580 1585 1590

Ser Pro Ser Pro Thr Pro Ala Pro Leu Gly Ser Ser Ala Gln Asn
1595 1600 1605

```
Pro Val  Gly Leu Asn Pro Phe  Ala Leu Ser Pro Leu  Gln Val Lys
    1610                1615                1620

Gly Gly  Val Ser Met Met Gly  Leu Gln Phe Cys Gly  Trp Pro Thr
    1625                1630                1635

Gly Val  Val Thr Ser Asn Ile  Pro Phe Thr Ser Ser  Val Pro Ser
    1640                1645                1650

Leu Gly  Ser Gly Leu Gly Leu  Ser Glu Gly Asn Gly  Asn Ser Phe
    1655                1660                1665

Leu Thr  Ser Asn Val Ala Ser  Ser Lys Ser Glu Ser  Pro Val Pro
    1670                1675                1680

Gln Asn  Glu Lys Ala Thr Ser  Ala Gln Pro Ala Ala  Val Glu Val
    1685                1690                1695

Ala Lys  Pro Val Asp Phe Pro  Ser Pro Lys Pro Ile  Pro Glu Glu
    1700                1705                1710

Met Gln  Phe Gly Trp Trp Arg  Ile Ile Asp Pro Glu  Asp Leu Lys
    1715                1720                1725

Ala Leu  Leu Lys Val Leu His  Leu Arg Gly Ile Arg  Glu Lys Ala
    1730                1735                1740

Leu Gln  Lys Gln Ile Gln Lys  His Leu Asp Tyr Ile  Thr Gln Ala
    1745                1750                1755

Cys Leu  Lys Asn Lys Asp Val  Ala Ile Ile Glu Leu  Asn Glu Asn
    1760                1765                1770

Glu Glu  Asn Gln Val Thr Arg  Asp Ile Val Glu Asn  Trp Ser Val
    1775                1780                1785

Glu Glu  Gln Ala Met Glu Met  Asp Leu Ser Val Leu  Gln Gln Val
    1790                1795                1800

Glu Asp  Leu Glu Arg Arg Val  Ala Ser Ala Ser Leu  Gln Val Lys
    1805                1810                1815
```

```
Gly Trp  Met Cys Pro Glu Pro  Ala Ser Glu Arg Glu  Asp Leu Val
    1820                1825                1830

Tyr Phe  Glu His Lys Ser Phe  Thr Lys Leu Cys Lys  Glu His Asp
    1835                1840                1845

Gly Glu  Phe Thr Gly Glu Asp  Glu Ser Ser Ala His  Ala Leu Glu
    1850                1855                1860

Arg Lys  Ser Asp Asn Pro Leu  Asp Ile Ala Val Thr  Arg Leu Ala
    1865                1870                1875

Asp Leu  Glu Arg Asn Ile Glu  Arg Arg Ile Glu Glu  Asp Ile Ala
    1880                1885                1890

Pro Gly  Leu Arg Val Trp Arg  Arg Ala Leu Ser Glu  Ala Arg Ser
    1895                1900                1905

Ala Ala  Gln Val Ala Leu Cys  Ile Gln Gln Leu Gln  Lys Ser Ile
    1910                1915                1920

Ala Trp  Glu Lys Ser Ile Met  Lys Val Tyr Cys Gln  Ile Cys Arg
    1925                1930                1935

Lys Gly  Asp Asn Glu Glu Leu  Leu Leu Leu Cys Asp  Gly Cys Asp
    1940                1945                1950

Lys Gly  Cys His Thr Tyr Cys  His Arg Pro Lys Ile  Thr Thr Ile
    1955                1960                1965

Pro Asp  Gly Asp Trp Phe Cys  Pro Ala Cys Ile Ala  Lys Ala Ser
    1970                1975                1980

Gly Gln  Thr Leu Lys Ile Lys  Lys Leu His Val Lys  Gly Lys Lys
    1985                1990                1995

Thr Asn  Glu Ser Lys Lys Gly  Lys Lys Val Thr Leu  Thr Gly Asp
    2000                2005                2010

Thr Glu  Asp Glu Asp Ser Ala  Ser Thr Ser Ser Ser  Leu Lys Arg
    2015                2020                2025
```

```
Gly Asn  Lys Asp Leu Lys Lys  Arg Lys Met Glu Glu  Asn Thr Ser
    2030                 2035                 2040

Ile Asn  Leu Ser Lys Gln Glu  Ser Phe Thr Ser Val  Lys Lys Pro
    2045                 2050                 2055

Lys Arg  Asp Asp Ser Lys Asp  Leu Ala Leu Cys Ser  Met Ile Leu
    2060                 2065                 2070

Thr Glu  Met Glu Thr His Glu  Asp Ala Trp Pro Phe  Leu Leu Pro
    2075                 2080                 2085

Val Asn  Leu Lys Leu Val Pro  Gly Tyr Lys Lys Val  Ile Lys Lys
    2090                 2095                 2100

Pro Met  Asp Phe Ser Thr Ile  Arg Glu Lys Leu Ser  Ser Gly Gln
    2105                 2110                 2115

Tyr Pro  Asn Leu Glu Thr Phe  Ala Leu Asp Val Arg  Leu Val Phe
    2120                 2125                 2130

Asp Asn  Cys Glu Thr Phe Asn  Glu Asp Asp Ser Asp  Ile Gly Arg
    2135                 2140                 2145

Ala Gly  His Asn Met Arg Lys  Tyr Phe Glu Lys Lys  Trp Thr Asp
    2150                 2155                 2160

Thr Phe  Lys Val Ser
    2165
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<210> 9746
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1975; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2B; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain adjacent to zinc finger domain, 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393565"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9746
Xaa Asn Asn Val Asn Pro Val Lys Thr Gln His His Ser His Pro Ala
1 5 10 15

Lys Ser Leu Val Glu Gln Phe Arg Gly Thr Asp Ser Asp Ile Pro Ser
20 25 30

Ser Lys Asp Ser Glu Asp Ser Asn Glu Asp Glu Glu Glu Asp Asp Glu
35 40 45

Glu Glu Asp Glu Glu Asp Asp Glu Asp Asp Glu Ser Asp Asp Ser Gln
50 55 60

Ser Gly Thr Ser Lys Arg Arg Arg Val Thr Asp Glu Arg Glu Leu Arg
65 70 75 80

Ile Pro Leu Glu Tyr Gly Trp Gln Arg Glu Thr Arg Ile Arg Asn Phe
85 90 95

Gly Gly Arg Leu Gln Gly Glu Val Ala Tyr Tyr Ala Pro Cys Gly Lys
100 105 110

Lys Leu Arg Gln Tyr Pro Glu Val Ile Lys Tyr Leu Ser Arg Asn Gly
115 120 125

Ile Met Asp Ile Ser Arg Asp Asn Phe Ser Phe Ser Ala Lys Ile Arg
130 135 140

Val Gly Asp Phe Tyr Glu Ala Arg Asp Gly Pro Gln Gly Met Gln Trp
145 150 155 160

Cys Leu Leu Lys Glu Glu Asp Val Ile Pro Arg Ile Arg Ala Met Glu
165 170 175

Gly Arg Arg Gly Arg Pro Pro Asn Pro Asp Arg Gln Arg Ala Arg Glu

180 185 190

Glu Ser

<210> 9747
<211> 179
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1975; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2B; "

<220>
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<223> /note="Gene Name:
bromodomain adjacent to zinc finger domain, 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400505"

<400> 9747
Val Glu Asn Trp Ser Val Glu Glu Gln Ala Met Glu Met Asp Leu Ser
1 5 10 15

Val Leu Gln Gln Val Glu Asp Leu Glu Arg Arg Val Ala Ser Ala Ser
20 25 30

Leu Gln Val Lys Gly Trp Met Cys Pro Glu Pro Ala Ser Glu Arg Glu
35 40 45

Asp Leu Val Tyr Phe Glu His Lys Ser Phe Thr Lys Leu Cys Lys Glu
50 55 60

His Asp Gly Glu Phe Thr Gly Glu Asp Glu Ser Ser Ala His Ala Leu
65 70 75 80

Glu Arg Lys Ser Asp Asn Pro Leu Asp Ile Ala Val Thr Arg Leu Ala
85 90 95

Asp Leu Glu Arg Asn Ile Glu Arg Arg Tyr Leu Lys Ser Pro Leu Ser
100 105 110

```
Thr Thr Ile Gln Ile Lys Leu Asp Asn Val Gly Thr Val Thr Val Pro
        115                 120                 125

Ala Pro Ala Pro Ser Val Ser Gly Asp Gly Asp Gly Ile Glu Glu Asp
    130                 135                 140

Ile Ala Pro Gly Leu Arg Val Trp Arg Arg Ala Leu Ser Glu Ala Arg
145                 150                 155                 160

Ser Ala Ala Gln Val Ala Leu Cys Ile Gln Gln Leu Gln Lys Ser Ile
                165                 170                 175

Ala Trp Glu
```

<210> 9748
<211> 142
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1975; "

<220>
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<223> /note="Gene Symbol: BAZ2B; "

<220>
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<223> /note="Gene Name:
bromodomain adjacent to zinc finger domain, 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415613"

<400> 9748

```
Met Glu Ser Gly Glu Arg Leu Pro Ser Ser Ala Ala Ser Ser Thr Thr
1               5                   10                  15

Pro Thr Ser Ser Ser Thr Pro Ser Val Ala Ser Val Val Ser Lys Gly
            20                  25                  30

Gly Leu Ser Thr Gly Val Ala Ser Leu Ser Ser Thr Ile Asn Pro Cys
        35                  40                  45

Gly His Leu Phe Arg Thr Ala Gly Asp Gln Pro Phe Asn Leu Ser Thr
```

```
    50                  55                  60

Val Ser Ser Ala Phe Pro Met Val Ser His Pro Val Phe Gly Leu His
65                  70                  75                  80

Ser Ala Ser Ser Gly His Ser Glu Phe Gly Gly Leu Gly Thr Leu Gly
                85                  90                  95

Thr Pro Thr Ala Leu Ala Ala His Pro Gln Leu Ala Ser Phe Pro Gly
            100                 105                 110

Ala Glu Trp Trp Arg Thr Thr Asp Ala His Thr Arg Thr Gly Ala Thr
        115                 120                 125

Phe Phe Pro Pro Leu Leu Gly Ile Pro Pro Leu Phe Ala Pro
    130                 135                 140


<210> 9749
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1975; "

<220>
<221> source
<223> /note="Gene Symbol: BAZ2B; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain adjacent to zinc finger domain, 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441341"

<400> 9749
Met Glu Ser Gly Glu Arg Leu Pro Ser Ser Ala Ala Ser Ser Thr Thr
1               5                   10                  15

Pro Thr Ser Ser Ser Thr Pro Ser Val Ala Ser Val Val Ser Lys Gly
            20                  25                  30

Gly Leu Ser Thr Gly Val Ala Ser Leu Ser Ser Thr Ile Asn Pro Cys
        35                  40                  45
```

```
Gly Val Asn Gly Ser Ile Asn Gly Ser Asn Thr Ser Ser Val Ile Gly
    50                  55                  60

Ile Asn Thr Ser Val Leu Ser Thr Thr Ala Ser Ser Ser Met Gly Gln
65                  70                  75                  80

Thr Lys Ser Thr Ser Ser Gly Gly Gly Asn Arg Lys Cys Asn Gln
                85                  90                  95

<210> 9750
<211> 1220
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1976; "

<220>
<221> source
<223> /note="Gene Symbol: BRPF1; "

<220>
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<223> /note="Gene Name:
      bromodomain and PHD finger containing, 1; "

<220>
<221> source
<223> /note="Uniprot ID:  P55201; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000373340"

<400> 9750
Met Gly Val Asp Phe Asp Val Lys Thr Phe Cys His Asn Leu Arg Ala
1               5                   10                  15

Thr Lys Pro Pro Tyr Glu Cys Pro Val Glu Thr Cys Arg Lys Val Tyr
            20                  25                  30

Lys Ser Tyr Ser Gly Ile Glu Tyr His Leu Tyr His Tyr Asp His Asp
        35                  40                  45

Asn Pro Pro Pro Pro Gln Gln Thr Pro Leu Arg Lys His Lys Lys Lys
    50                  55                  60

Gly Arg Gln Ser Arg Pro Ala Asn Lys Gln Ser Pro Ser Pro Ser Glu
```

65 70 75 80

Val Ser Gln Ser Pro Gly Arg Glu Val Met Ser Tyr Ala Gln Ala Gln
85 90 95

Arg Met Val Glu Val Asp Leu His Gly Arg Val His Arg Ile Ser Ile
100 105 110

Phe Asp Asn Leu Asp Val Val Ser Glu Asp Glu Glu Ala Pro Glu Glu
115 120 125

Ala Pro Glu Asn Gly Ser Asn Lys Glu Asn Thr Glu Thr Pro Ala Ala
130 135 140

Thr Pro Lys Ser Gly Lys His Lys Asn Lys Glu Lys Arg Lys Asp Ser
145 150 155 160

Asn His His His His His Asn Val Ser Ala Ser Thr Thr Pro Lys Leu
165 170 175

Pro Glu Val Val Tyr Arg Glu Leu Glu Gln Asp Thr Pro Asp Ala Pro
180 185 190

Pro Arg Pro Thr Ser Tyr Tyr Arg Tyr Ile Glu Lys Ser Ala Glu Glu
195 200 205

Leu Asp Glu Glu Val Glu Tyr Asp Met Asp Glu Glu Asp Tyr Ile Trp
210 215 220

Leu Asp Ile Met Asn Glu Arg Arg Lys Thr Glu Gly Val Ser Pro Ile
225 230 235 240

Pro Gln Glu Ile Phe Glu Tyr Leu Met Asp Arg Leu Glu Lys Glu Ser
245 250 255

Tyr Phe Glu Ser His Asn Lys Gly Asp Pro Asn Ala Leu Val Asp Glu
260 265 270

Asp Ala Val Cys Cys Ile Cys Asn Asp Gly Glu Cys Gln Asn Ser Asn
275 280 285

Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala Val His Gln Glu Cys
290 295 300

```
Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys Arg Arg Cys
305                 310                 315                 320

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

Gly Gly Ala Phe Lys Gln Thr Asp Asp Gly Arg Trp Ala His Val Val
            340                 345                 350

Cys Ala Leu Trp Ile Pro Glu Val Cys Phe Ala Asn Thr Val Phe Leu
        355                 360                 365

Glu Pro Ile Asp Ser Ile Glu His Ile Pro Pro Ala Arg Trp Lys Leu
    370                 375                 380

Thr Cys Tyr Ile Cys Lys Gln Arg Gly Ser Gly Ala Cys Ile Gln Cys
385                 390                 395                 400

His Lys Ala Asn Cys Tyr Thr Ala Phe His Val Thr Cys Ala Gln Gln
                405                 410                 415

Ala Gly Leu Tyr Met Lys Met Glu Pro Val Arg Glu Thr Gly Ala Asn
            420                 425                 430

Gly Thr Ser Phe Ser Val Arg Lys Thr Ala Tyr Cys Asp Ile His Thr
        435                 440                 445

Pro Pro Gly Ser Ala Arg Arg Leu Pro Ala Leu Ser His Ser Glu Gly
    450                 455                 460

Glu Glu Asp Glu Asp Glu Glu Glu Asp Glu Gly Lys Gly Trp Ser Ser
465                 470                 475                 480

Glu Lys Val Lys Lys Ala Lys Ala Lys Ser Arg Ile Lys Met Lys Lys
                485                 490                 495

Ala Arg Lys Ile Leu Ala Glu Lys Arg Ala Ala Ala Pro Val Val Ser
            500                 505                 510

Val Pro Cys Ile Pro Pro His Arg Leu Ser Lys Ile Thr Asn Arg Leu
        515                 520                 525
```

```
Thr Ile Gln Arg Lys Ser Gln Phe Met Gln Arg Leu His Ser Tyr Trp
    530                 535                 540

Thr Leu Lys Arg Gln Ser Arg Asn Gly Val Pro Leu Leu Arg Arg Leu
545                 550                 555                 560

Gln Thr His Leu Gln Ser Gln Arg Asn Cys Asp Gln Val Gly Arg Asp
                565                 570                 575

Ser Glu Asp Lys Asn Trp Ala Leu Lys Glu Gln Leu Lys Ser Trp Gln
            580                 585                 590

Arg Leu Arg His Asp Leu Glu Arg Ala Arg Leu Leu Val Glu Leu Ile
        595                 600                 605

Arg Lys Arg Glu Lys Leu Lys Arg Glu Thr Ile Lys Val Gln Gln Ile
    610                 615                 620

Ala Met Glu Met Gln Leu Thr Pro Phe Leu Ile Leu Leu Arg Lys Thr
625                 630                 635                 640

Leu Glu Gln Leu Gln Glu Lys Asp Thr Gly Asn Ile Phe Ser Glu Pro
                645                 650                 655

Val Pro Leu Ser Glu Val Thr Glu Leu Asp Glu Val Pro Asp Tyr Leu
            660                 665                 670

Asp His Ile Lys Lys Pro Met Asp Phe Phe Thr Met Lys Gln Asn Leu
        675                 680                 685

Glu Ala Tyr Arg Tyr Leu Asn Phe Asp Asp Phe Glu Glu Asp Phe Asn
    690                 695                 700

Leu Ile Val Ser Asn Cys Leu Lys Tyr Asn Ala Lys Asp Thr Ile Phe
705                 710                 715                 720

Tyr Arg Ala Ala Val Arg Leu Arg Glu Gln Gly Gly Ala Val Leu Arg
                725                 730                 735

Gln Ala Arg Arg Gln Ala Glu Lys Met Gly Ile Asp Phe Glu Thr Gly
            740                 745                 750
```

```
Met His Ile Pro His Ser Leu Ala Gly Asp Glu Ala Thr His His Thr
        755                 760                 765

Glu Asp Ala Ala Glu Glu Glu Arg Leu Val Leu Leu Glu Asn Gln Lys
    770                 775                 780

His Leu Pro Val Glu Glu Gln Leu Lys Leu Leu Leu Glu Arg Leu Asp
785                 790                 795                 800

Glu Val Asn Ala Ser Lys Gln Ser Val Gly Arg Ser Arg Arg Ala Lys
                805                 810                 815

Met Ile Lys Lys Glu Met Thr Ala Leu Arg Arg Lys Leu Ala His Gln
            820                 825                 830

Arg Glu Thr Gly Arg Asp Gly Pro Glu Arg His Gly Pro Ser Ser Arg
        835                 840                 845

Gly Ser Leu Thr Pro His Pro Ala Ala Cys Asp Lys Asp Gly Gln Thr
    850                 855                 860

Asp Ser Ala Ala Glu Glu Ser Ser Ser Gln Glu Thr Ser Lys Gly Leu
865                 870                 875                 880

Gly Pro Asn Met Ser Ser Thr Pro Ala His Glu Val Gly Arg Arg Thr
                885                 890                 895

Ser Val Leu Phe Ser Lys Lys Asn Pro Lys Thr Ala Gly Pro Pro Lys
            900                 905                 910

Arg Pro Gly Arg Pro Pro Lys Asn Arg Glu Ser Gln Met Thr Pro Ser
        915                 920                 925

His Gly Gly Ser Pro Val Gly Pro Pro Gln Leu Pro Ile Met Ser Ser
    930                 935                 940

Leu Arg Gln Arg Lys Arg Gly Arg Ser Pro Arg Pro Ser Ser Ser Ser
945                 950                 955                 960

Asp Ser Asp Ser Asp Lys Ser Thr Glu Asp Pro Pro Met Asp Leu Pro
                965                 970                 975

Ala Asn Gly Phe Ser Gly Gly Asn Gln Pro Val Lys Lys Ser Phe Leu
```

980 985 990

Val Tyr Arg Asn Asp Cys Ser Leu Pro Arg Ser Ser Ser Asp Ser Glu
995 1000 1005

Ser Ser Ser Ser Ser Ser Ser Ser Ala Ala Ser Asp Arg Thr Ser
1010 1015 1020

Thr Thr Pro Ser Lys Gln Gly Arg Gly Lys Pro Ser Phe Ser Arg
1025 1030 1035

Gly Thr Phe Pro Glu Asp Ser Ser Glu Asp Thr Ser Gly Thr Glu
1040 1045 1050

Asn Glu Ala Tyr Ser Val Gly Thr Gly Arg Gly Val Gly His Ser
1055 1060 1065

Met Val Arg Lys Ser Leu Gly Arg Gly Ala Gly Trp Leu Ser Glu
1070 1075 1080

Asp Glu Asp Ser Pro Leu Asp Ala Leu Asp Leu Val Trp Ala Lys
1085 1090 1095

Cys Arg Gly Tyr Pro Ser Tyr Pro Ala Leu Ile Ile Asp Pro Lys
1100 1105 1110

Met Pro Arg Glu Gly Met Phe His His Gly Val Pro Ile Pro Val
1115 1120 1125

Pro Pro Leu Glu Val Leu Lys Leu Gly Glu Gln Met Thr Gln Glu
1130 1135 1140

Ala Arg Glu His Leu Tyr Leu Val Leu Phe Phe Asp Asn Lys Arg
1145 1150 1155

Thr Trp Gln Trp Leu Pro Arg Thr Lys Leu Val Pro Leu Gly Val
1160 1165 1170

Asn Gln Asp Leu Asp Lys Glu Lys Met Leu Glu Gly Arg Lys Ser
1175 1180 1185

Asn Ile Arg Lys Ser Val Gln Ile Ala Tyr His Arg Ala Leu Gln

```
    1190                1195                1200

His Arg  Ser Lys Val Gln Gly  Glu Gln Ser Ser Glu  Thr Ser Asp
    1205                1210                1215

Ser Asp
    1220
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<210> 9751
<211> 1213
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1976; "

<220>
<221> source
<223> /note="Gene Symbol: BRPF1; "

<220>
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<223> /note="Gene Name:
bromodomain and PHD finger containing, 1; "

<220>
<221> source
<223> /note="Uniprot ID: P55201; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398863"

<400> 9751

```
Met Gly Val Asp Phe Asp Val Lys Thr Phe Cys His Asn Leu Arg Ala
1               5                   10                  15

Thr Lys Pro Pro Tyr Glu Cys Pro Val Glu Thr Cys Arg Lys Val Tyr
            20                  25                  30

Lys Ser Tyr Ser Gly Ile Glu Tyr His Leu Tyr His Tyr Asp His Asp
        35                  40                  45

Asn Pro Pro Pro Pro Gln Gln Thr Pro Leu Arg Lys His Lys Lys Lys
    50                  55                  60

Gly Arg Gln Ser Arg Pro Ala Asn Lys Gln Ser Pro Ser Pro Ser Glu
65                  70                  75                  80
```

```
Val Ser Gln Ser Pro Gly Arg Glu Val Met Ser Tyr Ala Gln Ala Gln
                85                  90                  95

Arg Met Val Glu Val Asp Leu His Gly Arg Val His Arg Ile Ser Ile
            100                 105                 110

Phe Asp Asn Leu Asp Val Val Ser Glu Asp Glu Glu Ala Pro Glu Glu
        115                 120                 125

Ala Pro Glu Asn Gly Ser Asn Lys Glu Asn Thr Glu Thr Pro Ala Ala
    130                 135                 140

Thr Pro Lys Ser Gly Lys His Lys Asn Lys Glu Lys Arg Lys Asp Ser
145                 150                 155                 160

Asn His His His His His Asn Val Ser Ala Ser Thr Thr Pro Lys Leu
                165                 170                 175

Pro Glu Val Val Tyr Arg Glu Leu Glu Gln Asp Thr Pro Asp Ala Pro
            180                 185                 190

Pro Arg Pro Thr Ser Tyr Tyr Arg Tyr Ile Glu Lys Ser Ala Glu Glu
        195                 200                 205

Leu Asp Glu Glu Val Glu Tyr Asp Met Asp Glu Glu Asp Tyr Ile Trp
    210                 215                 220

Leu Asp Ile Met Asn Glu Arg Arg Lys Thr Glu Gly Val Ser Pro Ile
225                 230                 235                 240

Pro Gln Glu Ile Phe Glu Tyr Leu Met Asp Arg Leu Glu Lys Glu Ser
                245                 250                 255

Tyr Phe Glu Ser His Asn Lys Gly Asp Pro Asn Ala Leu Val Asp Glu
            260                 265                 270

Asp Ala Val Cys Cys Ile Cys Asn Asp Gly Glu Cys Gln Asn Ser Asn
        275                 280                 285

Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala Val His Gln Glu Cys
    290                 295                 300
```

```
Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys Arg Arg Cys
305                 310                 315                 320

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

Gly Gly Ala Phe Lys Gln Thr Asp Asp Gly Arg Trp Ala His Val Val
            340                 345                 350

Cys Ala Leu Trp Ile Pro Glu Val Cys Phe Ala Asn Thr Val Phe Leu
        355                 360                 365

Glu Pro Ile Asp Ser Ile Glu His Ile Pro Pro Ala Arg Trp Lys Leu
    370                 375                 380

Thr Cys Tyr Ile Cys Lys Gln Arg Gly Ser Gly Ala Cys Ile Gln Cys
385                 390                 395                 400

His Lys Ala Asn Cys Tyr Thr Ala Phe His Val Thr Cys Ala Gln Gln
                405                 410                 415

Ala Gly Leu Tyr Met Lys Met Glu Pro Val Arg Glu Thr Gly Ala Asn
            420                 425                 430

Gly Thr Ser Phe Ser Val Arg Lys Thr Ala Tyr Cys Asp Ile His Thr
        435                 440                 445

Pro Pro Gly Ser Ala Arg Arg Leu Pro Ala Leu Ser His Ser Glu Gly
    450                 455                 460

Glu Glu Asp Glu Asp Glu Glu Glu Asp Glu Gly Lys Gly Trp Ser Ser
465                 470                 475                 480

Glu Lys Val Lys Lys Ala Lys Ala Lys Ser Arg Ile Lys Met Lys Lys
                485                 490                 495

Ala Arg Lys Ile Leu Ala Glu Lys Arg Ala Ala Ala Pro Val Val Ser
            500                 505                 510

Val Pro Cys Ile Pro Pro His Arg Leu Ser Lys Ile Thr Asn Arg Leu
        515                 520                 525

Thr Ile Gln Arg Lys Ser Gln Phe Met Gln Arg Leu His Ser Tyr Trp
```

```
    530                 535                 540

Thr Leu Lys Arg Gln Ser Arg Asn Gly Val Pro Leu Leu Arg Arg Leu
545                 550                 555                 560

Gln Thr His Leu Gln Ser Gln Arg Asn Cys Asp Gln Val Gly Arg Asp
                565                 570                 575

Ser Glu Asp Lys Asn Trp Ala Leu Lys Glu Gln Leu Lys Ser Trp Gln
            580                 585                 590

Arg Leu Arg His Asp Leu Glu Arg Ala Arg Leu Leu Val Glu Leu Ile
        595                 600                 605

Arg Lys Arg Glu Lys Leu Lys Arg Glu Thr Ile Lys Val Gln Gln Ile
    610                 615                 620

Ala Met Glu Met Gln Leu Thr Pro Phe Leu Ile Leu Leu Arg Lys Thr
625                 630                 635                 640

Leu Glu Gln Leu Gln Glu Lys Asp Thr Gly Asn Ile Phe Ser Glu Pro
                645                 650                 655

Val Pro Leu Ser Glu Val Pro Asp Tyr Leu Asp His Ile Lys Lys Pro
            660                 665                 670

Met Asp Phe Phe Thr Met Lys Gln Asn Leu Glu Ala Tyr Arg Tyr Leu
        675                 680                 685

Asn Phe Asp Asp Phe Glu Glu Asp Phe Asn Leu Ile Val Ser Asn Cys
    690                 695                 700

Leu Lys Tyr Asn Ala Lys Asp Thr Ile Phe Tyr Arg Ala Ala Val Arg
705                 710                 715                 720

Leu Arg Glu Gln Gly Gly Ala Val Leu Arg Gln Ala Arg Arg Gln Ala
                725                 730                 735

Glu Lys Met Gly Ile Asp Phe Glu Thr Gly Met His Ile Pro His Ser
            740                 745                 750

Leu Ala Gly Asp Glu Ala Thr His His Thr Glu Asp Ala Glu Glu Glu
        755                 760                 765
```

```
Arg Leu Val Leu Leu Glu Asn Gln Lys His Leu Pro Val Glu Glu Gln
    770                 775                 780

Leu Lys Leu Leu Leu Glu Arg Leu Asp Glu Val Asn Ala Ser Lys Gln
785                 790                 795                 800

Ser Val Gly Arg Ser Arg Arg Ala Lys Met Ile Lys Lys Glu Met Thr
                805                 810                 815

Ala Leu Arg Arg Lys Leu Ala His Gln Arg Glu Thr Gly Arg Asp Gly
            820                 825                 830

Pro Glu Arg His Gly Pro Ser Ser Arg Gly Ser Leu Thr Pro His Pro
        835                 840                 845

Ala Ala Cys Asp Lys Asp Gly Gln Thr Asp Ser Ala Ala Glu Glu Ser
    850                 855                 860

Ser Ser Gln Glu Thr Ser Lys Gly Leu Gly Pro Asn Met Ser Ser Thr
865                 870                 875                 880

Pro Ala His Glu Val Gly Arg Arg Thr Ser Val Leu Phe Ser Lys Lys
                885                 890                 895

Asn Pro Lys Thr Ala Gly Pro Pro Lys Arg Pro Gly Arg Pro Pro Lys
            900                 905                 910

Asn Arg Glu Ser Gln Met Thr Pro Ser His Gly Gly Ser Pro Val Gly
        915                 920                 925

Pro Pro Gln Leu Pro Ile Met Ser Ser Leu Arg Gln Arg Lys Arg Gly
    930                 935                 940

Arg Ser Pro Arg Pro Ser Ser Ser Ser Asp Ser Asp Ser Asp Lys Ser
945                 950                 955                 960

Thr Glu Asp Pro Pro Met Asp Leu Pro Ala Asn Gly Phe Ser Gly Gly
                965                 970                 975

Asn Gln Pro Val Lys Lys Ser Phe Leu Val Tyr Arg Asn Asp Cys Ser
            980                 985                 990
```

Leu Pro Arg Ser Ser Ser Asp Ser Glu Ser Ser Ser Ser Ser Ser Ser
995 1000 1005

Ser Ala Ala Ser Asp Arg Thr Ser Thr Thr Pro Ser Lys Gln Gly
1010 1015 1020

Arg Gly Lys Pro Ser Phe Ser Arg Gly Thr Phe Pro Glu Asp Ser
1025 1030 1035

Ser Glu Asp Thr Ser Gly Thr Glu Asn Glu Ala Tyr Ser Val Gly
1040 1045 1050

Thr Gly Arg Gly Val Gly His Ser Met Val Arg Lys Ser Leu Gly
1055 1060 1065

Arg Gly Ala Gly Trp Leu Ser Glu Asp Glu Asp Ser Pro Leu Asp
1070 1075 1080

Ala Leu Asp Leu Val Trp Ala Lys Cys Arg Gly Tyr Pro Ser Tyr
1085 1090 1095

Pro Ala Leu Ile Ile Asp Pro Lys Met Pro Arg Glu Gly Met Phe
1100 1105 1110

His His Gly Val Pro Ile Pro Val Pro Pro Leu Glu Val Leu Lys
1115 1120 1125

Leu Gly Glu Gln Met Thr Gln Glu Ala Arg Glu His Leu Tyr Leu
1130 1135 1140

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

Thr Lys Leu Val Pro Leu Gly Val Asn Gln Asp Leu Asp Lys Glu
1160 1165 1170

Lys Met Leu Glu Gly Arg Lys Ser Asn Ile Arg Lys Ser Val Gln
1175 1180 1185

Ile Ala Tyr His Arg Ala Leu Gln His Arg Ser Lys Val Gln Gly
1190 1195 1200

Glu Gln Ser Ser Glu Thr Ser Asp Ser Asp
    1205   1210

<210> 9752
<211> 1119
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Met Gly Val Asp Phe Asp Val Lys Thr Phe Cys His Asn Leu Arg Ala
1   5   10   15

Thr Lys Pro Pro Tyr Glu Cys Pro Val Glu Thr Cys Arg Lys Val Tyr
            20   25   30

Lys Ser Tyr Ser Gly Ile Glu Tyr His Leu Tyr His Tyr Asp His Asp
        35   40   45

Asn Pro Pro Pro Pro Gln Gln Thr Pro Leu Arg Lys His Lys Lys Lys
    50   55   60

Gly Arg Gln Ser Arg Pro Ala Asn Lys Gln Ser Pro Ser Pro Ser Glu
65   70   75   80

Val Ser Gln Ser Pro Gly Arg Glu Val Met Ser Tyr Ala Gln Ala Gln
                85   90   95

Arg Met Val Glu Val Asp Leu His Gly Arg Val His Arg Ile Ser Ile

```
            100                 105                 110

Phe Asp Asn Leu Asp Val Val Ser Glu Asp Glu Glu Ala Pro Glu Glu
        115                 120                 125

Ala Pro Glu Asn Gly Ser Asn Lys Glu Asn Thr Glu Thr Pro Ala Ala
    130                 135                 140

Thr Pro Lys Ser Gly Lys His Lys Asn Lys Glu Lys Arg Lys Asp Ser
145                 150                 155                 160

Asn His His His His His Asn Val Ser Ala Ser Thr Thr Pro Lys Leu
                165                 170                 175

Pro Glu Val Val Tyr Arg Glu Leu Glu Gln Asp Thr Pro Asp Ala Pro
            180                 185                 190

Pro Arg Pro Thr Ser Tyr Tyr Arg Tyr Ile Glu Lys Ser Ala Glu Glu
        195                 200                 205

Leu Asp Glu Glu Val Glu Tyr Asp Met Asp Glu Glu Asp Tyr Ile Trp
    210                 215                 220

Leu Asp Ile Met Asn Glu Arg Arg Lys Thr Glu Gly Val Ser Pro Ile
225                 230                 235                 240

Pro Gln Glu Ile Phe Glu Tyr Leu Met Asp Arg Leu Glu Lys Glu Ser
                245                 250                 255

Tyr Phe Glu Ser His Asn Lys Gly Asp Pro Asn Ala Leu Val Asp Glu
            260                 265                 270

Asp Ala Val Cys Cys Ile Cys Asn Asp Gly Glu Cys Gln Asn Ser Asn
        275                 280                 285

Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala Val His Gln Glu Cys
    290                 295                 300

Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys Arg Arg Cys
305                 310                 315                 320

Leu Gln Ser Pro Ser Arg Ala Val Asp Cys Ala Leu Cys Pro Asn Lys
                325                 330                 335
```

```
Gly Gly Ala Phe Lys Gln Thr Asp Asp Gly Arg Trp Ala His Val Val
            340                 345                 350

Cys Ala Leu Trp Ile Pro Glu Val Cys Phe Ala Asn Thr Val Phe Leu
        355                 360                 365

Glu Pro Ile Asp Ser Ile Glu His Ile Pro Pro Ala Arg Trp Lys Leu
    370                 375                 380

Thr Cys Tyr Ile Cys Lys Gln Arg Gly Ser Gly Ala Cys Ile Gln Cys
385                 390                 395                 400

His Lys Ala Asn Cys Tyr Thr Ala Phe His Val Thr Cys Ala Gln Gln
                405                 410                 415

Ala Gly Leu Tyr Met Lys Met Glu Pro Val Arg Glu Thr Gly Ala Asn
            420                 425                 430

Gly Thr Ser Phe Ser Val Arg Lys Thr Ala Tyr Cys Asp Ile His Thr
        435                 440                 445

Pro Pro Gly Ser Ala Arg Arg Leu Pro Ala Leu Ser His Ser Glu Gly
    450                 455                 460

Glu Glu Asp Glu Asp Glu Glu Glu Asp Glu Gly Lys Gly Trp Ser Ser
465                 470                 475                 480

Glu Lys Val Lys Lys Ala Lys Ala Lys Ser Arg Ile Lys Met Lys Lys
                485                 490                 495

Ala Arg Lys Ile Leu Ala Glu Lys Arg Ala Ala Ala Pro Val Val Ser
            500                 505                 510

Val Pro Cys Ile Pro Pro His Arg Leu Ser Lys Ile Thr Asn Arg Leu
        515                 520                 525

Thr Ile Gln Arg Lys Ser Gln Phe Met Gln Arg Leu His Ser Tyr Trp
    530                 535                 540

Thr Leu Lys Arg Gln Ser Arg Asn Gly Val Pro Leu Leu Arg Arg Leu
545                 550                 555                 560
```

```
Gln Thr His Leu Gln Ser Gln Arg Asn Cys Asp Gln Val Gly Arg Asp
                565                 570                 575

Ser Glu Asp Lys Asn Trp Ala Leu Lys Glu Gln Leu Lys Ser Trp Gln
            580                 585                 590

Arg Leu Arg His Asp Leu Glu Arg Ala Arg Leu Leu Val Glu Leu Ile
        595                 600                 605

Arg Lys Arg Glu Lys Leu Lys Arg Glu Thr Ile Lys Val Gln Gln Ile
    610                 615                 620

Ala Met Glu Met Gln Leu Thr Pro Phe Leu Ile Leu Leu Arg Lys Thr
625                 630                 635                 640

Leu Glu Gln Leu Gln Glu Lys Asp Thr Gly Asn Ile Phe Ser Glu Pro
                645                 650                 655

Val Pro Leu Ser Glu Val Pro Asp Tyr Leu Asp His Ile Lys Lys Pro
            660                 665                 670

Met Asp Phe Phe Thr Met Lys Gln Asn Leu Glu Ala Tyr Arg Tyr Leu
        675                 680                 685

Asn Phe Asp Asp Phe Glu Glu Asp Phe Asn Leu Ile Val Ser Asn Cys
    690                 695                 700

Leu Lys Tyr Asn Ala Lys Asp Thr Ile Phe Tyr Arg Ala Ala Val Arg
705                 710                 715                 720

Leu Arg Glu Gln Gly Gly Ala Val Leu Arg Gln Ala Arg Arg Gln Ala
                725                 730                 735

Glu Lys Met Gly Ile Asp Phe Glu Thr Gly Met His Ile Pro His Ser
            740                 745                 750

Leu Ala Gly Asp Glu Ala Thr His His Thr Glu Asp Ala Ala Glu Glu
        755                 760                 765

Glu Arg Leu Val Leu Leu Glu Asn Gln Lys His Leu Pro Val Glu Glu
    770                 775                 780
```

```
Gln Leu Lys Leu Leu Leu Glu Arg Leu Asp Glu Val Asn Ala Ser Lys
785                 790                 795                 800

Gln Ser Val Gly Arg Ser Arg Arg Ala Lys Met Ile Lys Lys Glu Met
                805                 810                 815

Thr Ala Leu Arg Arg Lys Leu Ala His Gln Arg Glu Thr Gly Arg Asp
            820                 825                 830

Gly Pro Glu Arg His Gly Pro Ser Ser Arg Gly Ser Leu Thr Pro His
        835                 840                 845

Pro Ala Ala Cys Asp Lys Asp Gly Gln Thr Asp Ser Ala Ala Glu Glu
    850                 855                 860

Ser Ser Ser Gln Glu Thr Ser Lys Asp Leu Pro Ala Asn Gly Phe Ser
865                 870                 875                 880

Gly Gly Asn Gln Pro Val Lys Lys Ser Phe Leu Val Tyr Arg Asn Asp
                885                 890                 895

Cys Ser Leu Pro Arg Ser Ser Ser Asp Ser Glu Ser Ser Ser Ser Ser
            900                 905                 910

Ser Ser Ser Ala Ala Ser Asp Arg Thr Ser Thr Thr Pro Ser Lys Gln
        915                 920                 925

Gly Arg Gly Lys Pro Ser Phe Ser Arg Gly Thr Phe Pro Glu Asp Ser
    930                 935                 940

Ser Glu Asp Thr Ser Gly Thr Glu Asn Glu Ala Tyr Ser Val Gly Thr
945                 950                 955                 960

Gly Arg Gly Val Gly His Ser Met Val Arg Lys Ser Leu Gly Arg Gly
                965                 970                 975

Ala Gly Trp Leu Ser Glu Asp Glu Asp Ser Pro Leu Asp Ala Leu Asp
            980                 985                 990

Leu Val Trp Ala Lys Cys Arg Gly  Tyr Pro Ser Tyr Pro  Ala Leu
Ile
        995                 1000                1005
```

```
Ile Asp  Pro Lys Met Pro Arg  Glu Gly Met Phe His  His Gly Val
    1010                1015                1020

Pro Ile  Pro Val Pro Pro Leu  Glu Val Leu Lys Leu  Gly Glu Gln
    1025                1030                1035

Met Thr  Gln Glu Ala Arg Glu  His Leu Tyr Leu Val  Leu Phe Phe
    1040                1045                1050

Asp Asn  Lys Arg Thr Trp Gln  Trp Leu Pro Arg Thr  Lys Leu Val
    1055                1060                1065

Pro Leu  Gly Val Asn Gln Asp  Leu Asp Lys Glu Lys  Met Leu Glu
    1070                1075                1080

Gly Arg  Lys Ser Asn Ile Arg  Lys Ser Val Gln Ile  Ala Tyr His
    1085                1090                1095

Arg Ala  Leu Gln His Arg Ser  Lys Val Gln Gly Glu  Gln Ser Ser
    1100                1105                1110

Glu Thr  Ser Asp Ser Asp
    1115
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<210> 9753
<211> 105
<212> PRT
<213> Homo sapiens

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bromodomain and PHD finger containing, 1; "

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<400> 9753

```
Met Gly Val Asp Phe Asp Val Lys Thr Phe Cys His Asn Leu Arg Ala
1               5                  10                  15
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```
Thr Lys Pro Pro Tyr Glu Cys Pro Val Glu Thr Cys Arg Lys Val Tyr
            20                  25                  30

Lys Ser Tyr Ser Gly Ile Glu Tyr His Leu Tyr His Tyr Asp His Asp
        35                  40                  45

Asn Pro Pro Pro Pro Gln Gln Thr Pro Leu Arg Lys His Lys Lys Lys
    50                  55                  60

Gly Arg Gln Ser Arg Pro Ala Asn Lys Gln Ser Pro Ser Pro Ser Glu
65                  70                  75                  80

Val Ser Gln Ser Pro Gly Arg Glu Val Met Ser Tyr Ala Gln Ala Gln
                85                  90                  95

Arg Met Val Glu Val Asp Leu His Gly
            100                 105
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<210> 9754
<211> 1214
<212> PRT
<213> Homo sapiens

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<400> 9754

```
Met Gly Val Asp Phe Asp Val Lys Thr Phe Cys His Asn Leu Arg Ala
1               5                   10                  15
```

```
Thr Lys Pro Pro Tyr Glu Cys Pro Val Glu Thr Cys Arg Lys Val Tyr
            20                  25                  30

Lys Ser Tyr Ser Gly Ile Glu Tyr His Leu Tyr His Tyr Asp His Asp
        35                  40                  45

Asn Pro Pro Pro Pro Gln Gln Thr Pro Leu Arg Lys His Lys Lys Lys
    50                  55                  60

Gly Arg Gln Ser Arg Pro Ala Asn Lys Gln Ser Pro Ser Pro Ser Glu
65                  70                  75                  80

Val Ser Gln Ser Pro Gly Arg Glu Val Met Ser Tyr Ala Gln Ala Gln
                85                  90                  95

Arg Met Val Glu Val Asp Leu His Gly Arg Val His Arg Ile Ser Ile
            100                 105                 110

Phe Asp Asn Leu Asp Val Val Ser Glu Asp Glu Glu Ala Pro Glu Glu
        115                 120                 125

Ala Pro Glu Asn Gly Ser Asn Lys Glu Asn Thr Glu Thr Pro Ala Ala
    130                 135                 140

Thr Pro Lys Ser Gly Lys His Lys Asn Lys Glu Lys Arg Lys Asp Ser
145                 150                 155                 160

Asn His His His His His Asn Val Ser Ala Ser Thr Thr Pro Lys Leu
                165                 170                 175

Pro Glu Val Val Tyr Arg Glu Leu Glu Gln Asp Thr Pro Asp Ala Pro
            180                 185                 190

Pro Arg Pro Thr Ser Tyr Tyr Arg Tyr Ile Glu Lys Ser Ala Glu Glu
        195                 200                 205

Leu Asp Glu Glu Val Glu Tyr Asp Met Asp Glu Glu Asp Tyr Ile Trp
    210                 215                 220

Leu Asp Ile Met Asn Glu Arg Arg Lys Thr Glu Gly Val Ser Pro Ile
225                 230                 235                 240

Pro Gln Glu Ile Phe Glu Tyr Leu Met Asp Arg Leu Glu Lys Glu Ser
```

```
                245                 250                 255

Tyr Phe Glu Ser His Asn Lys Gly Asp Pro Asn Ala Leu Val Asp Glu
            260                 265                 270

Asp Ala Val Cys Cys Ile Cys Asn Asp Gly Glu Cys Gln Asn Ser Asn
        275                 280                 285

Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala Val His Gln Glu Cys
    290                 295                 300

Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys Arg Arg Cys
305                 310                 315                 320

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

Gly Gly Ala Phe Lys Gln Thr Asp Asp Gly Arg Trp Ala His Val Val
            340                 345                 350

Cys Ala Leu Trp Ile Pro Glu Val Cys Phe Ala Asn Thr Val Phe Leu
        355                 360                 365

Glu Pro Ile Asp Ser Ile Glu His Ile Pro Pro Ala Arg Trp Lys Leu
    370                 375                 380

Thr Cys Tyr Ile Cys Lys Gln Arg Gly Ser Gly Ala Cys Ile Gln Cys
385                 390                 395                 400

His Lys Ala Asn Cys Tyr Thr Ala Phe His Val Thr Cys Ala Gln Gln
                405                 410                 415

Ala Gly Leu Tyr Met Lys Met Glu Pro Val Arg Glu Thr Gly Ala Asn
            420                 425                 430

Gly Thr Ser Phe Ser Val Arg Lys Thr Ala Tyr Cys Asp Ile His Thr
        435                 440                 445

Pro Pro Gly Ser Ala Arg Arg Leu Pro Ala Leu Ser His Ser Glu Gly
    450                 455                 460

Glu Glu Asp Glu Asp Glu Glu Glu Asp Glu Gly Lys Gly Trp Ser Ser
465                 470                 475                 480
```

Glu Lys Val Lys Lys Ala Lys Ala Lys Ser Arg Ile Lys Met Lys Lys
485 490 495

Ala Arg Lys Ile Leu Ala Glu Lys Arg Ala Ala Ala Pro Val Val Ser
500 505 510

Val Pro Cys Ile Pro Pro His Arg Leu Ser Lys Ile Thr Asn Arg Leu
515 520 525

Thr Ile Gln Arg Lys Ser Gln Phe Met Gln Arg Leu His Ser Tyr Trp
530 535 540

Thr Leu Lys Arg Gln Ser Arg Asn Gly Val Pro Leu Leu Arg Arg Leu
545 550 555 560

Gln Thr His Leu Gln Ser Gln Arg Asn Cys Asp Gln Val Gly Arg Asp
565 570 575

Ser Glu Asp Lys Asn Trp Ala Leu Lys Glu Gln Leu Lys Ser Trp Gln
580 585 590

Arg Leu Arg His Asp Leu Glu Arg Ala Arg Leu Leu Val Glu Leu Ile
595 600 605

Arg Lys Arg Glu Lys Leu Lys Arg Glu Thr Ile Lys Val Gln Gln Ile
610 615 620

Ala Met Glu Met Gln Leu Thr Pro Phe Leu Ile Leu Leu Arg Lys Thr
625 630 635 640

Leu Glu Gln Leu Gln Glu Lys Asp Thr Gly Asn Ile Phe Ser Glu Pro
645 650 655

Val Pro Leu Ser Glu Val Pro Asp Tyr Leu Asp His Ile Lys Lys Pro
660 665 670

Met Asp Phe Phe Thr Met Lys Gln Asn Leu Glu Ala Tyr Arg Tyr Leu
675 680 685

Asn Phe Asp Asp Phe Glu Glu Asp Phe Asn Leu Ile Val Ser Asn Cys
690 695 700

```
Leu Lys Tyr Asn Ala Lys Asp Thr Ile Phe Tyr Arg Ala Ala Val Arg
705                 710                 715                 720

Leu Arg Glu Gln Gly Gly Ala Val Leu Arg Gln Ala Arg Arg Gln Ala
                725                 730                 735

Glu Lys Met Gly Ile Asp Phe Glu Thr Gly Met His Ile Pro His Ser
            740                 745                 750

Leu Ala Gly Asp Glu Ala Thr His His Thr Glu Asp Ala Ala Glu Glu
        755                 760                 765

Glu Arg Leu Val Leu Leu Glu Asn Gln Lys His Leu Pro Val Glu Glu
    770                 775                 780

Gln Leu Lys Leu Leu Leu Glu Arg Leu Asp Glu Val Asn Ala Ser Lys
785                 790                 795                 800

Gln Ser Val Gly Arg Ser Arg Arg Ala Lys Met Ile Lys Lys Glu Met
                805                 810                 815

Thr Ala Leu Arg Arg Lys Leu Ala His Gln Arg Glu Thr Gly Arg Asp
            820                 825                 830

Gly Pro Glu Arg His Gly Pro Ser Ser Arg Gly Ser Leu Thr Pro His
        835                 840                 845

Pro Ala Ala Cys Asp Lys Asp Gly Gln Thr Asp Ser Ala Ala Glu Glu
    850                 855                 860

Ser Ser Ser Gln Glu Thr Ser Lys Gly Leu Gly Pro Asn Met Ser Ser
865                 870                 875                 880

Thr Pro Ala His Glu Val Gly Arg Arg Thr Ser Val Leu Phe Ser Lys
                885                 890                 895

Lys Asn Pro Lys Thr Ala Gly Pro Pro Lys Arg Pro Gly Arg Pro Pro
            900                 905                 910

Lys Asn Arg Glu Ser Gln Met Thr Pro Ser His Gly Gly Ser Pro Val
        915                 920                 925
```

```
Gly Pro Pro Gln Leu Pro Ile Met Ser Ser Leu Arg Gln Arg Lys Arg
    930                 935                 940

Gly Arg Ser Pro Arg Pro Ser Ser Ser Ser Asp Ser Asp Ser Asp Lys
945                 950                 955                 960

Ser Thr Glu Asp Pro Pro Met Asp Leu Pro Ala Asn Gly Phe Ser Gly
                965                 970                 975

Gly Asn Gln Pro Val Lys Lys Ser Phe Leu Val Tyr Arg Asn Asp Cys
            980                 985                 990

Ser Leu Pro Arg Ser Ser Ser Asp  Ser Glu Ser Ser Ser  Ser Ser
Ser
        995                 1000                1005

Ser Ser  Ala Ala Ser Asp Arg  Thr Ser Thr Thr Pro  Ser Lys Gln
    1010                1015                1020

Gly Arg  Gly Lys Pro Ser Phe  Ser Arg Gly Thr Phe  Pro Glu Asp
    1025                1030                1035

Ser Ser  Glu Asp Thr Ser Gly  Thr Glu Asn Glu Ala  Tyr Ser Val
    1040                1045                1050

Gly Thr  Gly Arg Gly Val Gly  His Ser Met Val Arg  Lys Ser Leu
    1055                1060                1065

Gly Arg  Gly Ala Gly Trp Leu  Ser Glu Asp Glu Asp  Ser Pro Leu
    1070                1075                1080

Asp Ala  Leu Asp Leu Val Trp  Ala Lys Cys Arg Gly  Tyr Pro Ser
    1085                1090                1095

Tyr Pro  Ala Leu Ile Ile Asp  Pro Lys Met Pro Arg  Glu Gly Met
    1100                1105                1110

Phe His  His Gly Val Pro Ile  Pro Val Pro Pro Leu  Glu Val Leu
    1115                1120                1125

Lys Leu  Gly Glu Gln Met Thr  Gln Glu Ala Arg Glu  His Leu Tyr
    1130                1135                1140
```

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


Arg Thr  Lys Leu Val Pro Leu  Gly Val Asn Gln Asp  Leu Asp Lys
    1160                1165                1170


Glu Lys  Met Leu Glu Gly Arg  Lys Ser Asn Ile Arg  Lys Ser Val
    1175                1180                1185


Gln Ile  Ala Tyr His Arg Ala  Leu Gln His Arg Ser  Lys Val Gln
    1190                1195                1200


Gly Glu  Gln Ser Ser Glu Thr  Ser Asp Ser Asp
    1205                1210


<210> 9755
<211> 100
<212> PRT
<213> Homo sapiens

<220>
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<400> 9755
Met Gly Val Asp Phe Asp Val Lys Thr Phe Cys His Asn Leu Arg Ala
1               5                  10                  15


Thr Lys Pro Pro Tyr Glu Cys Pro Val Glu Thr Cys Arg Lys Val Tyr
            20                  25                  30


Lys Ser Tyr Ser Gly Ile Glu Tyr His Leu Tyr His Tyr Asp His Asp
        35                  40                  45


Asn Pro Pro Pro Pro Gln Gln Thr Pro Leu Arg Lys His Lys Lys Lys
    50                  55                  60
```

```
Gly Arg Gln Ser Arg Pro Ala Asn Lys Gln Ser Pro Ser Pro Ser Glu
65                  70                  75                  80


Val Ser Gln Ser Pro Gly Arg Glu Val Met Ser Tyr Ala Gln Ala Gln
                85                  90                  95


Arg Met Val Glu
            100


<210> 9756
<211> 935
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 9756
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1               5                  10                  15


Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
            20                  25                  30


Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
        35                  40                  45


Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
    50                  55                  60
```

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65 70 75 80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser Lys
85 90 95

Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala Ser Gly Thr Ser Phe
100 105 110

His Leu Pro Gln Pro Ser Phe Arg Met Val Asp Ser Gly Ile Gln Pro
115 120 125

Glu Ala Pro Pro Leu Pro Ala Ala Tyr Tyr Arg Tyr Ile Glu Lys Pro
130 135 140

Pro Glu Asp Leu Asp Ala Glu Val Glu Tyr Asp Met Asp Glu Glu Asp
145 150 155 160

Leu Ala Trp Leu Asp Met Val Asn Glu Lys Arg Arg Val Asp Gly His
165 170 175

Ser Leu Val Ser Ala Asp Thr Phe Glu Leu Leu Val Asp Arg Leu Glu
180 185 190

Lys Glu Ser Tyr Leu Glu Ser Arg Ser Ser Gly Ala Gln Gln Ser Leu
195 200 205

Ile Asp Glu Asp Ala Phe Cys Cys Val Cys Leu Asp Asp Glu Cys His
210 215 220

Asn Ser Asn Val Ile Leu Phe Cys Asp Ile Cys Asn Leu Ala Val His
225 230 235 240

Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys
245 250 255

Arg Cys Cys Leu Gln Ser Pro Ser Arg Pro Val Asp Cys Ile Leu Cys
260 265 270

Pro Asn Lys Gly Gly Ala Phe Lys Gln Thr Ser Asp Gly His Trp Ala
275 280 285

His Val Val Cys Ala Ile Trp Ile Pro Glu Val Cys Phe Ala Asn Thr

290 295 300

Val Phe Leu Glu Pro Ile Glu Gly Ile Asp Asn Ile Pro Pro Ala Arg
305 310 315 320

Trp Lys Leu Thr Cys Tyr Ile Cys Lys Gln Lys Gly Leu Gly Ala Ala
325 330 335

Ile Gln Cys His Lys Val Asn Cys Tyr Thr Ala Phe His Val Thr Cys
340 345 350

Ala Gln Arg Ala Gly Leu Phe Met Lys Ile Glu Pro Met Arg Glu Thr
355 360 365

Ser Leu Asn Gly Thr Ile Phe Thr Val Arg Lys Thr Ala Tyr Cys Glu
370 375 380

Ala His Ser Pro Pro Gly Ala Ala Thr Ala Arg Arg Lys Gly Asp Ser
385 390 395 400

Pro Arg Ser Ile Ser Glu Thr Gly Asp Glu Glu Gly Leu Lys Glu Gly
405 410 415

Asp Gly Glu Glu Glu Glu Glu Glu Glu Val Glu Glu Glu Glu Gln Glu
420 425 430

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

Lys Met Ser Leu Lys Gln Lys Ile Lys Lys Glu Pro Glu Glu Ala Gly
450 455 460

Gln Asp Thr Pro Ser Thr Leu Pro Met Leu Ala Val Pro Gln Ile Pro
465 470 475 480

Ser Tyr Arg Leu Asn Lys Ile Cys Ser Gly Leu Ser Phe Gln Arg Lys
485 490 495

Asn Gln Phe Met Gln Arg Leu His Asn Tyr Trp Leu Leu Lys Arg Gln
500 505 510

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

Ser Gln Arg Asn Ala Glu Gln Arg Glu Gln Asp Glu Lys Thr Ser Ala
530 535 540

Val Lys Glu Glu Leu Lys Tyr Trp Gln Lys Leu Arg His Asp Leu Glu
545 550 555 560

Arg Ala Arg Leu Leu Ile Glu Leu Ile Arg Lys Arg Glu Lys Leu Lys
565 570 575

Arg Glu Gln Val Lys Val Gln Gln Ala Ala Met Glu Leu Glu Leu Met
580 585 590

Pro Phe Asn Val Leu Leu Arg Thr Thr Leu Asp Leu Leu Gln Glu Lys
595 600 605

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

Asp Tyr Leu Glu Phe Ile Ser Lys Pro Met Asp Phe Ser Thr Met Arg
625 630 635 640

Arg Lys Leu Glu Ser His Leu Tyr Arg Thr Leu Glu Glu Phe Glu Glu
645 650 655

Asp Phe Asn Leu Ile Val Thr Asn Cys Met Lys Tyr Asn Ala Lys Asp
660 665 670

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

Ile Leu Arg His Ala Arg Arg Gln Ala Glu Asn Ile Gly Tyr Asp Pro
690 695 700

Glu Arg Gly Thr His Leu Pro Glu Ser Pro Lys Leu Glu Asp Phe Tyr
705 710 715 720

Arg Phe Ser Trp Glu Asp Gly Met Thr Asn Gly Phe Gly Lys His Thr
725 730 735

Glu Ser Gly Ser Asp Ser Glu Cys Ser Leu Gly Leu Ser Gly Gly Leu
740 745 750

```
Ala Phe Glu Ala Cys Ser Gly Leu Thr Pro Pro Lys Arg Ser Arg Gly
        755                 760                 765

Lys Pro Ala Leu Ser Arg Val Pro Phe Leu Glu Gly Val Asn Gly Asp
    770                 775                 780

Ser Asp Tyr Asn Gly Ser Gly Arg Ser Leu Leu Leu Pro Phe Glu Asp
785                 790                 795                 800

Arg Gly Asp Leu Glu Pro Leu Glu Leu Val Trp Ala Lys Cys Arg Gly
                805                 810                 815

Tyr Pro Ser Tyr Pro Ala Leu Ile Ile Asp Pro Lys Met Pro Arg Glu
            820                 825                 830

Gly Leu Leu His Asn Gly Val Pro Ile Pro Val Pro Pro Leu Asp Val
        835                 840                 845

Leu Lys Leu Gly Glu Gln Lys Gln Ala Glu Ala Gly Glu Lys Leu Phe
    850                 855                 860

Leu Val Leu Phe Phe Asp Asn Lys Arg Thr Trp Gln Trp Leu Pro Arg
865                 870                 875                 880

Asp Lys Val Leu Pro Leu Gly Val Glu Asp Thr Val Asp Lys Leu Lys
                885                 890                 895

Met Leu Glu Gly Arg Lys Thr Ser Ile Arg Lys Ser Val Gln Val Ala
            900                 905                 910

Tyr Asp Arg Ala Met Ile His Leu Ser Arg Val Arg Gly Pro His Ser
        915                 920                 925

Phe Val Thr Ser Ser Tyr Leu
    930                 935


<210> 9757
<211> 1205
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1977; "
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<220>
<221> source
<223> /note="Gene Symbol: BRPF3; "

<220>
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<220>
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<223> /note="Uniprot ID: Q9ULD4; "

<220>
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<400> 9757
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1 5 10 15

Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
20 25 30

Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
35 40 45

Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
50 55 60

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65 70 75 80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser Lys
85 90 95

Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala Ser Gly Thr Ser Phe
100 105 110

His Leu Pro Gln Pro Ser Phe Arg Met Val Asp Ser Gly Ile Gln Pro
115 120 125

Glu Ala Pro Pro Leu Pro Ala Ala Tyr Tyr Arg Tyr Ile Glu Lys Pro
130 135 140

Pro Glu Asp Leu Asp Ala Glu Val Glu Tyr Asp Met Asp Glu Glu Asp
145 150 155 160

```
Leu Ala Trp Leu Asp Met Val Asn Glu Lys Arg Arg Val Asp Gly His
                165                 170                 175

Ser Leu Val Ser Ala Asp Thr Phe Glu Leu Leu Val Asp Arg Leu Glu
            180                 185                 190

Lys Glu Ser Tyr Leu Glu Ser Arg Ser Ser Gly Ala Gln Gln Ser Leu
        195                 200                 205

Ile Asp Glu Asp Ala Phe Cys Cys Val Cys Leu Asp Asp Glu Cys His
    210                 215                 220

Asn Ser Asn Val Ile Leu Phe Cys Asp Ile Cys Asn Leu Ala Val His
225                 230                 235                 240

Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys
                245                 250                 255

Arg Cys Cys Leu Gln Ser Pro Ser Arg Pro Val Asp Cys Ile Leu Cys
            260                 265                 270

Pro Asn Lys Gly Gly Ala Phe Lys Gln Thr Ser Asp Gly His Trp Ala
        275                 280                 285

His Val Val Cys Ala Ile Trp Ile Pro Glu Val Cys Phe Ala Asn Thr
    290                 295                 300

Val Phe Leu Glu Pro Ile Glu Gly Ile Asp Asn Ile Pro Pro Ala Arg
305                 310                 315                 320

Trp Lys Leu Thr Cys Tyr Ile Cys Lys Gln Lys Gly Leu Gly Ala Ala
                325                 330                 335

Ile Gln Cys His Lys Val Asn Cys Tyr Thr Ala Phe His Val Thr Cys
            340                 345                 350

Ala Gln Arg Ala Gly Leu Phe Met Lys Ile Glu Pro Met Arg Glu Thr
        355                 360                 365

Ser Leu Asn Gly Thr Ile Phe Thr Val Arg Lys Thr Ala Tyr Cys Glu
    370                 375                 380
```

```
Ala His Ser Pro Pro Gly Ala Ala Thr Ala Arg Arg Lys Gly Asp Ser
385                 390                 395                 400

Pro Arg Ser Ile Ser Glu Thr Gly Asp Glu Glu Gly Leu Lys Glu Gly
                405                 410                 415

Asp Gly Glu Glu Glu Glu Glu Glu Glu Val Glu Glu Glu Glu Gln Glu
            420                 425                 430

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

Lys Met Ser Leu Lys Gln Lys Ile Lys Lys Glu Pro Glu Glu Ala Gly
    450                 455                 460

Gln Asp Thr Pro Ser Thr Leu Pro Met Leu Ala Val Pro Gln Ile Pro
465                 470                 475                 480

Ser Tyr Arg Leu Asn Lys Ile Cys Ser Gly Leu Ser Phe Gln Arg Lys
                485                 490                 495

Asn Gln Phe Met Gln Arg Leu His Asn Tyr Trp Leu Leu Lys Arg Gln
            500                 505                 510

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

Ser Gln Arg Asn Ala Glu Gln Arg Glu Gln Asp Glu Lys Thr Ser Ala
    530                 535                 540

Val Lys Glu Glu Leu Lys Tyr Trp Gln Lys Leu Arg His Asp Leu Glu
545                 550                 555                 560

Arg Ala Arg Leu Leu Ile Glu Leu Ile Arg Lys Arg Glu Lys Leu Lys
                565                 570                 575

Arg Glu Gln Val Lys Val Gln Gln Ala Ala Met Glu Leu Glu Leu Met
            580                 585                 590

Pro Phe Asn Val Leu Leu Arg Thr Thr Leu Asp Leu Leu Gln Glu Lys
        595                 600                 605
```

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

Asp Tyr Leu Glu Phe Ile Ser Lys Pro Met Asp Phe Ser Thr Met Arg
625                 630                 635                 640

Arg Lys Leu Glu Ser His Leu Tyr Arg Thr Leu Glu Glu Phe Glu Glu
                645                 650                 655

Asp Phe Asn Leu Ile Val Thr Asn Cys Met Lys Tyr Asn Ala Lys Asp
            660                 665                 670

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

Ile Leu Arg His Ala Arg Arg Gln Ala Glu Asn Ile Gly Tyr Asp Pro
    690                 695                 700

Glu Arg Gly Thr His Leu Pro Glu Ser Pro Lys Leu Glu Asp Phe Tyr
705                 710                 715                 720

Arg Phe Ser Trp Glu Asp Val Asp Asn Ile Leu Ile Pro Glu Asn Arg
                725                 730                 735

Ala His Leu Ser Pro Glu Val Gln Leu Lys Glu Leu Leu Glu Lys Leu
            740                 745                 750

Asp Leu Val Ser Ala Met Arg Ser Ser Gly Ala Arg Thr Arg Arg Val
        755                 760                 765

Arg Leu Leu Arg Arg Glu Ile Asn Ala Leu Arg Gln Lys Leu Ala Gln
    770                 775                 780

Pro Pro Pro Pro Gln Pro Pro Ser Leu Asn Lys Thr Val Ser Asn Gly
785                 790                 795                 800

Glu Leu Pro Ala Gly Pro Gln Gly Asp Ala Ala Val Leu Glu Gln Ala
                805                 810                 815

Leu Gln Glu Glu Pro Glu Asp Asp Gly Asp Arg Asp Asp Ser Lys Leu
            820                 825                 830

Pro Pro Pro Pro Thr Leu Glu Pro Thr Gly Pro Ala Pro Ser Leu Ser
```

```
        835                 840                 845

Glu Gln Glu Ser Pro Pro Glu Pro Pro Thr Leu Lys Pro Ile Asn Asp
    850                 855                 860

Ser Lys Pro Pro Ser Arg Phe Leu Lys Pro Arg Lys Val Glu Glu Asp
865                 870                 875                 880

Glu Leu Leu Glu Lys Ser Pro Leu Gln Leu Gly Asn Glu Pro Leu Gln
                885                 890                 895

Arg Leu Leu Ser Asp Asn Gly Ile Asn Arg Leu Ser Leu Met Ala Pro
            900                 905                 910

Asp Thr Pro Ala Gly Thr Pro Leu Ser Gly Val Gly Arg Arg Thr Ser
        915                 920                 925

Val Leu Phe Lys Lys Ala Lys Asn Gly Val Lys Leu Gln Arg Ser Pro
    930                 935                 940

Asp Arg Val Leu Glu Asn Gly Glu Asp His Gly Val Ala Gly Ser Pro
945                 950                 955                 960

Ala Ser Pro Ala Ser Ile Glu Glu Glu Arg His Ser Arg Lys Arg Pro
                965                 970                 975

Arg Ser Arg Ser Cys Ser Glu Ser Glu Gly Glu Arg Ser Pro Gln Gln
            980                 985                 990

Glu Glu Glu Thr Gly Met Thr Asn  Gly Phe Gly Lys His  Thr Glu
Ser
        995                 1000                1005

Gly Ser  Asp Ser Glu Cys Ser  Leu Gly Leu Ser Gly  Gly Leu Ala
    1010                1015                1020

Phe Glu  Ala Cys Ser Gly Leu  Thr Pro Pro Lys Arg  Ser Arg Gly
    1025                1030                1035

Lys Pro  Ala Leu Ser Arg Val  Pro Phe Leu Glu Gly  Val Asn Gly
    1040                1045                1050

Asp Ser  Asp Tyr Asn Gly Ser  Gly Arg Ser Leu Leu  Leu Pro Phe
```

```
    1055                1060                1065

Glu Asp  Arg Gly Asp Leu Glu  Pro Leu Glu Leu Val  Trp Ala Lys
    1070                1075                1080

Cys Arg  Gly Tyr Pro Ser Tyr  Pro Ala Leu Ile Ile  Asp Pro Lys
    1085                1090                1095

Met Pro  Arg Glu Gly Leu Leu  His Asn Gly Val Pro  Ile Pro Val
    1100                1105                1110

Pro Pro  Leu Asp Val Leu Lys  Leu Gly Glu Gln Lys  Gln Ala Glu
    1115                1120                1125

Ala Gly  Glu Lys Leu Phe Leu  Val Leu Phe Phe Asp  Asn Lys Arg
    1130                1135                1140

Thr Trp  Gln Trp Leu Pro Arg  Asp Lys Val Leu Pro  Leu Gly Val
    1145                1150                1155

Glu Asp  Thr Val Asp Lys Leu  Lys Met Leu Glu Gly  Arg Lys Thr
    1160                1165                1170

Ser Ile  Arg Lys Ser Val Gln  Val Ala Tyr Asp Arg  Ala Met Ile
    1175                1180                1185

His Leu  Ser Arg Val Arg Gly  Pro His Ser Phe Val  Thr Ser Ser
    1190                1195                1200

Tyr Leu
    1205


<210> 9758
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1977; "

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<223> /note="Gene Symbol: BRPF3; "

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<221> source
<223> /note="Gene Name:
bromodomain and PHD finger containing, 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410669"

<400> 9758
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1 5 10 15

Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
20 25 30

Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
35 40 45

Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
50 55 60

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65 70 75 80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser
85 90 95

<210> 9759
<211> 599
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000411558"

<220>

<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9759
Xaa Arg Glu Thr Leu Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val
1 5 10 15

Asp Ile Asp Gly Arg Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys
20 25 30

Ile Ile Thr Glu Asp Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn
35 40 45

Ser Asn Lys Glu Asn Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys
50 55 60

Lys Pro Ser Ser Lys Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala
65 70 75 80

Ser Gly Thr Ser Phe His Leu Pro Gln Pro Ser Phe Arg Met Val Asp
85 90 95

Ser Gly Ile Gln Pro Glu Ala Pro Pro Leu Pro Ala Ala Tyr Tyr Arg
100 105 110

Tyr Ile Glu Lys Pro Pro Glu Asp Leu Asp Ala Glu Val Glu Tyr Asp
115 120 125

Met Asp Glu Glu Asp Leu Ala Trp Leu Asp Met Val Asn Glu Lys Arg
130 135 140

Arg Val Asp Gly His Ser Leu Val Ser Ala Asp Thr Phe Glu Leu Leu
145 150 155 160

Val Asp Arg Leu Glu Lys Glu Ser Tyr Leu Glu Ser Arg Ser Ser Gly
165 170 175

Ala Gln Gln Ser Leu Ile Asp Glu Asp Ala Phe Cys Cys Val Cys Leu
180 185 190

Asp Asp Glu Cys His Asn Ser Asn Val Ile Leu Phe Cys Asp Ile Cys
195 200 205

```
Asn Leu Ala Val His Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu
    210                 215                 220

Gly Gln Trp Leu Cys Arg Cys Cys Leu Gln Ser Pro Ser Arg Pro Val
225                 230                 235                 240

Asp Cys Ile Leu Cys Pro Asn Lys Gly Gly Ala Phe Lys Gln Thr Ser
                245                 250                 255

Asp Gly His Trp Ala His Val Val Cys Ala Ile Trp Ile Pro Glu Val
            260                 265                 270

Cys Phe Ala Asn Thr Val Phe Leu Glu Pro Ile Glu Gly Ile Asp Asn
        275                 280                 285

Ile Pro Pro Ala Arg Trp Lys Leu Thr Cys Tyr Ile Cys Lys Gln Lys
    290                 295                 300

Gly Leu Gly Ala Ala Ile Gln Cys His Lys Val Asn Cys Tyr Thr Ala
305                 310                 315                 320

Phe His Val Thr Cys Ala Gln Arg Ala Gly Leu Phe Met Lys Ile Glu
                325                 330                 335

Pro Met Arg Glu Thr Ser Leu Asn Gly Thr Ile Phe Thr Val Arg Lys
            340                 345                 350

Thr Ala Tyr Cys Glu Ala His Ser Pro Pro Gly Ala Ala Thr Ala Arg
        355                 360                 365

Arg Lys Gly Asp Ser Pro Arg Ser Ile Ser Glu Thr Gly Asp Glu Glu
    370                 375                 380

Gly Leu Lys Glu Gly Asp Gly Glu Glu Glu Glu Glu Glu Glu Val Glu
385                 390                 395                 400

Glu Glu Glu Gln Glu Ala Gln Gly Gly Val Ser Gly Ser Leu Lys Gly
                405                 410                 415

Val Pro Lys Lys Ser Lys Met Ser Leu Lys Gln Lys Ile Lys Lys Glu
            420                 425                 430

Pro Glu Glu Ala Gly Gln Asp Thr Pro Ser Thr Leu Pro Met Leu Ala
```

```
        435                 440                 445

Val Pro Gln Ile Pro Ser Tyr Arg Leu Asn Lys Ile Cys Ser Gly Leu
    450                 455                 460

Ser Phe Gln Arg Lys Asn Gln Phe Met Gln Arg Leu His Asn Tyr Trp
465                 470                 475                 480

Leu Leu Lys Arg Gln Ala Arg Asn Gly Val Pro Leu Ile Arg Arg Leu
                485                 490                 495

His Ser His Leu Gln Ser Gln Arg Asn Ala Glu Gln Arg Glu Gln Asp
            500                 505                 510

Glu Lys Thr Ser Ala Val Lys Glu Glu Leu Lys Tyr Trp Gln Lys Leu
        515                 520                 525

Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Ile Arg Lys
    530                 535                 540

Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Gln Gln Ala Ala Met
545                 550                 555                 560

Glu Leu Glu Leu Met Pro Phe Asn Val Leu Leu Arg Thr Thr Leu Asp
                565                 570                 575

Leu Leu Gln Glu Lys Asp Pro Ala His Ile Phe Ala Glu Pro Val Asn
            580                 585                 590

Leu Ser Glu Val Leu Tyr Val
        595


<210> 9760
<211> 246
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1977; "

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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000413022"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9760

```
Xaa Pro Ser Leu Asn Lys Thr Val Ser Asn Gly Glu Leu Pro Ala Gly
1               5                  10                  15

Pro Gln Gly Asp Ala Ala Val Leu Glu Gln Ala Leu Gln Glu Glu Pro
            20                  25                  30

Glu Asp Asp Gly Asp Arg Asp Asp Ser Lys Leu Pro Pro Pro Pro Thr
        35                  40                  45

Leu Glu Pro Thr Gly Pro Ala Pro Ser Leu Ser Glu Gln Glu Ser Pro
    50                  55                  60

Pro Glu Pro Pro Thr Leu Lys Pro Ile Asn Asp Ser Lys Pro Pro Ser
65                  70                  75                  80

Arg Phe Leu Lys Pro Arg Lys Val Glu Glu Asp Glu Leu Leu Glu Lys
                85                  90                  95

Ser Pro Leu Gln Leu Gly Asn Glu Pro Leu Gln Arg Leu Leu Ser Asp
            100                 105                 110

Asn Gly Ile Asn Arg Leu Ser Leu Met Ala Pro Asp Thr Pro Ala Gly
        115                 120                 125

Thr Pro Leu Ser Gly Val Gly Arg Arg Thr Ser Val Leu Phe Lys Lys
    130                 135                 140

Ala Lys Asn Gly Val Lys Leu Gln Arg Ser Pro Asp Arg Val Leu Glu
145                 150                 155                 160

Asn Gly Glu Asp His Gly Val Ala Gly Ser Pro Ala Ser Pro Ala Ser
                165                 170                 175
```

```
Ile Glu Glu Glu Arg His Ser Arg Lys Arg Pro Arg Ser Arg Ser Cys
            180                 185                 190

Ser Glu Ser Glu Gly Glu Arg Ser Pro Gln Gln Glu Glu Glu Thr Gly
        195                 200                 205

Met Thr Asn Gly Phe Gly Lys His Thr Glu Ser Gly Ser Asp Ser Glu
    210                 215                 220

Cys Ser Leu Gly Leu Ser Gly Gly Leu Ala Phe Glu Ala Cys Arg Gln
225                 230                 235                 240

Lys Pro Pro Ala Ala Leu
                245
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<210> 9761
<211> 129
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1977; "

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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000413655"

<400> 9761

```
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1               5                   10                  15

Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
            20                  25                  30

Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
        35                  40                  45
```

```
Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
    50                  55                  60

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65                  70                  75                  80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser Lys
                85                  90                  95

Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala Ser Gly Thr Ser Phe
            100                 105                 110

His Leu Pro Gln Pro Ser Phe Arg Met Val Asp Ser Gly Ile Gln Pro
        115                 120                 125

Glu
```

<210> 9762
<211> 821
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1977; "

<220>
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<223> /note="Gene Name:
bromodomain and PHD finger containing, 3; "

<220>
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<223> /note="ENSP ID: ENSP00000416842"

<400> 9762

```
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1               5                   10                  15

Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
            20                  25                  30

Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
        35                  40                  45
```

```
Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
    50                  55                  60

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65                  70                  75                  80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser Lys
                85                  90                  95

Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala Ser Gly Thr Ser Phe
            100                 105                 110

His Leu Pro Gln Pro Ser Phe Arg Met Val Asp Ser Gly Ile Gln Pro
        115                 120                 125

Glu Ala Pro Pro Leu Pro Ala Ala Tyr Tyr Arg Tyr Ile Glu Lys Pro
    130                 135                 140

Pro Glu Asp Leu Asp Ala Glu Val Glu Tyr Asp Met Asp Glu Glu Asp
145                 150                 155                 160

Leu Ala Trp Leu Asp Met Val Asn Glu Lys Arg Arg Val Asp Gly His
                165                 170                 175

Ser Leu Val Ser Ala Asp Thr Phe Glu Leu Leu Val Asp Arg Leu Glu
            180                 185                 190

Lys Glu Ser Tyr Leu Glu Ser Arg Ser Ser Gly Ala Gln Gln Ser Leu
        195                 200                 205

Ile Asp Glu Asp Ala Phe Cys Cys Val Cys Leu Asp Asp Glu Cys His
    210                 215                 220

Asn Ser Asn Val Ile Leu Phe Cys Asp Ile Cys Asn Leu Ala Val His
225                 230                 235                 240

Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys
                245                 250                 255

Arg Cys Cys Leu Gln Ser Pro Ser Arg Pro Val Asp Cys Ile Leu Cys
            260                 265                 270
```

```
Pro Asn Lys Gly Gly Ala Phe Lys Gln Thr Ser Asp Gly His Trp Ala
        275                 280                 285

His Val Val Cys Ala Ile Trp Ile Pro Glu Val Cys Phe Ala Asn Thr
    290                 295                 300

Val Phe Leu Glu Pro Ile Glu Gly Ile Asp Asn Ile Pro Pro Ala Arg
305                 310                 315                 320

Trp Lys Leu Thr Cys Tyr Ile Cys Lys Gln Lys Gly Leu Gly Ala Ala
                325                 330                 335

Ile Gln Cys His Lys Val Asn Cys Tyr Thr Ala Phe His Val Thr Cys
            340                 345                 350

Ala Gln Arg Ala Gly Leu Phe Met Lys Ile Glu Pro Met Arg Glu Thr
        355                 360                 365

Ser Leu Asn Gly Thr Ile Phe Thr Val Arg Lys Thr Ala Tyr Cys Glu
    370                 375                 380

Ala His Ser Pro Pro Gly Ala Ala Thr Ala Arg Arg Lys Gly Asp Ser
385                 390                 395                 400

Pro Arg Ser Ile Ser Glu Thr Gly Asp Glu Glu Gly Leu Lys Glu Gly
                405                 410                 415

Asp Gly Glu Glu Glu Glu Glu Glu Glu Val Glu Glu Glu Glu Gln Glu
            420                 425                 430

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

Lys Met Ser Leu Lys Gln Lys Ile Lys Lys Glu Pro Glu Glu Ala Gly
    450                 455                 460

Gln Asp Thr Pro Ser Thr Leu Pro Met Leu Ala Val Pro Gln Ile Pro
465                 470                 475                 480

Ser Tyr Arg Leu Asn Lys Ile Cys Ser Gly Leu Ser Phe Gln Arg Lys
                485                 490                 495
```

```
Asn Gln Phe Met Gln Arg Leu His Asn Tyr Trp Leu Leu Lys Arg Gln
            500                 505                 510

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

Ser Gln Arg Asn Ala Glu Gln Arg Glu Gln Asp Glu Lys Thr Ser Ala
    530                 535                 540

Val Lys Glu Glu Leu Lys Tyr Trp Gln Lys Leu Arg His Asp Leu Glu
545                 550                 555                 560

Arg Ala Arg Leu Leu Ile Glu Leu Ile Arg Lys Arg Glu Lys Leu Lys
                565                 570                 575

Arg Glu Gln Val Lys Val Gln Gln Ala Ala Met Glu Leu Glu Leu Met
            580                 585                 590

Pro Phe Asn Val Leu Leu Arg Thr Thr Leu Asp Leu Leu Gln Glu Lys
        595                 600                 605

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

Asp Tyr Leu Glu Phe Ile Ser Lys Pro Met Asp Phe Ser Thr Met Arg
625                 630                 635                 640

Arg Lys Leu Glu Ser His Leu Tyr Arg Thr Leu Glu Glu Phe Glu Glu
                645                 650                 655

Asp Phe Asn Leu Ile Val Thr Asn Cys Met Lys Tyr Asn Ala Lys Asp
            660                 665                 670

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

Ile Leu Arg His Ala Arg Arg Gln Ala Glu Asn Ile Gly Tyr Asp Pro
    690                 695                 700

Glu Arg Gly Thr His Leu Pro Glu Ser Pro Lys Leu Glu Asp Phe Tyr
705                 710                 715                 720

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

```
                725                 730                 735

Glu Ser Gly Ser Asp Ser Glu Cys Ser Leu Gly Leu Ser Gly Gly Leu
            740                 745                 750

Ala Phe Glu Ala Cys Ser Gly Leu Thr Pro Pro Lys Arg Ser Arg Gly
        755                 760                 765

Lys Pro Ala Leu Ser Arg Val Pro Phe Leu Glu Gly Val Asn Gly Asp
    770                 775                 780

Ser Asp Tyr Asn Gly Ser Glu Ala Ser Cys Cys Pro Leu Lys Thr Ala
785                 790                 795                 800

Glu Thr Trp Ser Pro Trp Ser Trp Cys Gly Pro Ser Ala Glu Ala Thr
                805                 810                 815

Pro Pro Thr Leu Pro
            820


<210> 9763
<211> 93
<212> PRT
<213> Homo sapiens

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<400> 9763
Met Asn Gln Val Trp Ile Gly Cys Thr Gly Cys Asn Leu Gly Cys Pro
1               5                   10                  15

Leu Thr Leu Ser Phe Thr Ser Val Cys Leu Tyr Ser Arg Leu Asn Lys
            20                  25                  30
```

```
Ile Cys Ser Gly Leu Ser Phe Gln Arg Lys Asn Gln Phe Met Gln Arg
        35                  40                  45

Leu His Asn Tyr Trp Leu Leu Lys Arg Gln Ala Arg Asn Gly Val Pro
    50                  55                  60

Leu Ile Arg Arg Leu His Ser His Leu Gln Ser Gln Arg Asn Ala Glu
65                  70                  75                  80

Gln Arg Glu Gln Asp Glu Lys Thr Ser Ala Val Lys Glu
                85                  90


<210> 9764
<211> 871
<212> PRT
<213> Homo sapiens

<220>
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<400> 9764
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1               5                   10                  15

Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
            20                  25                  30

Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
        35                  40                  45

Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
```

```
    50                  55                  60

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65                  70                  75                  80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser Lys
                85                  90                  95

Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala Ser Gly Thr Ser Phe
            100                 105                 110

His Leu Pro Gln Pro Ser Phe Arg Met Val Asp Ser Gly Ile Gln Pro
        115                 120                 125

Glu Ala Pro Pro Leu Pro Ala Ala Tyr Tyr Arg Tyr Ile Glu Lys Pro
    130                 135                 140

Pro Glu Asp Leu Asp Ala Glu Val Glu Tyr Asp Met Asp Glu Glu Asp
145                 150                 155                 160

Leu Ala Trp Leu Asp Met Val Asn Glu Lys Arg Arg Val Asp Gly His
                165                 170                 175

Ser Leu Val Ser Ala Asp Thr Phe Glu Leu Leu Val Asp Arg Leu Glu
            180                 185                 190

Lys Glu Ser Tyr Leu Glu Ser Arg Ser Ser Gly Ala Gln Gln Ser Leu
        195                 200                 205

Ile Asp Glu Asp Ala Phe Cys Cys Val Cys Leu Asp Asp Glu Cys His
    210                 215                 220

Asn Ser Asn Val Ile Leu Phe Cys Asp Ile Cys Asn Leu Ala Val His
225                 230                 235                 240

Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys
                245                 250                 255

Arg Cys Cys Leu Gln Ser Pro Ser Arg Pro Val Asp Cys Ile Leu Cys
            260                 265                 270

Pro Asn Lys Gly Gly Ala Phe Lys Gln Thr Ser Asp Gly His Trp Ala
        275                 280                 285
```

```
His Val Val Cys Ala Ile Trp Ile Pro Glu Val Cys Phe Ala Asn Thr
    290                 295                 300

Val Phe Leu Glu Pro Ile Glu Gly Ile Asp Asn Ile Pro Pro Ala Arg
305                 310                 315                 320

Trp Lys Leu Thr Cys Tyr Ile Cys Lys Gln Lys Gly Leu Gly Ala Ala
                325                 330                 335

Ile Gln Cys His Lys Val Asn Cys Tyr Thr Ala Phe His Val Thr Cys
            340                 345                 350

Ala Gln Arg Ala Gly Leu Phe Met Lys Ile Glu Pro Met Arg Glu Thr
        355                 360                 365

Ser Leu Asn Gly Thr Ile Phe Thr Val Arg Lys Thr Ala Tyr Cys Glu
    370                 375                 380

Ala His Ser Pro Pro Gly Ala Ala Thr Ala Arg Arg Lys Gly Asp Ser
385                 390                 395                 400

Pro Arg Ser Ile Ser Glu Thr Gly Asp Glu Glu Gly Leu Lys Glu Gly
                405                 410                 415

Asp Gly Glu Glu Glu Glu Glu Glu Glu Val Glu Glu Glu Glu Gln Glu
            420                 425                 430

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

Lys Met Ser Leu Lys Gln Lys Ile Lys Lys Glu Pro Glu Glu Ala Gly
    450                 455                 460

Gln Asp Thr Pro Ser Thr Leu Pro Met Leu Ala Val Pro Gln Ile Pro
465                 470                 475                 480

Ser Tyr Arg Leu Asn Lys Ile Cys Ser Gly Leu Ser Phe Gln Arg Lys
                485                 490                 495

Asn Gln Phe Met Gln Arg Leu His Asn Tyr Trp Leu Leu Lys Arg Gln
            500                 505                 510
```

```
Ala Arg Asn Gly Val Pro Leu Ile Arg Arg Leu His Ser His Leu Gln
        515                 520                 525

Ser Gln Arg Asn Ala Glu Gln Arg Glu Gln Asp Glu Lys Thr Ser Ala
    530                 535                 540

Val Lys Glu Glu Leu Lys Tyr Trp Gln Lys Leu Arg His Asp Leu Glu
545                 550                 555                 560

Arg Ala Arg Leu Leu Ile Glu Leu Ile Arg Lys Arg Glu Lys Leu Lys
                565                 570                 575

Arg Glu Gln Val Lys Val Gln Gln Ala Ala Met Glu Leu Glu Leu Met
            580                 585                 590

Pro Phe Asn Val Leu Leu Arg Thr Thr Leu Asp Leu Leu Gln Glu Lys
        595                 600                 605

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

Asp Tyr Leu Glu Phe Ile Ser Lys Pro Met Asp Phe Ser Thr Met Arg
625                 630                 635                 640

Arg Lys Leu Glu Ser His Leu Tyr Arg Thr Leu Glu Glu Phe Glu Glu
                645                 650                 655

Asp Phe Asn Leu Ile Val Thr Asn Cys Met Lys Tyr Asn Ala Lys Asp
            660                 665                 670

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

Ile Leu Arg His Ala Arg Arg Gln Ala Glu Asn Ile Gly Tyr Asp Pro
    690                 695                 700

Glu Arg Gly Thr His Leu Pro Glu Ser Pro Lys Leu Glu Asp Phe Tyr
705                 710                 715                 720

Arg Phe Ser Trp Glu Asp Gly Arg Ser Leu Leu Leu Pro Phe Glu Asp
                725                 730                 735
```

```
Arg Gly Asp Leu Glu Pro Leu Glu Leu Val Trp Ala Lys Cys Arg Gly
            740                 745                 750

Tyr Pro Ser Tyr Pro Ala Leu Ile Ile Asp Pro Lys Met Pro Arg Glu
        755                 760                 765

Gly Leu Leu His Asn Gly Val Pro Ile Pro Val Pro Pro Leu Asp Val
    770                 775                 780

Leu Lys Leu Gly Glu Gln Lys Gln Ala Glu Ala Gly Glu Lys Leu Phe
785                 790                 795                 800

Leu Val Leu Phe Phe Asp Asn Lys Arg Thr Trp Gln Trp Leu Pro Arg
                805                 810                 815

Asp Lys Val Leu Pro Leu Gly Val Glu Asp Thr Val Asp Lys Leu Lys
            820                 825                 830

Met Leu Glu Gly Arg Lys Thr Ser Ile Arg Lys Ser Val Gln Val Ala
        835                 840                 845

Tyr Asp Arg Ala Met Ile His Leu Ser Arg Val Arg Gly Pro His Ser
    850                 855                 860

Phe Val Thr Ser Ser Tyr Leu
865                 870


<210> 9765
<211> 1106
<212> PRT
<213> Homo sapiens

<220>
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<400> 9765
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1 5 10 15

Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
20 25 30

Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
35 40 45

Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
50 55 60

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65 70 75 80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser Lys
85 90 95

Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala Ser Gly Thr Ser Phe
100 105 110

His Leu Pro Gln Pro Ser Phe Arg Met Val Asp Ser Gly Ile Gln Pro
115 120 125

Glu Ala Pro Pro Leu Pro Ala Ala Tyr Tyr Arg Tyr Ile Glu Lys Pro
130 135 140

Pro Glu Asp Leu Asp Ala Glu Val Glu Tyr Asp Met Asp Glu Glu Asp
145 150 155 160

Leu Ala Trp Leu Asp Met Val Asn Glu Lys Arg Arg Val Asp Gly His
165 170 175

Ser Leu Val Ser Ala Asp Thr Phe Glu Leu Leu Val Asp Arg Leu Glu
180 185 190

Lys Glu Ser Tyr Leu Glu Ser Arg Ser Ser Gly Ala Gln Gln Ser Leu
195 200 205

Ile Asp Glu Asp Ala Phe Cys Cys Val Cys Leu Asp Asp Glu Cys His
210 215 220

```
Asn Ser Asn Val Ile Leu Phe Cys Asp Ile Cys Asn Leu Ala Val His
225                 230                 235                 240

Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys
                245                 250                 255

Arg Cys Cys Leu Gln Ser Pro Ser Arg Pro Val Asp Cys Ile Leu Cys
            260                 265                 270

Pro Asn Lys Gly Gly Ala Phe Lys Gln Thr Ser Asp Gly His Trp Ala
        275                 280                 285

His Val Val Cys Ala Ile Trp Ile Pro Glu Val Cys Phe Ala Asn Thr
    290                 295                 300

Val Phe Leu Glu Pro Ile Glu Gly Ile Asp Asn Ile Pro Pro Ala Arg
305                 310                 315                 320

Trp Lys Leu Thr Cys Tyr Ile Cys Lys Gln Lys Gly Leu Gly Ala Ala
                325                 330                 335

Ile Gln Cys His Lys Val Asn Cys Tyr Thr Ala Phe His Val Thr Cys
            340                 345                 350

Ala Gln Arg Ala Gly Leu Phe Met Lys Ile Glu Pro Met Arg Glu Thr
        355                 360                 365

Ser Leu Asn Gly Thr Ile Phe Thr Val Arg Lys Thr Ala Tyr Cys Glu
    370                 375                 380

Ala His Ser Pro Pro Gly Ala Ala Thr Ala Arg Arg Lys Gly Asp Ser
385                 390                 395                 400

Pro Arg Ser Ile Ser Glu Thr Gly Asp Glu Glu Gly Leu Lys Glu Gly
                405                 410                 415

Asp Gly Glu Glu Glu Glu Glu Glu Glu Val Glu Glu Glu Glu Gln Glu
            420                 425                 430

Ala Gln Gly Gly Val Ser Gly Ser Leu Lys Gly Val Pro Lys Lys Ser
        435                 440                 445
```

```
Lys Met Ser Leu Lys Gln Lys Ile Lys Lys Glu Pro Glu Glu Ala Gly
    450                 455                 460

Gln Asp Thr Pro Ser Thr Leu Pro Met Leu Ala Val Pro Gln Ile Pro
465                 470                 475                 480

Ser Tyr Arg Leu Asn Lys Ile Cys Ser Gly Leu Ser Phe Gln Arg Lys
                485                 490                 495

Asn Gln Phe Met Gln Arg Leu His Asn Tyr Trp Leu Leu Lys Arg Gln
            500                 505                 510

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

Ser Gln Arg Asn Ala Glu Gln Arg Glu Gln Asp Glu Lys Thr Ser Ala
    530                 535                 540

Val Lys Glu Glu Leu Lys Tyr Trp Gln Lys Leu Arg His Asp Leu Glu
545                 550                 555                 560

Arg Ala Arg Leu Leu Ile Glu Leu Ile Arg Lys Arg Glu Lys Leu Lys
                565                 570                 575

Arg Glu Gln Val Lys Val Gln Gln Ala Ala Met Glu Leu Glu Leu Met
            580                 585                 590

Pro Phe Asn Val Leu Leu Arg Thr Thr Leu Asp Leu Leu Gln Glu Lys
        595                 600                 605

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

Asp Tyr Leu Glu Phe Ile Ser Lys Pro Met Asp Phe Ser Thr Met Arg
625                 630                 635                 640

Arg Lys Leu Glu Ser His Leu Tyr Arg Thr Leu Glu Glu Phe Glu Glu
                645                 650                 655

Asp Phe Asn Leu Ile Val Thr Asn Cys Met Lys Tyr Asn Ala Lys Asp
            660                 665                 670

Thr Ile Phe His Arg Ala Ala Val Arg Leu Arg Asp Leu Gly Gly Ala
```

675 680 685

Ile Leu Arg His Ala Arg Arg Gln Ala Glu Asn Ile Gly Tyr Asp Pro
690 695 700

Glu Arg Gly Thr His Leu Pro Glu Ser Pro Lys Leu Glu Asp Phe Tyr
705 710 715 720

Arg Phe Ser Trp Glu Asp Val Asp Asn Ile Leu Ile Pro Glu Asn Arg
725 730 735

Ala His Leu Ser Pro Glu Val Gln Leu Lys Glu Leu Leu Glu Lys Leu
740 745 750

Asp Leu Val Ser Ala Met Arg Ser Ser Gly Ala Arg Thr Arg Arg Val
755 760 765

Arg Leu Leu Arg Arg Glu Ile Asn Ala Leu Arg Gln Lys Leu Ala Gln
770 775 780

Pro Pro Pro Pro Gln Pro Pro Ser Leu Asn Lys Thr Val Ser Asn Gly
785 790 795 800

Glu Leu Pro Ala Gly Pro Gln Gly Asp Ala Ala Val Leu Glu Gln Ala
805 810 815

Leu Gln Glu Glu Pro Glu Asp Asp Gly Asp Arg Asp Asp Ser Lys Leu
820 825 830

Pro Pro Pro Pro Thr Leu Glu Pro Thr Gly Pro Ala Pro Ser Leu Ser
835 840 845

Glu Gln Glu Ser Pro Pro Glu Pro Pro Thr Leu Lys Pro Ile Asn Asp
850 855 860

Ser Lys Pro Pro Ser Arg Phe Leu Lys Pro Arg Lys Val Glu Glu Asp
865 870 875 880

Glu Leu Leu Glu Lys Ser Pro Leu Gln Leu Gly Asn Glu Pro Leu Gln
885 890 895

Arg Leu Leu Ser Asp Asn Gly Ile Asn Arg Leu Ser Leu Met Ala Pro
900 905 910

```
Asp Thr Pro Ala Gly Thr Pro Leu Ser Gly Val Gly Arg Arg Thr Ser
        915                 920                 925

Val Leu Phe Lys Lys Ala Lys Asn Gly Val Lys Leu Gln Arg Ser Pro
    930                 935                 940

Asp Arg Val Leu Glu Asn Gly Glu Asp His Gly Val Ala Gly Ser Pro
945                 950                 955                 960

Ala Ser Pro Ala Ser Ile Glu Glu Glu Arg His Ser Arg Lys Arg Pro
                965                 970                 975

Arg Ser Arg Ser Cys Ser Glu Ser Glu Gly Glu Arg Ser Pro Gln Gln
            980                 985                 990

Glu Glu Glu Thr Gly Met Thr Asn  Gly Phe Gly Lys His  Thr Glu
Ser
        995                 1000                1005

Gly Ser  Asp Ser Glu Cys Ser  Leu Gly Leu Ser Gly  Gly Leu Ala
    1010                1015                1020

Phe Glu  Ala Cys Ser Gly Leu  Thr Pro Pro Lys Arg  Ser Arg Gly
    1025                1030                1035

Lys Pro  Ala Leu Ser Arg Val  Pro Phe Leu Glu Gly  Val Asn Gly
    1040                1045                1050

Asp Ser  Asp Tyr Asn Gly Ser  Asp His Arg Ser Gln  Asp Ala Pro
    1055                1060                1065

Gly Gly  Pro Pro Ala Gln Trp  Arg Ser His Pro Cys  Pro Pro Ala
    1070                1075                1080

Gly Arg  Ala Glu Ala Gly Arg  Ala Glu Thr Gly Arg  Gly Trp Arg
    1085                1090                1095

Glu Ala  Leu Pro Cys Pro Leu  Leu
    1100                1105
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<210> 9766
<211> 626

<212> PRT
<213> Homo sapiens

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<400> 9766
Met Arg Lys Pro Arg Arg Lys Ser Arg Gln Asn Ala Glu Gly Arg Arg
1 5 10 15

Ser Pro Ser Pro Tyr Ser Leu Lys Cys Ser Pro Thr Arg Glu Thr Leu
20 25 30

Thr Tyr Ala Gln Ala Gln Arg Ile Val Glu Val Asp Ile Asp Gly Arg
35 40 45

Leu His Arg Ile Ser Ile Tyr Asp Pro Leu Lys Ile Ile Thr Glu Asp
50 55 60

Glu Leu Thr Ala Gln Asp Ile Thr Glu Cys Asn Ser Asn Lys Glu Asn
65 70 75 80

Ser Glu Gln Pro Gln Phe Pro Gly Lys Ser Lys Lys Pro Ser Ser Lys
85 90 95

Gly Lys Lys Lys Glu Ser Cys Ser Lys His Ala Ser Gly Thr Ser Phe
100 105 110

His Leu Pro Gln Pro Ser Phe Arg Met Val Asp Ser Gly Ile Gln Pro
115 120 125

Glu Ala Pro Pro Leu Pro Ala Ala Tyr Tyr Arg Tyr Ile Glu Lys Pro
130 135 140

```
Pro Glu Asp Leu Asp Ala Glu Val Glu Tyr Asp Met Asp Glu Glu Asp
145                 150                 155                 160

Leu Ala Trp Leu Asp Met Val Asn Glu Lys Arg Arg Val Asp Gly His
                165                 170                 175

Ser Leu Val Ser Ala Asp Thr Phe Glu Leu Leu Val Asp Arg Leu Glu
            180                 185                 190

Lys Glu Ser Tyr Leu Glu Ser Arg Ser Ser Gly Ala Gln Gln Ser Leu
        195                 200                 205

Ile Asp Glu Asp Ala Phe Cys Cys Val Cys Leu Asp Asp Glu Cys His
    210                 215                 220

Asn Ser Asn Val Ile Leu Phe Cys Asp Ile Cys Asn Leu Ala Val His
225                 230                 235                 240

Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp Leu Cys
                245                 250                 255

Arg Cys Cys Leu Gln Ser Pro Ser Arg Pro Val Asp Cys Ile Leu Cys
            260                 265                 270

Pro Asn Lys Gly Gly Ala Phe Lys Gln Thr Ser Asp Gly His Trp Ala
        275                 280                 285

His Val Val Cys Ala Ile Trp Ile Pro Glu Val Cys Phe Ala Asn Thr
    290                 295                 300

Val Phe Leu Glu Pro Ile Glu Gly Ile Asp Asn Ile Pro Pro Ala Arg
305                 310                 315                 320

Trp Lys Leu Thr Cys Tyr Ile Cys Lys Gln Lys Gly Leu Gly Ala Ala
                325                 330                 335

Ile Gln Cys His Lys Val Asn Cys Tyr Thr Ala Phe His Val Thr Cys
            340                 345                 350

Ala Gln Arg Ala Gly Leu Phe Met Lys Ile Glu Pro Met Arg Glu Thr
        355                 360                 365

Ser Leu Asn Gly Thr Ile Phe Thr Val Arg Lys Thr Ala Tyr Cys Glu
```

370 375 380

Ala His Ser Pro Pro Gly Ala Ala Thr Ala Arg Arg Lys Gly Asp Ser
385 390 395 400

Pro Arg Ser Ile Ser Glu Thr Gly Asp Glu Glu Gly Leu Lys Glu Gly
405 410 415

Asp Gly Glu Glu Glu Glu Glu Glu Glu Val Glu Glu Glu Glu Gln Glu
420 425 430

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

Lys Met Ser Leu Lys Gln Lys Ile Lys Lys Glu Pro Glu Glu Ala Gly
450 455 460

Gln Asp Thr Pro Ser Thr Leu Pro Met Leu Ala Val Pro Gln Ile Pro
465 470 475 480

Ser Tyr Arg Leu Asn Lys Ile Cys Ser Gly Leu Ser Phe Gln Arg Lys
485 490 495

Asn Gln Phe Met Gln Arg Leu His Asn Tyr Trp Leu Leu Lys Arg Gln
500 505 510

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

Ser Gln Arg Asn Ala Glu Gln Arg Glu Gln Asp Glu Lys Thr Ser Ala
530 535 540

Val Lys Glu Glu Leu Lys Tyr Trp Gln Lys Leu Arg His Asp Leu Glu
545 550 555 560

Arg Ala Arg Leu Leu Ile Glu Leu Ile Arg Lys Arg Glu Lys Leu Lys
565 570 575

Arg Glu Gln Val Lys Val Gln Gln Ala Ala Met Glu Leu Glu Leu Met
580 585 590

Pro Phe Asn Val Leu Leu Arg Thr Thr Leu Asp Leu Leu Gln Glu Lys
595 600 605

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

Tyr Val
625

<210> 9767
<211> 2320
<212> PRT
<213> Homo sapiens

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domain containing 1; "

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<400> 9767
Met Ala Glu Pro Ser Ser Ala Arg Arg Pro Val Pro Leu Ile Glu Ser
1 5 10 15

Glu Leu Tyr Phe Leu Ile Ala Arg Tyr Leu Ser Ala Gly Pro Cys Arg
20 25 30

Arg Ala Ala Gln Val Leu Val Gln Glu Leu Glu Gln Tyr Gln Leu Leu
35 40 45

Pro Lys Arg Leu Asp Trp Glu Gly Asn Glu His Asn Arg Ser Tyr Glu
50 55 60

Glu Leu Val Leu Ser Asn Lys His Val Ala Pro Asp His Leu Leu Gln
65 70 75 80

```
Ile Cys Gln Arg Ile Gly Pro Met Leu Asp Lys Glu Ile Pro Pro Ser
                85                  90                  95

Ile Ser Arg Val Thr Ser Leu Leu Gly Ala Gly Arg Gln Ser Leu Leu
            100                 105                 110

Arg Thr Ala Lys Asp Cys Arg His Thr Val Trp Lys Gly Ser Ala Phe
        115                 120                 125

Ala Ala Leu His Arg Gly Arg Pro Pro Glu Met Pro Val Asn Tyr Gly
    130                 135                 140

Ser Pro Pro Asn Leu Val Glu Ile His Arg Gly Lys Gln Leu Thr Gly
145                 150                 155                 160

Cys Ser Thr Phe Ser Thr Ala Phe Pro Gly Thr Met Tyr Gln His Ile
                165                 170                 175

Lys Met His Arg Arg Ile Leu Gly His Leu Ser Ala Val Tyr Cys Val
            180                 185                 190

Ala Phe Asp Arg Thr Gly His Arg Ile Phe Thr Gly Ser Asp Asp Cys
        195                 200                 205

Leu Val Lys Ile Trp Ser Thr His Asn Gly Arg Leu Leu Ser Thr Leu
    210                 215                 220

Arg Gly His Ser Ala Glu Ile Ser Asp Met Ala Val Asn Tyr Glu Asn
225                 230                 235                 240

Thr Met Ile Ala Ala Gly Ser Cys Asp Lys Ile Ile Arg Val Trp Cys
                245                 250                 255

Leu Arg Thr Cys Ala Pro Val Ala Val Leu Gln Gly His Thr Gly Ser
            260                 265                 270

Ile Thr Ser Leu Gln Phe Ser Pro Met Ala Lys Gly Ser Gln Arg Tyr
        275                 280                 285

Met Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
    290                 295                 300
```

```
Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
305                 310                 315                 320

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
                325                 330                 335

Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
            340                 345                 350

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
        355                 360                 365

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
    370                 375                 380

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
385                 390                 395                 400

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
                405                 410                 415

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
            420                 425                 430

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
        435                 440                 445

Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
    450                 455                 460

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
465                 470                 475                 480

Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
                485                 490                 495

Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
            500                 505                 510

Gly Gln Gly His Gly Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly
        515                 520                 525

Gln His Phe Ala Cys Thr Asp Ser His Gly His Leu Leu Ile Phe Gly
```

530 535 540

Phe Gly Cys Ser Lys Pro Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe
545 550 555 560

His Thr Asp Tyr Arg Pro Leu Ile Arg Asp Ser Asn Asn Tyr Val Leu
565 570 575

Asp Glu Gln Thr Gln Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu
580 585 590

Val Asp Val Asp Gly Asn Pro His Pro Thr Lys Tyr Gln Arg Leu Val
595 600 605

Pro Gly Arg Glu Asn Ser Ala Asp Glu His Leu Ile Pro Gln Leu Gly
610 615 620

Tyr Val Ala Thr Ser Asp Gly Glu Val Ile Glu Gln Ile Ile Ser Leu
625 630 635 640

Gln Thr Asn Asp Asn Asp Glu Arg Ser Pro Glu Ser Ser Ile Leu Asp
645 650 655

Gly Met Ile Arg Gln Leu Gln Gln Gln Gln Asp Gln Arg Met Gly Ala
660 665 670

Asp Gln Asp Thr Ile Pro Arg Gly Leu Ser Asn Gly Glu Glu Thr Pro
675 680 685

Arg Arg Gly Phe Arg Arg Leu Ser Leu Asp Ile Gln Ser Pro Pro Asn
690 695 700

Ile Gly Leu Arg Arg Ser Gly Gln Val Glu Gly Val Arg Gln Met His
705 710 715 720

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

Trp Lys Arg Arg Val Val Val Pro Glu Val Pro Leu Gly Ile Phe Arg
740 745 750

Lys Leu Glu Asp Phe Arg Leu Glu Lys Gly Glu Glu Glu Arg Asn Leu
755 760 765

```
Tyr Ile Ile Gly Arg Lys Arg Lys Thr Leu Gln Leu Ser His Lys Ser
    770                 775                 780

Asp Ser Val Val Leu Val Ser Gln Ser Arg Gln Arg Thr Cys Arg Arg
785                 790                 795                 800

Lys Tyr Pro Asn Tyr Gly Arg Arg Asn Arg Ser Trp Arg Glu Leu Ser
                805                 810                 815

Ser Gly Asn Glu Ser Ser Ser Ser Val Arg His Glu Thr Ser Cys Asp
            820                 825                 830

Gln Ser Glu Gly Ser Gly Ser Ser Glu Glu Asp Glu Trp Arg Ser Asp
        835                 840                 845

Arg Lys Ser Glu Ser Tyr Ser Glu Ser Ser Ser Asp Ser Ser Ser Arg
    850                 855                 860

Tyr Ser Asp Trp Thr Ala Asp Ala Gly Ile Asn Leu Gln Pro Pro Leu
865                 870                 875                 880

Arg Thr Ser Cys Arg Arg Arg Ile Thr Arg Phe Cys Ser Ser Ser Glu
                885                 890                 895

Asp Glu Ile Ser Thr Glu Asn Leu Ser Pro Pro Lys Arg Arg Arg Lys
            900                 905                 910

Arg Lys Lys Glu Asn Lys Pro Lys Lys Glu Asn Leu Arg Arg Met Thr
        915                 920                 925

Pro Ala Glu Leu Ala Asn Met Glu His Leu Tyr Glu Phe His Pro Pro
    930                 935                 940

Val Trp Ile Thr Asp Thr Thr Leu Arg Lys Ser Pro Phe Val Pro Gln
945                 950                 955                 960

Met Gly Asp Glu Val Ile Tyr Phe Arg Gln Gly His Glu Ala Tyr Ile
                965                 970                 975

Glu Ala Val Arg Arg Asn Asn Ile Tyr Glu Leu Asn Pro Asn Lys Glu
            980                 985                 990
```

```
Pro Trp Arg Lys Met Asp Leu Arg  Asp Gln Glu Leu Val  Lys Ile
Val
        995                 1000                1005

Gly Ile  Arg Tyr Glu Val Gly  Pro Pro Thr Leu Cys  Cys Leu Lys
    1010                1015                1020

Leu Ala  Phe Ile Asp Pro Ala  Thr Gly Lys Leu Met  Asp Lys Ser
    1025                1030                1035

Phe Ser  Ile Arg Tyr His Asp  Met Pro Asp Val Ile  Asp Phe Leu
    1040                1045                1050

Val Leu  Arg Gln Phe Tyr Asp  Glu Ala Arg Gln Arg  Asn Trp Gln
    1055                1060                1065

Ser Cys  Asp Arg Phe Arg Ser  Ile Ile Asp Asp Ala  Trp Trp Phe
    1070                1075                1080

Gly Thr  Val Leu Ser Gln Glu  Pro Tyr Gln Pro Gln  Tyr Pro Asp
    1085                1090                1095

Ser His  Phe Gln Cys Tyr Ile  Val Arg Trp Asp Asn  Thr Glu Ile
    1100                1105                1110

Glu Lys  Leu Ser Pro Trp Asp  Met Glu Pro Ile Pro  Asp Asn Val
    1115                1120                1125

Asp Pro  Pro Glu Glu Leu Gly  Ala Ser Ile Ser Val  Thr Thr Asp
    1130                1135                1140

Glu Leu  Glu Lys Leu Leu Tyr  Lys Pro Gln Ala Gly  Glu Trp Gly
    1145                1150                1155

Gln Lys  Ser Arg Asp Glu Glu  Cys Asp Arg Ile Ile  Ser Gly Ile
    1160                1165                1170

Asp Gln  Leu Leu Asn Leu Asp  Ile Ala Ala Ala Phe  Ala Gly Pro
    1175                1180                1185

Val Asp  Leu Cys Thr Tyr Pro  Lys Tyr Cys Thr Val  Val Ala Tyr
    1190                1195                1200
```

```
Pro Thr  Asp Leu Tyr Thr Ile  Arg Met Arg Leu Val  Asn Arg Phe
    1205                1210                1215

Tyr Arg  Arg Leu Ser Ala Leu  Val Trp Glu Val Arg  Tyr Ile Glu
    1220                1225                1230

His Asn  Ala Arg Thr Phe Asn  Glu Pro Glu Ser Val  Ile Ala Arg
    1235                1240                1245

Ser Ala  Lys Lys Ile Thr Asp  Gln Leu Leu Lys Phe  Ile Lys Asn
    1250                1255                1260

Gln His  Cys Thr Asn Ile Ser  Glu Leu Ser Asn Thr  Ser Glu Asn
    1265                1270                1275

Asp Glu  Gln Asn Ala Glu Asp  Leu Asp Asp Ser Asp  Leu Pro Lys
    1280                1285                1290

Thr Ser  Ser Gly Arg Arg Arg  Val His Asp Gly Lys  Lys Ser Ile
    1295                1300                1305

Arg Ala  Thr Asn Tyr Val Glu  Ser Asn Trp Lys Lys  Gln Cys Lys
    1310                1315                1320

Glu Leu  Val Asn Leu Ile Phe  Gln Cys Glu Asp Ser  Glu Pro Phe
    1325                1330                1335

Arg Gln  Pro Val Asp Leu Val  Glu Tyr Pro Asp Tyr  Arg Asp Ile
    1340                1345                1350

Ile Asp  Thr Pro Met Asp Phe  Gly Thr Val Arg Glu  Thr Leu Asp
    1355                1360                1365

Ala Gly  Asn Tyr Asp Ser Pro  Leu Glu Phe Cys Lys  Asp Ile Arg
    1370                1375                1380

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

Lys Ile  Tyr Ser Met Thr Leu  Arg Leu Ser Ala Leu  Phe Glu Glu
    1400                1405                1410
```

```
Lys Met  Lys Lys Ile Ser Ser  Asp Phe Lys Ile Gly  Gln Lys Phe
    1415                1420                1425

Asn Glu  Lys Leu Arg Arg Ser  Gln Arg Phe Lys Gln  Arg Gln Asn
    1430                1435                1440

Cys Lys  Gly Asp Ser Gln Pro  Asn Lys Ser Ile Arg  Asn Leu Lys
    1445                1450                1455

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

Gly Ser  Pro Thr Gln Ser Thr  Ser Ser Arg Thr Ala  Tyr Leu Gly
    1475                1480                1485

Thr His  Lys Thr Ser Ala Gly  Ile Ser Ser Gly Val  Thr Ser Gly
    1490                1495                1500

Asp Ser  Ser Asp Ser Ala Glu  Ser Ser Glu Arg Arg  Lys Arg Asn
    1505                1510                1515

Arg Pro  Ile Thr Asn Gly Ser  Thr Leu Ser Glu Ser  Glu Val Glu
    1520                1525                1530

Asp Ser  Leu Ala Thr Ser Leu  Ser Ser Ser Ala Ser  Ser Ser Ser
    1535                1540                1545

Glu Glu  Ser Lys Glu Ser Ser  Arg Ala Arg Glu Ser  Ser Ser Arg
    1550                1555                1560

Ser Gly  Leu Ser Arg Ser Ser  Asn Leu Arg Val Thr  Arg Thr Arg
    1565                1570                1575

Ala Ala  Gln Arg Lys Thr Gly  Pro Val Ser Leu Ala  Asn Gly Cys
    1580                1585                1590

Gly Arg  Lys Ala Thr Arg Lys  Arg Val Tyr Leu Ser  Asp Ser Asp
    1595                1600                1605

Asn Asn  Ser Leu Glu Thr Gly  Glu Ile Leu Lys Ala  Arg Ala Gly
    1610                1615                1620

Asn Asn  Arg Lys Val Leu Arg  Lys Cys Ala Ala Val  Ala Ala Asn
```

1625 1630 1635

Lys Ile Lys Leu Met Ser Asp Val Glu Glu Asn Ser Ser Ser Glu
1640 1645 1650

Ser Val Cys Ser Gly Arg Lys Leu Pro His Arg Asn Ala Ser Ala
1655 1660 1665

Val Ala Arg Lys Lys Leu Leu His Asn Ser Glu Asp Glu Gln Ser
1670 1675 1680

Leu Lys Ser Glu Ile Glu Glu Glu Glu Leu Lys Asp Glu Asn Gln
1685 1690 1695

Leu Leu Pro Val Ser Ser Ser His Thr Ala Gln Ser Asn Val Asp
1700 1705 1710

Glu Ser Glu Asn Arg Asp Ser Glu Ser Glu Ser Asp Leu Arg Val
1715 1720 1725

Ala Arg Lys Asn Trp His Ala Asn Gly Tyr Lys Ser His Thr Pro
1730 1735 1740

Ala Pro Ser Lys Thr Lys Phe Leu Lys Ile Glu Ser Ser Glu Glu
1745 1750 1755

Asp Ser Lys Ser His Asp Ser Asp His Ala Cys Asn Arg Thr Ala
1760 1765 1770

Gly Pro Ser Thr Ser Val Gln Lys Leu Lys Ala Glu Ser Ile Ser
1775 1780 1785

Glu Glu Ala Asp Ser Glu Pro Gly Arg Ser Gly Gly Arg Lys Tyr
1790 1795 1800

Asn Thr Phe His Lys Asn Ala Ser Phe Phe Lys Lys Thr Lys Ile
1805 1810 1815

Leu Ser Asp Ser Glu Asp Ser Glu Ser Glu Glu Gln Asp Arg Glu
1820 1825 1830

Asp Gly Lys Cys His Lys Met Glu Met Asn Pro Ile Ser Gly Asn
1835 1840 1845

```
Leu Asn  Cys Asp Pro Ile Ala  Met Ser Gln Cys Ser  Ser Asp His
    1850                1855                1860

Gly Cys  Glu Thr Asp Leu Asp  Ser Asp Asp Asp Lys  Ile Glu Lys
    1865                1870                1875

Pro Asn  Asn Phe Met Lys Asp  Ser Ala Ser Gln Asp  Asn Gly Leu
    1880                1885                1890

Ser Arg  Lys Ile Ser Arg Lys  Arg Val Cys Ser Ser  Asp Ser Asp
    1895                1900                1905

Ser Ser  Leu Gln Val Val Lys  Lys Ser Ser Lys Ala  Arg Thr Gly
    1910                1915                1920

Leu Leu  Arg Ile Thr Arg Arg  Cys Ala Ala Thr Ala  Ala Asn Lys
    1925                1930                1935

Ile Lys  Leu Met Ser Asp Val  Glu Asp Val Ser Leu  Glu Asn Val
    1940                1945                1950

His Thr  Arg Ser Lys Asn Gly  Arg Lys Lys Pro Leu  His Leu Ala
    1955                1960                1965

Cys Thr  Thr Ala Lys Lys Lys  Leu Ser Asp Cys Glu  Gly Ser Val
    1970                1975                1980

His Cys  Glu Val Pro Ser Glu  Gln Tyr Ala Cys Glu  Gly Lys Pro
    1985                1990                1995

Pro Asp  Pro Asp Ser Glu Gly  Ser Thr Lys Val Leu  Ser Gln Ala
    2000                2005                2010

Leu Asn  Gly Asp Ser Asp Ser  Glu Asp Met Leu Asn  Ser Glu His
    2015                2020                2025

Lys His  Arg His Thr Asn Ile  His Lys Ile Asp Ala  Pro Ser Lys
    2030                2035                2040

Arg Lys  Ser Ser Ser Val Thr  Ser Ser Gly Glu Asp  Ser Lys Ser
    2045                2050                2055
```

```
His Ile  Pro Gly Ser Glu Thr  Asp Arg Thr Phe Ser  Ser Glu Ser
    2060                2065                2070

Thr Leu  Ala Gln Lys Ala Thr  Ala Glu Asn Asn Phe  Glu Val Glu
    2075                2080                2085

Leu Asn  Tyr Gly Leu Arg Arg  Trp Asn Gly Arg Arg  Leu Arg Thr
    2090                2095                2100

Tyr Gly  Lys Ala Pro Phe Ser  Lys Thr Lys Val Ile  His Asp Ser
    2105                2110                2115

Gln Glu  Thr Ala Glu Lys Glu  Val Lys Arg Lys Arg  Ser His Pro
    2120                2125                2130

Glu Leu  Glu Asn Val Lys Ile  Ser Glu Thr Thr Gly  Asn Ser Lys
    2135                2140                2145

Phe Arg  Pro Asp Thr Ser Ser  Lys Ser Ser Asp Leu  Gly Ser Val
    2150                2155                2160

Thr Glu  Ser Asp Ile Asp Cys  Thr Asp Asn Thr Lys  Thr Lys Arg
    2165                2170                2175

Arg Lys  Thr Lys Gly Lys Ala  Lys Val Val Arg Lys  Glu Phe Val
    2180                2185                2190

Pro Arg  Asp Arg Glu Pro Asn  Thr Lys Val Arg Thr  Cys Met His
    2195                2200                2205

Asn Gln  Lys Asp Ala Val Gln  Met Pro Ser Glu Thr  Leu Lys Ala
    2210                2215                2220

Lys Met  Val Pro Glu Lys Val  Pro Arg Arg Cys Ala  Thr Val Ala
    2225                2230                2235

Ala Asn  Lys Ile Lys Ile Met  Ser Asn Leu Lys Glu  Thr Ile Ser
    2240                2245                2250

Gly Pro  Glu Asn Val Trp Ile  Arg Lys Ser Ser Arg  Lys Leu Pro
    2255                2260                2265
```

```
His Arg  Asn Ala Ser Ala Ala  Ala Lys Lys Lys Leu  Leu Asn Val
    2270                2275                2280


Tyr Lys  Glu Asp Asp Thr Thr  Ile Asn Ser Glu Ser  Glu Lys Glu
    2285                2290                2295


Leu Glu  Asp Ile Asn Arg Lys  Met Leu Phe Leu Arg  Gly Phe Arg
    2300                2305                2310


Ser Trp  Lys Glu Asn Ala Gln
    2315                2320


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1               5                  10                  15


Glu Leu Tyr Phe Leu Ile Ala Arg Tyr Leu Ser Ala Gly Pro Cys Arg
            20                  25                  30


Arg Ala Ala Gln Val Leu Val Gln Glu Leu Glu Gln Tyr Gln Leu Leu
        35                  40                  45


Pro Lys Arg Leu Asp Trp Glu Gly Asn Glu His Asn Arg Ser Tyr Glu
```

```
    50                  55                  60

Glu Leu Val Leu Ser Asn Lys His Val Ala Pro Asp His Leu Leu Gln
65                  70                  75                  80

Ile Cys Gln Arg Ile Gly Pro Met Leu Asp Lys Glu Ile Pro Pro Ser
                85                  90                  95

Ile Ser Arg Val Thr Ser Leu Leu Gly Ala Gly Arg Gln Ser Leu Leu
            100                 105                 110

Arg Thr Ala Lys Gly Thr Leu Ile
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1               5                   10                  15

Glu Leu Tyr Phe Leu Ile Ala Arg Tyr Leu Ser Ala Gly Pro Cys Arg
            20                  25                  30

Arg Ala Ala Gln Val Leu Val Gln Glu Leu Glu Gln Tyr Gln Leu Leu
        35                  40                  45
```

```
Pro Lys Arg Leu Asp Trp Glu Gly Asn Glu His Asn Arg Ser Tyr Glu
    50                  55                  60

Glu Leu Val Leu Ser Asn Lys His Val Ala Pro Asp His Leu Leu Gln
65                  70                  75                  80

Ile Cys Gln Arg Ile Gly Pro Met Leu Asp Lys Glu Ile Pro Pro Ser
                85                  90                  95

Ile Ser Arg Val Thr Ser Leu Leu Gly Ala Gly Arg Gln Ser Leu Leu
            100                 105                 110

Arg Thr Ala Lys Asp Cys Arg His Thr Val Trp Lys Gly Ser Ala Phe
        115                 120                 125

Ala Ala Leu His Arg Gly Arg Pro Pro Glu Met Pro Val Asn Tyr Gly
    130                 135                 140

Ser Pro Pro Asn Leu Val Glu Ile His Arg Gly Lys Gln Leu Thr Gly
145                 150                 155                 160

Cys Ser Thr Phe Ser Thr Ala Phe Pro Gly Thr Met Tyr Gln His Ile
                165                 170                 175

Lys Met His Arg Arg Ile Leu Gly His Leu Ser Ala Val Tyr Cys Val
            180                 185                 190

Ala Phe Asp Arg Thr Gly His Arg Ile Phe Thr Gly Ser Asp Asp Cys
        195                 200                 205

Leu Val Lys Ile Trp Ser Thr His Asn Gly Arg Leu Leu Ser Thr Leu
    210                 215                 220

Arg Gly His Ser Ala Glu Ile Ser Asp Met Ala Val Asn Tyr Glu Asn
225                 230                 235                 240

Thr Met Ile Ala Ala Gly Ser Cys Asp Lys Ile Ile Arg Val Trp Cys
                245                 250                 255

Leu Arg Thr Cys Ala Pro Val Ala Val Leu Gln Gly His Thr Gly Ser
            260                 265                 270
```

```
Ile Thr Ser Leu Gln Phe Ser Pro Met Ala Lys Gly Ser Gln Arg Tyr
        275                 280                 285

Met Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
    290                 295                 300

Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
305                 310                 315                 320

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
                325                 330                 335

Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
            340                 345                 350

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
        355                 360                 365

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
    370                 375                 380

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
385                 390                 395                 400

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
                405                 410                 415

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
            420                 425                 430

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
        435                 440                 445

Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
    450                 455                 460

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
465                 470                 475                 480

Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
                485                 490                 495
```

```
Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
            500                 505                 510

Gly Gln Gly His Gly Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly
        515                 520                 525

Gln His Phe Ala Cys Thr Asp Ser His Gly His Leu Leu Ile Phe Gly
    530                 535                 540

Phe Gly Cys Ser Lys Pro Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe
545                 550                 555                 560

His Thr Asp Tyr Arg Pro Leu Ile Arg Asp Ser Asn Asn Tyr Val Leu
                565                 570                 575

Asp Glu Gln Thr Gln Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu
            580                 585                 590

Val Asp Val Asp Gly Asn Pro His Pro Thr Lys Tyr Gln Arg Leu Val
        595                 600                 605

Pro Gly Arg Glu Asn Ser Ala Asp Glu His Leu Ile Pro Gln Leu Gly
    610                 615                 620

Tyr Val Ala Thr Ser Asp Gly Glu Val Ile Glu Gln Ile Ile Ser Leu
625                 630                 635                 640

Gln Thr Asn Asp Asn Asp Glu Arg Ser Pro Glu Ser Ser Ile Leu Asp
                645                 650                 655

Gly Met Ile Arg Gln Leu Gln Gln Gln Gln Asp Gln Arg Met Gly Ala
            660                 665                 670

Asp Gln Asp Thr Ile Pro Arg Gly Leu Ser Asn Gly Glu Glu Thr Pro
        675                 680                 685

Arg Arg Gly Phe Arg Arg Leu Ser Leu Asp Ile Gln Ser Pro Pro Asn
    690                 695                 700

Ile Gly Leu Arg Arg Ser Gly Gln Val Glu Gly Val Arg Gln Met His
705                 710                 715                 720

Gln Asn Ala Pro Arg Ser Gln Ile Ala Thr Glu Arg Asp Leu Gln Ala
```

```
                725                 730                 735

Trp Lys Arg Arg Val Val Val Pro Glu Val Pro Leu Gly Ile Phe Arg
            740                 745                 750

Lys Leu Glu Asp Phe Arg Leu Glu Lys Gly Glu Glu Glu Arg Asn Leu
        755                 760                 765

Tyr Ile Ile Gly Arg Lys Arg Lys Thr Leu Gln Leu Ser His Lys Ser
    770                 775                 780

Asp Ser Val Val Leu Val Ser Gln Ser Arg Gln Arg Thr Cys Arg Arg
785                 790                 795                 800

Lys Tyr Pro Asn Tyr Gly Arg Arg Asn Arg Ser Trp Arg Glu Leu Ser
                805                 810                 815

Ser Gly Asn Glu Ser Ser Ser Ser Val Arg His Glu Thr Ser Cys Asp
            820                 825                 830

Gln Ser Glu Gly Ser Gly Ser Ser Glu Glu Asp Glu Trp Arg Ser Asp
        835                 840                 845

Arg Lys Ser Glu Ser Tyr Ser Glu Ser Ser Ser Asp Ser Ser Ser Arg
    850                 855                 860

Tyr Ser Asp Trp Thr Ala Asp Ala Gly Ile Asn Leu Gln Pro Pro Leu
865                 870                 875                 880

Arg Thr Ser Cys Arg Arg Arg Ile Thr Arg Phe Cys Ser Ser Ser Glu
                885                 890                 895

Asp Glu Ile Ser Thr Glu Asn Leu Ser Pro Pro Lys Arg Arg Arg Lys
            900                 905                 910

Arg Lys Lys Glu Asn Lys Pro Lys Lys Glu Asn Leu Arg Arg Met Thr
        915                 920                 925

Pro Ala Glu Leu Ala Asn Met Glu His Leu Tyr Glu Phe His Pro Pro
    930                 935                 940

Val Trp Ile Thr Asp Thr Thr Leu Arg Lys Ser Pro Phe Val Pro Gln
945                 950                 955                 960
```

```
Met Gly Asp Glu Val Ile Tyr Phe Arg Gln Gly His Glu Ala Tyr Ile
                965                 970                 975

Glu Ala Val Arg Arg Asn Asn Ile Tyr Glu Leu Asn Pro Asn Lys Glu
            980                 985                 990

Pro Trp Arg Lys Met Asp Leu Arg  Asp Gln Glu Leu Val  Lys Ile
Val
        995                 1000                1005

Gly Ile  Arg Tyr Glu Val Gly  Pro Pro Thr Leu Cys  Cys Leu Lys
    1010                1015                1020

Leu Ala  Phe Ile Asp Pro Ala  Thr Gly Lys Leu Met  Asp Lys Ser
    1025                1030                1035

Phe Ser  Ile Arg Tyr His Asp  Met Pro Asp Val Ile  Asp Phe Leu
    1040                1045                1050

Val Leu  Arg Gln Phe Tyr Asp  Glu Ala Arg Gln Arg  Asn Trp Gln
    1055                1060                1065

Ser Cys  Asp Arg Phe Arg Ser  Ile Ile Asp Asp Ala  Trp Trp Phe
    1070                1075                1080

Gly Thr  Val Leu Ser Gln Glu  Pro Tyr Gln Pro Gln  Tyr Pro Asp
    1085                1090                1095

Ser His  Phe Gln Cys Tyr Ile  Val Arg Trp Asp Asn  Thr Glu Ile
    1100                1105                1110

Glu Lys  Leu Ser Pro Trp Asp  Met Glu Pro Ile Pro  Asp Asn Val
    1115                1120                1125

Asp Pro  Pro Glu Glu Leu Gly  Ala Ser Ile Ser Val  Thr Thr Asp
    1130                1135                1140

Glu Leu  Glu Lys Leu Leu Tyr  Lys Pro Gln Ala Gly  Glu Trp Gly
    1145                1150                1155

Gln Lys  Ser Arg Asp Glu Glu  Cys Asp Arg Ile Ile  Ser Gly Ile
    1160                1165                1170
```

```
Asp Gln  Leu Leu Asn Leu Asp  Ile Ala Ala Ala Phe  Ala Gly Pro
    1175                1180                1185

Val Asp  Leu Cys Thr Tyr Pro  Lys Tyr Cys Thr Val  Val Ala Tyr
    1190                1195                1200

Pro Thr  Asp Leu Tyr Thr Ile  Arg Met Arg Leu Val  Asn Arg Phe
    1205                1210                1215

Tyr Arg  Arg Leu Ser Ala Leu  Val Trp Glu Val Arg  Tyr Ile Glu
    1220                1225                1230

His Asn  Ala Arg Thr Phe Asn  Glu Pro Glu Ser Val  Ile Ala Arg
    1235                1240                1245

Ser Ala  Lys Lys Ile Thr Asp  Gln Leu Leu Lys Phe  Ile Lys Asn
    1250                1255                1260

Gln His  Cys Thr Asn Ile Ser  Glu Leu Ser Asn Thr  Ser Glu Asn
    1265                1270                1275

Asp Glu  Gln Asn Ala Glu Asp  Leu Asp Asp Ser Asp  Leu Pro Lys
    1280                1285                1290

Thr Ser  Ser Gly Arg Arg Arg  Val His Asp Gly Lys  Lys Ser Ile
    1295                1300                1305

Arg Ala  Thr Asn Tyr Val Glu  Ser Asn Trp Lys Lys  Gln Cys Lys
    1310                1315                1320

Glu Leu  Val Asn Leu Ile Phe  Gln Cys Glu Asp Ser  Glu Pro Phe
    1325                1330                1335

Arg Gln  Pro Val Asp Leu Val  Glu Tyr Pro Asp Tyr  Arg Asp Ile
    1340                1345                1350

Ile Asp  Thr Pro Met Asp Phe  Gly Thr Val Arg Glu  Thr Leu Asp
    1355                1360                1365

Ala Gly  Asn Tyr Asp Ser Pro  Leu Glu Phe Cys Lys  Asp Ile Arg
    1370                1375                1380
```

```
Leu Ile  Phe Ser Asn Ala Lys  Ala Tyr Thr Pro Asn  Lys Arg Ser
    1385                1390                1395

Lys Ile  Tyr Ser Met Thr Leu  Arg Leu Ser Ala Leu  Phe Glu Glu
    1400                1405                1410

Lys Met  Lys Lys Ile Ser Ser  Asp Phe Lys Ile Gly  Gln Lys Phe
    1415                1420                1425

Asn Glu  Lys Leu Arg Arg Ser  Gln Arg Phe Lys Gln  Arg Gln Asn
    1430                1435                1440

Cys Lys  Gly Asp Ser Gln Pro  Asn Lys Ser Ile Arg  Asn Leu Lys
    1445                1450                1455

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

Gly Ser  Pro Thr Gln Ser Thr  Ser Ser Arg Thr Ala  Tyr Leu Gly
    1475                1480                1485

Thr His  Lys Thr Ser Ala Gly  Ile Ser Ser Gly Val  Thr Ser Gly
    1490                1495                1500

Asp Ser  Ser Asp Ser Ala Glu  Ser Ser Glu Arg Arg  Lys Arg Asn
    1505                1510                1515

Arg Pro  Ile Thr Asn Gly Ser  Thr Leu Ser Glu Ser  Glu Val Glu
    1520                1525                1530

Asp Ser  Leu Ala Thr Ser Leu  Ser Ser Ser Ala Ser  Ser Ser Ser
    1535                1540                1545

Glu Glu  Ser Lys Glu Ser Ser  Arg Ala Arg Glu Ser  Ser Ser Arg
    1550                1555                1560

Ser Gly  Leu Ser Arg Ser Ser  Asn Leu Arg Val Thr  Arg Thr Arg
    1565                1570                1575

Ala Ala  Gln Arg Lys Thr Gly  Pro Val Ser Leu Ala  Asn Gly Cys
    1580                1585                1590
```

Gly Arg Lys Ala Thr Arg Lys Arg Val Tyr Leu Ser Asp Ser Asp
1595 1600 1605

Asn Asn Ser Leu Glu Thr Gly Glu Ile Leu Lys Ala Arg Ala Gly
1610 1615 1620

Asn Asn Arg Lys Val Leu Arg Lys Cys Ala Ala Val Ala Ala Asn
1625 1630 1635

Lys Ile Lys Leu Met Ser Asp Val Glu Glu Asn Ser Ser Ser Glu
1640 1645 1650

Ser Val Cys Ser Gly Arg Lys Leu Pro His Arg Asn Ala Ser Ala
1655 1660 1665

Val Ala Arg Lys Lys Leu Leu His Asn Ser Glu Asp Glu Gln Ser
1670 1675 1680

Leu Lys Ser Glu Ile Glu Glu Glu Glu Leu Lys Asp Glu Asn Gln
1685 1690 1695

Leu Leu Pro Val Ser Ser Ser His Thr Ala Gln Ser Asn Val Asp
1700 1705 1710

Glu Ser Glu Asn Arg Asp Ser Glu Ser Glu Ser Asp Leu Arg Val
1715 1720 1725

Ala Arg Lys Asn Trp His Ala Asn Gly Tyr Lys Ser His Thr Pro
1730 1735 1740

Ala Pro Ser Lys Thr Lys Phe Leu Lys Ile Glu Ser Ser Glu Glu
1745 1750 1755

Asp Ser Lys Ser His Asp Ser Asp His Ala Cys Asn Arg Thr Ala
1760 1765 1770

Gly Pro Ser Thr Ser Val Gln Lys Leu Lys Ala Glu Ser Ile Ser
1775 1780 1785

Glu Glu Ala Asp Ser Glu Pro Gly Arg Ser Gly Gly Arg Lys Tyr
1790 1795 1800

Asn Thr Phe His Lys Asn Ala Ser Phe Phe Lys Lys Thr Lys Ile

1805 1810 1815

Leu Ser Asp Ser Glu Asp Ser Glu Ser Glu Glu Gln Asp Arg Glu
1820 1825 1830

Asp Gly Lys Cys His Lys Met Glu Met Asn Pro Ile Ser Gly Asn
1835 1840 1845

Leu Asn Cys Asp Pro Ile Ala Met Ser Gln Cys Ser Ser Asp His
1850 1855 1860

Gly Cys Glu Thr Asp Leu Asp Ser Asp Asp Asp Lys Ile Glu Lys
1865 1870 1875

Pro Asn Asn Phe Met Lys Asp Ser Ala Ser Gln Asp Asn Gly Leu
1880 1885 1890

Ser Arg Lys Ile Ser Arg Lys Arg Val Cys Ser Ser Asp Ser Asp
1895 1900 1905

Ser Ser Leu Gln Val Val Lys Lys Ser Ser Lys Ala Arg Thr Gly
1910 1915 1920

Leu Leu Arg Ile Thr Arg Arg Cys Ala Ala Thr Ala Ala Asn Lys
1925 1930 1935

Ile Lys Leu Met Ser Asp Val Glu Asp Val Ser Leu Glu Asn Val
1940 1945 1950

His Thr Arg Ser Lys Asn Gly Arg Lys Lys Pro Leu His Leu Ala
1955 1960 1965

Cys Thr Thr Ala Lys Lys Lys Leu Ser Asp Cys Glu Gly Ser Val
1970 1975 1980

His Cys Glu Val Pro Ser Glu Gln Tyr Ala Cys Glu Gly Lys Pro
1985 1990 1995

Pro Asp Pro Asp Ser Glu Gly Ser Thr Lys Val Leu Ser Gln Ala
2000 2005 2010

Leu Asn Gly Asp Ser Asp Ser Glu Asp Met Leu Asn Ser Glu His
2015 2020 2025

```
Lys His  Arg His Thr Asn Ile  His Lys Ile Asp Ala  Pro Ser Lys
    2030                2035                2040

Arg Lys  Ser Ser Ser Val Thr  Ser Ser Gly Glu Asp  Ser Lys Ser
    2045                2050                2055

His Ile  Pro Gly Ser Glu Thr  Asp Arg Thr Phe Ser  Ser Glu Ser
    2060                2065                2070

Thr Leu  Ala Gln Lys Ala Thr  Ala Glu Asn Asn Phe  Glu Val Glu
    2075                2080                2085

Leu Asn  Tyr Gly Leu Arg Arg  Trp Asn Gly Arg Arg  Leu Arg Thr
    2090                2095                2100

Tyr Gly  Lys Ala Pro Phe Ser  Lys Thr Lys Val Ile  His Asp Ser
    2105                2110                2115

Gln Glu  Thr Ala Glu Lys Glu  Val Lys Arg Lys Arg  Ser His Pro
    2120                2125                2130

Glu Leu  Glu Asn Val Lys Ile  Ser Glu Thr Thr Gly  Asn Ser Lys
    2135                2140                2145

Phe Arg  Pro Asp Thr Ser Ser  Lys Ser Ser Asp Leu  Gly Ser Val
    2150                2155                2160

Thr Glu  Ser Asp Ile Asp Cys  Thr Asp Asn Thr Lys  Thr Lys Arg
    2165                2170                2175

Arg Lys  Thr Lys Gly Lys Ala  Lys Val Val Arg Lys  Gly Lys Thr
    2180                2185                2190

Phe Thr  Ala Asn Ile Ser Lys  Thr Val Arg Arg Gln  Arg Gln Ser
    2195                2200                2205

Lys Arg  Pro Arg Leu Ser Val  Asp Asp Asn Asp Trp  Glu Asp Leu
    2210                2215                2220

Asp Tyr  Ala Lys Ser Lys Arg  Val Leu Arg Arg Ser  Lys Ile Lys
    2225                2230                2235
```

```
Thr Arg  Asn Gln Gly Arg Arg  Thr Val Arg Tyr His  Asp Gly Asp
    2240                2245                2250

Asp Asp  Arg Ser Leu Glu Asn  Val Leu Asp Phe Asn  Gly Cys Thr
    2255                2260                2265

Leu
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<210> 9770
<211> 2199
<212> PRT
<213> Homo sapiens

<220>
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domain containing 1; "

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<400> 9770

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Met Ala Glu Pro Ser Ser Ala Arg Arg Pro Val Pro Leu Ile Glu Ser
1               5                  10                  15

Glu Leu Tyr Phe Leu Ile Ala Arg Tyr Leu Ser Ala Gly Pro Cys Arg
            20                  25                  30

Arg Ala Ala Gln Val Leu Val Gln Glu Leu Glu Gln Tyr Gln Leu Leu
        35                  40                  45

Pro Lys Arg Leu Asp Trp Glu Gly Asn Glu His Asn Arg Ser Tyr Glu
    50                  55                  60
```

```
Glu Leu Val Leu Ser Asn Lys His Val Ala Pro Asp His Leu Leu Gln
65                  70                  75                  80

Ile Cys Gln Arg Ile Gly Pro Met Leu Asp Lys Glu Ile Pro Pro Ser
                85                  90                  95

Ile Ser Arg Val Thr Ser Leu Leu Gly Ala Gly Arg Gln Ser Leu Leu
            100                 105                 110

Arg Thr Ala Lys Asp Cys Arg His Thr Val Trp Lys Gly Ser Ala Phe
        115                 120                 125

Ala Ala Leu His Arg Gly Arg Pro Pro Glu Met Pro Val Asn Tyr Gly
    130                 135                 140

Ser Pro Pro Asn Leu Val Glu Ile His Arg Gly Lys Gln Leu Thr Gly
145                 150                 155                 160

Cys Ser Thr Phe Ser Thr Ala Phe Pro Gly Thr Met Tyr Gln His Ile
                165                 170                 175

Lys Met His Arg Arg Ile Leu Gly His Leu Ser Ala Val Tyr Cys Val
            180                 185                 190

Ala Phe Asp Arg Thr Gly His Arg Ile Phe Thr Gly Ser Asp Asp Cys
        195                 200                 205

Leu Val Lys Ile Trp Ser Thr His Asn Gly Arg Leu Leu Ser Thr Leu
    210                 215                 220

Arg Gly His Ser Ala Glu Ile Ser Asp Met Ala Val Asn Tyr Glu Asn
225                 230                 235                 240

Thr Met Ile Ala Ala Gly Ser Cys Asp Lys Ile Ile Arg Val Trp Cys
                245                 250                 255

Leu Arg Thr Cys Ala Pro Val Ala Val Leu Gln Gly His Thr Gly Ser
            260                 265                 270

Ile Thr Ser Leu Gln Phe Ser Pro Met Ala Lys Gly Ser Gln Arg Tyr
        275                 280                 285

Met Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
```

290 295 300

Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
305 310 315 320

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
325 330 335

Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
340 345 350

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
355 360 365

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
370 375 380

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
385 390 395 400

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
405 410 415

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
420 425 430

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
435 440 445

Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
450 455 460

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
465 470 475 480

Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
485 490 495

Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
500 505 510

Gly Gln Gly His Gly Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly
515 520 525

```
Gln His Phe Ala Cys Thr Asp Ser His Gly His Leu Leu Ile Phe Gly
    530                 535                 540

Phe Gly Cys Ser Lys Pro Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe
545                 550                 555                 560

His Thr Asp Tyr Arg Pro Leu Ile Arg Asp Ser Asn Asn Tyr Val Leu
                565                 570                 575

Asp Glu Gln Thr Gln Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu
            580                 585                 590

Val Asp Val Asp Gly Asn Pro His Pro Thr Lys Tyr Gln Arg Leu Val
        595                 600                 605

Pro Gly Arg Glu Asn Ser Ala Asp Glu His Leu Ile Pro Gln Leu Gly
    610                 615                 620

Tyr Val Ala Thr Ser Asp Gly Glu Val Ile Glu Gln Ile Ile Ser Leu
625                 630                 635                 640

Gln Thr Asn Asp Asn Asp Glu Arg Ser Pro Glu Ser Ser Ile Leu Asp
                645                 650                 655

Gly Met Ile Arg Gln Leu Gln Gln Gln Gln Asp Gln Arg Met Gly Ala
            660                 665                 670

Asp Gln Asp Thr Ile Pro Arg Gly Leu Ser Asn Gly Glu Glu Thr Pro
        675                 680                 685

Arg Arg Gly Phe Arg Arg Leu Ser Leu Asp Ile Gln Ser Pro Pro Asn
    690                 695                 700

Ile Gly Leu Arg Arg Ser Gly Gln Val Glu Gly Val Arg Gln Met His
705                 710                 715                 720

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

Trp Lys Arg Arg Val Val Val Pro Glu Val Pro Leu Gly Ile Phe Arg
            740                 745                 750
```

```
Lys Leu Glu Asp Phe Arg Leu Glu Lys Gly Glu Glu Glu Arg Asn Leu
        755                 760                 765

Tyr Ile Ile Gly Arg Lys Arg Lys Thr Leu Gln Leu Ser His Lys Ser
    770                 775                 780

Asp Ser Val Val Leu Val Ser Gln Ser Arg Gln Arg Thr Cys Arg Arg
785                 790                 795                 800

Lys Tyr Pro Asn Tyr Gly Arg Arg Asn Arg Ser Trp Arg Glu Leu Ser
                805                 810                 815

Ser Gly Asn Glu Ser Ser Ser Ser Val Arg His Glu Thr Ser Cys Asp
            820                 825                 830

Gln Ser Glu Gly Ser Gly Ser Ser Glu Glu Asp Glu Trp Arg Ser Asp
        835                 840                 845

Arg Lys Ser Glu Ser Tyr Ser Glu Ser Ser Ser Asp Ser Ser Ser Arg
    850                 855                 860

Tyr Ser Asp Trp Thr Ala Asp Ala Gly Ile Asn Leu Gln Pro Pro Leu
865                 870                 875                 880

Arg Thr Ser Cys Arg Arg Arg Ile Thr Arg Phe Cys Ser Ser Ser Glu
                885                 890                 895

Asp Glu Ile Ser Thr Glu Asn Leu Ser Pro Pro Lys Arg Arg Arg Lys
            900                 905                 910

Arg Lys Lys Glu Asn Lys Pro Lys Lys Glu Asn Leu Arg Arg Met Thr
        915                 920                 925

Pro Ala Glu Leu Ala Asn Met Glu His Leu Tyr Glu Phe His Pro Pro
    930                 935                 940

Val Trp Ile Thr Asp Thr Thr Leu Arg Lys Ser Pro Phe Val Pro Gln
945                 950                 955                 960

Met Gly Asp Glu Val Ile Tyr Phe Arg Gln Gly His Glu Ala Tyr Ile
                965                 970                 975
```

```
Glu Ala Val Arg Arg Asn Asn Ile Tyr Glu Leu Asn Pro Asn Lys Glu
            980                 985                 990

Pro Trp Arg Lys Met Asp Leu Arg  Asp Gln Glu Leu Val  Lys Ile
Val
        995                 1000                1005

Gly Ile  Arg Tyr Glu Val Gly  Pro Pro Thr Leu Cys  Cys Leu Lys
    1010                1015                1020

Leu Ala  Phe Ile Asp Pro Ala  Thr Gly Lys Leu Met  Asp Lys Ser
    1025                1030                1035

Phe Ser  Ile Arg Tyr His Asp  Met Pro Asp Val Ile  Asp Phe Leu
    1040                1045                1050

Val Leu  Arg Gln Phe Tyr Asp  Glu Ala Arg Gln Arg  Asn Trp Gln
    1055                1060                1065

Ser Cys  Asp Arg Phe Arg Ser  Ile Ile Asp Asp Ala  Trp Trp Phe
    1070                1075                1080

Gly Thr  Val Leu Ser Gln Glu  Pro Tyr Gln Pro Gln  Tyr Pro Asp
    1085                1090                1095

Ser His  Phe Gln Cys Tyr Ile  Val Arg Trp Asp Asn  Thr Glu Ile
    1100                1105                1110

Glu Lys  Leu Ser Pro Trp Asp  Met Glu Pro Ile Pro  Asp Asn Val
    1115                1120                1125

Asp Pro  Pro Glu Glu Leu Gly  Ala Ser Ile Ser Val  Thr Thr Asp
    1130                1135                1140

Glu Leu  Glu Lys Leu Leu Tyr  Lys Pro Gln Ala Gly  Glu Trp Gly
    1145                1150                1155

Gln Lys  Ser Arg Asp Glu Glu  Cys Asp Arg Ile Ile  Ser Gly Ile
    1160                1165                1170

Asp Gln  Leu Leu Asn Leu Asp  Ile Ala Ala Ala Phe  Ala Gly Pro
    1175                1180                1185
```

```
Val Asp  Leu Cys Thr Tyr Pro  Lys Tyr Cys Thr Val  Val Ala Tyr
    1190                 1195                 1200

Pro Thr  Asp Leu Tyr Thr Ile  Arg Met Arg Leu Val  Asn Arg Phe
    1205                 1210                 1215

Tyr Arg  Arg Leu Ser Ala Leu  Val Trp Glu Val Arg  Tyr Ile Glu
    1220                 1225                 1230

His Asn  Ala Arg Thr Phe Asn  Glu Pro Glu Ser Val  Ile Ala Arg
    1235                 1240                 1245

Ser Ala  Lys Lys Ile Thr Asp  Gln Leu Leu Lys Phe  Ile Lys Asn
    1250                 1255                 1260

Gln His  Cys Thr Asn Ile Ser  Glu Leu Ser Asn Thr  Ser Glu Asn
    1265                 1270                 1275

Asp Glu  Gln Asn Ala Glu Asp  Leu Asp Asp Ser Asp  Leu Pro Lys
    1280                 1285                 1290

Thr Ser  Ser Gly Arg Arg Arg  Val His Asp Gly Lys  Lys Ser Ile
    1295                 1300                 1305

Arg Ala  Thr Asn Tyr Val Glu  Ser Asn Trp Lys Lys  Gln Cys Lys
    1310                 1315                 1320

Glu Leu  Val Asn Leu Ile Phe  Gln Cys Glu Asp Ser  Glu Pro Phe
    1325                 1330                 1335

Arg Gln  Pro Val Asp Leu Val  Glu Tyr Pro Asp Tyr  Arg Asp Ile
    1340                 1345                 1350

Ile Asp  Thr Pro Met Asp Phe  Gly Thr Val Arg Glu  Thr Leu Asp
    1355                 1360                 1365

Ala Gly  Asn Tyr Asp Ser Pro  Leu Glu Phe Cys Lys  Asp Ile Arg
    1370                 1375                 1380

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

Lys Ile  Tyr Ser Met Thr Leu  Arg Leu Ser Ala Leu  Phe Glu Glu
```

1400 1405 1410

Lys Met Lys Lys Ile Ser Ser Asp Phe Lys Ile Gly Gln Lys Phe
1415 1420 1425

Asn Glu Lys Leu Arg Arg Ser Gln Arg Phe Lys Gln Arg Gln Asn
1430 1435 1440

Cys Lys Gly Asp Ser Gln Pro Asn Lys Ser Ile Arg Asn Leu Lys
1445 1450 1455

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

Gly Ser Pro Thr Gln Ser Thr Ser Ser Arg Thr Ala Tyr Leu Gly
1475 1480 1485

Thr His Lys Thr Ser Ala Gly Ile Ser Ser Gly Val Thr Ser Gly
1490 1495 1500

Asp Ser Ser Asp Ser Ala Glu Ser Ser Glu Arg Arg Lys Arg Asn
1505 1510 1515

Arg Pro Ile Thr Asn Gly Ser Thr Leu Ser Glu Ser Glu Val Glu
1520 1525 1530

Asp Ser Leu Ala Thr Ser Leu Ser Ser Ser Ala Ser Ser Ser Ser
1535 1540 1545

Glu Glu Ser Lys Glu Ser Ser Arg Ala Arg Glu Ser Ser Ser Arg
1550 1555 1560

Ser Gly Leu Ser Arg Ser Ser Asn Leu Arg Val Thr Arg Thr Arg
1565 1570 1575

Ala Ala Gln Arg Lys Thr Gly Pro Val Ser Leu Ala Asn Gly Cys
1580 1585 1590

Gly Arg Lys Ala Thr Arg Lys Arg Val Tyr Leu Ser Asp Ser Asp
1595 1600 1605

Asn Asn Ser Leu Glu Thr Gly Glu Ile Leu Lys Ala Arg Ala Gly
1610 1615 1620

```
Asn Asn  Arg Lys Val Leu Arg  Lys Cys Ala Ala Val  Ala Ala Asn
    1625                 1630                 1635

Lys Ile  Lys Leu Met Ser Asp  Val Glu Glu Asn Ser  Ser Ser Glu
    1640                 1645                 1650

Ser Val  Cys Ser Gly Arg Lys  Leu Pro His Arg Asn  Ala Ser Ala
    1655                 1660                 1665

Val Ala  Arg Lys Lys Leu Leu  His Asn Ser Glu Asp  Glu Gln Ser
    1670                 1675                 1680

Leu Lys  Ser Glu Ile Glu Glu  Glu Glu Leu Lys Asp  Glu Asn Gln
    1685                 1690                 1695

Leu Leu  Pro Val Ser Ser Ser  His Thr Ala Gln Ser  Asn Val Asp
    1700                 1705                 1710

Glu Ser  Glu Asn Arg Asp Ser  Glu Ser Glu Ser Asp  Leu Arg Val
    1715                 1720                 1725

Ala Arg  Lys Asn Trp His Ala  Asn Gly Tyr Lys Ser  His Thr Pro
    1730                 1735                 1740

Ala Pro  Ser Lys Thr Lys Phe  Leu Lys Ile Glu Ser  Ser Glu Glu
    1745                 1750                 1755

Asp Ser  Lys Ser His Asp Ser  Asp His Ala Cys Asn  Arg Thr Ala
    1760                 1765                 1770

Gly Pro  Ser Thr Ser Val Gln  Lys Leu Lys Ala Glu  Ser Ile Ser
    1775                 1780                 1785

Glu Glu  Ala Asp Ser Glu Pro  Gly Arg Ser Gly Gly  Arg Lys Tyr
    1790                 1795                 1800

Asn Thr  Phe His Lys Asn Ala  Ser Phe Phe Lys Lys  Thr Lys Ile
    1805                 1810                 1815

Leu Ser  Asp Ser Glu Asp Ser  Glu Ser Glu Glu Gln  Asp Arg Glu
    1820                 1825                 1830
```

```
Asp Gly  Lys Cys His Lys Met  Glu Met Asn Pro Ile  Ser Gly Asn
    1835                1840                1845

Leu Asn  Cys Asp Pro Ile Ala  Met Ser Gln Cys Ser  Ser Asp His
    1850                1855                1860

Gly Cys  Glu Thr Asp Leu Asp  Ser Asp Asp Asp Lys  Ile Glu Lys
    1865                1870                1875

Pro Asn  Asn Phe Met Lys Asp  Ser Ala Ser Gln Asp  Asn Gly Leu
    1880                1885                1890

Ser Arg  Lys Ile Ser Arg Lys  Arg Val Cys Ser Ser  Asp Ser Asp
    1895                1900                1905

Ser Ser  Leu Gln Val Val Lys  Lys Ser Ser Lys Ala  Arg Thr Gly
    1910                1915                1920

Leu Leu  Arg Ile Thr Arg Arg  Cys Ala Ala Thr Ala  Ala Asn Lys
    1925                1930                1935

Ile Lys  Leu Met Ser Asp Val  Glu Asp Val Ser Leu  Glu Asn Val
    1940                1945                1950

His Thr  Arg Ser Lys Asn Gly  Arg Lys Lys Pro Leu  His Leu Ala
    1955                1960                1965

Cys Thr  Thr Ala Lys Lys Lys  Leu Ser Asp Cys Glu  Gly Ser Val
    1970                1975                1980

His Cys  Glu Val Pro Ser Glu  Gln Tyr Ala Cys Glu  Gly Lys Pro
    1985                1990                1995

Pro Asp  Pro Asp Ser Glu Gly  Ser Thr Lys Val Leu  Ser Gln Ala
    2000                2005                2010

Leu Asn  Gly Asp Ser Asp Ser  Glu Asp Met Leu Asn  Ser Glu His
    2015                2020                2025

Lys His  Arg His Thr Asn Ile  His Lys Ile Asp Ala  Pro Ser Lys
    2030                2035                2040
```

```
Arg Lys  Ser Ser Ser Val Thr  Ser Ser Gly Glu Asp  Ser Lys Ser
    2045                2050                2055

His Ile  Pro Gly Ser Glu Thr  Asp Arg Thr Phe Ser  Ser Glu Ser
    2060                2065                2070

Thr Leu  Ala Gln Lys Ala Thr  Ala Glu Asn Asn Phe  Glu Val Glu
    2075                2080                2085

Leu Asn  Tyr Gly Leu Arg Arg  Trp Asn Gly Arg Arg  Leu Arg Thr
    2090                2095                2100

Tyr Gly  Lys Ala Pro Phe Ser  Lys Thr Lys Val Ile  His Asp Ser
    2105                2110                2115

Gln Glu  Thr Ala Glu Lys Glu  Val Lys Arg Lys Arg  Ser His Pro
    2120                2125                2130

Glu Leu  Glu Asn Val Lys Ile  Ser Glu Thr Thr Gly  Asn Ser Lys
    2135                2140                2145

Phe Arg  Pro Asp Thr Ser Ser  Lys Ser Ser Asp Leu  Gly Ser Val
    2150                2155                2160

Thr Glu  Ser Asp Ile Asp Cys  Thr Asp Asn Thr Lys  Thr Lys Arg
    2165                2170                2175

Arg Lys  Thr Lys Gly Lys Ala  Lys Val Val Arg Lys  Asp Lys Thr
    2180                2185                2190

Phe Ser  Pro Val Tyr Leu
    2195


<210> 9771
<211> 548
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000389882"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9771

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Xaa Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
1               5                  10                  15

Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
            20                  25                  30

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
        35                  40                  45

Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
    50                  55                  60

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
65                  70                  75                  80

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
                85                  90                  95

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
            100                 105                 110

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
        115                 120                 125

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
    130                 135                 140

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
145                 150                 155                 160
```

```
Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
                165                 170                 175

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
            180                 185                 190

Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
        195                 200                 205

Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
    210                 215                 220

Gly Gln Gly His Gly Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly
225                 230                 235                 240

Gln His Phe Ala Cys Thr Asp Ser His Gly His Leu Leu Ile Phe Gly
                245                 250                 255

Phe Gly Cys Ser Lys Pro Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe
            260                 265                 270

His Thr Asp Tyr Arg Pro Leu Ile Arg Asp Ser Asn Asn Tyr Val Leu
        275                 280                 285

Asp Glu Gln Thr Gln Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu
    290                 295                 300

Val Asp Val Asp Gly Asn Pro His Pro Thr Lys Tyr Gln Arg Leu Val
305                 310                 315                 320

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

Tyr Val Ala Thr Ser Asp Gly Glu Val Ile Glu Gln Ile Ile Ser Leu
            340                 345                 350

Gln Thr Asn Asp Asn Asp Glu Arg Ser Pro Glu Ser Ser Ile Leu Asp
        355                 360                 365

Gly Met Ile Arg Gln Leu Gln Gln Gln Gln Asp Gln Arg Met Gly Ala
    370                 375                 380

Asp Gln Asp Thr Ile Pro Arg Gly Leu Ser Asn Gly Glu Glu Thr Pro
```

385 390 395 400

Arg Arg Gly Phe Arg Arg Leu Ser Leu Asp Ile Gln Ser Pro Pro Asn
405 410 415

Ile Gly Leu Arg Arg Ser Gly Gln Val Glu Gly Val Arg Gln Met His
420 425 430

Gln Asn Ala Pro Arg Ser Gln Ile Ala Thr Glu Arg Asp Leu Gln Ala
435 440 445

Trp Lys Arg Arg Val Val Val Pro Glu Val Pro Leu Gly Ile Phe Arg
450 455 460

Lys Leu Glu Asp Phe Arg Leu Glu Lys Gly Glu Glu Glu Arg Asn Leu
465 470 475 480

Tyr Ile Ile Gly Arg Lys Arg Lys Thr Leu Gln Leu Ser His Lys Glu
485 490 495

Thr Ser Cys Asp Gln Ser Glu Gly Ser Gly Ser Ser Glu Glu Asp Glu
500 505 510

Trp Arg Ser Asp Arg Lys Ser Glu Ser Tyr Ser Glu Ser Ser Ser Asp
515 520 525

Ser Ser Ser Arg Tyr Ser Asp Trp Thr Ala Asp Ala Gly Ile Asn Leu
530 535 540

Gln Pro Pro Leu
545

<210> 9772
<211> 235
<212> PRT
<213> Homo sapiens

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<400> 9772

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Xaa Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
1               5                  10                  15

Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
            20                  25                  30

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
        35                  40                  45

Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
    50                  55                  60

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
65                  70                  75                  80

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
                85                  90                  95

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
            100                 105                 110

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
        115                 120                 125

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
    130                 135                 140

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
145                 150                 155                 160

Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
```

```
                165                 170                 175

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
            180                 185                 190

Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
        195                 200                 205

Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
    210                 215                 220

Gly Gln Gly His Gly Ala Val Phe Asp Tyr Ser
225                 230                 235


<210> 9773
<211> 640
<212> PRT
<213> Homo sapiens

<220>
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<400> 9773
His Gly His Leu Leu Ile Phe Gly Phe Gly Cys Ser Lys Pro Tyr Glu
1               5                   10                  15

Lys Ile Pro Asp Gln Met Phe Phe His Thr Asp Tyr Arg Pro Leu Ile
            20                  25                  30

Arg Asp Ser Asn Asn Tyr Val Leu Asp Glu Gln Thr Gln Gln Ala Pro
        35                  40                  45

His Leu Met Pro Pro Pro Phe Leu Val Asp Val Asp Gly Asn Pro His
    50                  55                  60
```

```
Pro Thr Lys Tyr Gln Arg Leu Val Pro Gly Arg Glu Asn Ser Ala Asp
65                  70                  75                  80

Glu His Leu Ile Pro Gln Leu Gly Tyr Val Ala Thr Ser Asp Gly Glu
                85                  90                  95

Val Ile Glu Gln Ile Ile Ser Leu Gln Thr Asn Asp Asn Asp Glu Arg
            100                 105                 110

Ser Pro Glu Ser Ser Ile Leu Asp Gly Met Ile Arg Gln Leu Gln Gln
        115                 120                 125

Gln Gln Asp Gln Arg Met Gly Ala Asp Gln Asp Thr Ile Pro Arg Gly
    130                 135                 140

Leu Ser Asn Gly Glu Glu Thr Pro Arg Arg Gly Phe Arg Arg Leu Ser
145                 150                 155                 160

Leu Asp Ile Gln Ser Pro Pro Asn Ile Gly Leu Arg Arg Ser Gly Gln
                165                 170                 175

Val Glu Gly Val Arg Gln Met His Gln Asn Ala Pro Arg Ser Gln Ile
            180                 185                 190

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

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

Lys Gly Glu Glu Glu Arg Asn Leu Tyr Ile Ile Gly Arg Lys Arg Lys
225                 230                 235                 240

Thr Leu Gln Leu Ser His Lys Ser Asp Ser Val Val Leu Val Ser Gln
                245                 250                 255

Ser Arg Gln Arg Thr Cys Arg Arg Lys Tyr Pro Asn Tyr Gly Arg Arg
            260                 265                 270

Asn Arg Ser Trp Arg Glu Leu Ser Ser Gly Asn Glu Ser Ser Ser Ser
        275                 280                 285
```

```
Val Arg His Glu Thr Ser Cys Asp Gln Ser Glu Gly Ser Gly Ser Ser
    290                 295                 300

Glu Glu Asp Glu Trp Arg Ser Asp Arg Lys Ser Glu Ser Tyr Ser Glu
305                 310                 315                 320

Ser Ser Ser Asp Ser Ser Ser Arg Tyr Ser Asp Trp Thr Ala Asp Ala
                325                 330                 335

Gly Ile Asn Leu Gln Pro Pro Leu Arg Thr Ser Cys Arg Arg Arg Ile
            340                 345                 350

Thr Arg Phe Cys Ser Ser Ser Glu Asp Glu Ile Ser Thr Glu Asn Leu
        355                 360                 365

Ser Pro Pro Lys Arg Arg Arg Lys Arg Lys Lys Glu Asn Lys Pro Lys
    370                 375                 380

Lys Glu Asn Leu Arg Arg Met Thr Pro Ala Glu Leu Ala Asn Met Glu
385                 390                 395                 400

His Leu Tyr Glu Phe His Pro Pro Val Trp Ile Thr Asp Thr Thr Leu
                405                 410                 415

Arg Lys Ser Pro Phe Val Pro Gln Met Gly Asp Glu Val Ile Tyr Phe
            420                 425                 430

Arg Gln Gly His Glu Ala Tyr Ile Glu Ala Val Arg Arg Asn Asn Ile
        435                 440                 445

Tyr Glu Leu Asn Pro Asn Lys Glu Pro Trp Arg Lys Met Asp Leu Arg
    450                 455                 460

Asp Gln Glu Leu Val Lys Ile Val Gly Ile Arg Tyr Glu Val Gly Pro
465                 470                 475                 480

Pro Thr Leu Cys Cys Leu Lys Leu Ala Phe Ile Asp Pro Ala Thr Gly
                485                 490                 495

Lys Leu Met Asp Lys Ser Phe Ser Ile Arg Tyr His Asp Met Pro Asp
            500                 505                 510
```

```
Val Ile Asp Phe Leu Val Leu Arg Gln Phe Tyr Asp Glu Ala Arg Gln
        515                 520                 525

Arg Asn Trp Gln Ser Cys Asp Arg Phe Arg Ser Ile Ile Asp Asp Ala
    530                 535                 540

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

Pro Asp Ser His Phe Gln Cys Tyr Ile Val Arg Trp Asp Asn Thr Glu
                565                 570                 575

Ile Glu Lys Leu Ser Pro Trp Asp Met Glu Pro Ile Pro Asp Asn Val
            580                 585                 590

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

Leu Glu Lys Leu Leu Tyr Lys Pro Gln Ala Gly Glu Trp Gly Gln Lys
    610                 615                 620

Ser Arg Asp Glu Glu Cys Asp Arg Ile Ile Ser Gly Gly Cys Leu Arg
625                 630                 635                 640
```

<210> 9774
<211> 266
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1978; "

<220>
<221> source
<223> /note="Gene Symbol: BRWD1; "

<220>
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<223> /note="Gene Name:
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domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393702"

<220>

<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9774

```
Xaa Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
1               5                  10                  15

Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
            20                  25                  30

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
        35                  40                  45

Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
    50                  55                  60

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
65                  70                  75                  80

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
                85                  90                  95

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
            100                 105                 110

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
        115                 120                 125

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
    130                 135                 140

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
145                 150                 155                 160

Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
                165                 170                 175

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
            180                 185                 190

Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
        195                 200                 205
```

```
Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
    210                 215                 220

Gly Gln Gly His Gly Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly
225                 230                 235                 240

Gln His Phe Ala Cys Thr Asp Ser His Gly His Leu Leu Ile Phe Gly
                245                 250                 255

Phe Gly Cys Ser Lys Pro Tyr Glu Lys Met
            260                 265


<210> 9775
<211> 409
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1978; "

<220>
<221> source
<223> /note="Gene Symbol: BRWD1; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain and WD repeat
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395575"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9775
Xaa Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
1               5                   10                  15

Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
            20                  25                  30

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
        35                  40                  45
```

```
Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
    50                  55                  60

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
65                  70                  75                  80

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
                85                  90                  95

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
            100                 105                 110

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
        115                 120                 125

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
    130                 135                 140

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
145                 150                 155                 160

Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
                165                 170                 175

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
            180                 185                 190

Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
        195                 200                 205

Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
    210                 215                 220

Gly Gln Gly His Gly Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly
225                 230                 235                 240

Gln His Phe Ala Cys Thr Asp Ser His Gly His Leu Leu Ile Phe Gly
                245                 250                 255

Phe Gly Cys Ser Lys Pro Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe
            260                 265                 270
```

```
His Thr Asp Tyr Arg Pro Leu Ile Arg Asp Ser Asn Asn Tyr Val Leu
        275                 280                 285

Asp Glu Gln Thr Gln Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu
    290                 295                 300

Val Asp Val Asp Gly Asn Pro His Pro Thr Lys Tyr Gln Arg Leu Val
305                 310                 315                 320

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

Tyr Val Ala Thr Ser Asp Gly Glu Val Ile Glu Gln Ile Ile Ser Leu
            340                 345                 350

Gln Thr Asn Asp Asn Asp Glu Arg Ser Pro Glu Ser Ser Ile Leu Asp
        355                 360                 365

Gly Met Ile Arg Gln Leu Gln Gln Gln Gln Asp Gln Arg Met Gly Ala
    370                 375                 380

Asp Gln Asp Thr Ile Pro Arg Gly Leu Ser Asn Gly Glu Glu Thr Pro
385                 390                 395                 400

Arg Arg Gly Ser Trp Lys Thr Ser Asp
                405
```

<210> 9776
<211> 467
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1978; "

<220>
<221> source
<223> /note="Gene Symbol: BRWD1; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain and WD repeat
domain containing 1; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000398900"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9776

```
Xaa Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln Trp Asp
1               5                  10                  15

Leu Glu Ser Leu Lys Phe Ser Pro Arg Pro Leu Lys Phe Thr Glu Lys
            20                  25                  30

Pro Arg Pro Gly Val Gln Met Leu Cys Ser Ser Phe Ser Val Gly Gly
        35                  40                  45

Met Phe Leu Ala Thr Gly Ser Thr Asp His Val Ile Arg Met Tyr Phe
    50                  55                  60

Leu Gly Phe Glu Ala Pro Glu Lys Ile Ala Glu Leu Glu Ser His Thr
65                  70                  75                  80

Asp Lys Val Asp Ser Ile Gln Phe Cys Asn Asn Gly Asp Arg Phe Leu
                85                  90                  95

Ser Gly Ser Arg Asp Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu
            100                 105                 110

Glu Trp Arg Ser Ile Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp
        115                 120                 125

Leu Ser Ser Glu Glu Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile
    130                 135                 140

Ala Trp Asn Gln Asn Asp Ser Ile Val Val Thr Ala Val Asn Asp His
145                 150                 155                 160

Val Leu Lys Val Trp Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu
                165                 170                 175

Met Gly His Ala Asp Glu Val Phe Val Leu Glu Thr His Pro Phe Asp
            180                 185                 190
```

```
Ser Arg Ile Met Leu Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp
        195                 200                 205

Asp Ile Thr Lys Gly Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu
    210                 215                 220

Gly Gln Gly His Gly Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly
225                 230                 235                 240

Gln His Phe Ala Cys Thr Asp Ser His Gly His Leu Leu Ile Phe Gly
                245                 250                 255

Phe Gly Cys Ser Lys Pro Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe
            260                 265                 270

His Thr Asp Tyr Arg Pro Leu Ile Arg Asp Ser Asn Asn Tyr Val Leu
        275                 280                 285

Asp Glu Gln Thr Gln Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu
    290                 295                 300

Val Asp Val Asp Gly Asn Pro His Pro Thr Lys Tyr Gln Arg Leu Val
305                 310                 315                 320

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

Tyr Val Ala Thr Ser Asp Gly Glu Val Ile Glu Gln Ile Ile Ser Leu
            340                 345                 350

Gln Thr Asn Asp Asn Asp Glu Arg Ser Pro Glu Ser Ser Ile Leu Asp
        355                 360                 365

Gly Met Ile Arg Gln Leu Gln Gln Gln Gln Asp Gln Arg Met Gly Ala
    370                 375                 380

Asp Gln Asp Thr Ile Pro Arg Gly Leu Ser Asn Gly Glu Glu Thr Pro
385                 390                 395                 400

Arg Arg Gly Phe Arg Arg Leu Ser Leu Asp Ile Gln Ser Pro Pro Asn
                405                 410                 415

Ile Gly Leu Arg Arg Ser Gly Gln Val Glu Gly Val Arg Gln Met His
```

420 425 430

Gln Asn Ala Pro Arg Ser Gln Ile Ala Thr Glu Arg Asp Leu Gln Ala
435 440 445

Trp Lys Arg Arg Val Val Val Pro Glu Glu Ala Gly Arg Leu Pro Ile
450 455 460

Arg Glu Arg
465

<210> 9777
<211> 452
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1978; "

<220>
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<223> /note="Gene Symbol: BRWD1; "

<220>
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<223> /note="Gene Name:
bromodomain and WD repeat
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415066"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9777
Xaa Pro Pro Thr Leu Cys Cys Leu Lys Leu Ala Phe Ile Asp Pro Ala
1 5 10 15

Thr Gly Lys Leu Met Asp Lys Ser Phe Ser Ile Arg Tyr His Asp Met
20 25 30

Pro Asp Val Ile Asp Phe Leu Val Leu Arg Gln Phe Tyr Asp Glu Ala
35 40 45

```
Arg Gln Arg Asn Trp Gln Ser Cys Asp Arg Phe Arg Ser Ile Ile Asp
    50                  55                  60

Asp Ala Trp Trp Phe Gly Thr Val Leu Ser Gln Glu Pro Tyr Gln Pro
65                  70                  75                  80

Gln Tyr Pro Asp Ser His Phe Gln Cys Tyr Ile Val Arg Trp Asp Asn
                85                  90                  95

Thr Glu Ile Glu Lys Leu Ser Pro Trp Asp Met Glu Pro Ile Pro Asp
            100                 105                 110

Asn Val Asp Pro Pro Glu Glu Leu Gly Ala Ser Ile Ser Val Thr Thr
        115                 120                 125

Asp Glu Leu Glu Lys Leu Leu Tyr Lys Pro Gln Ala Gly Glu Trp Gly
    130                 135                 140

Gln Lys Ser Arg Asp Glu Glu Cys Asp Arg Ile Ile Ser Gly Ile Asp
145                 150                 155                 160

Gln Leu Leu Asn Leu Asp Ile Ala Ala Ala Phe Ala Gly Pro Val Asp
                165                 170                 175

Leu Cys Thr Tyr Pro Lys Tyr Cys Thr Val Val Ala Tyr Pro Thr Asp
            180                 185                 190

Leu Tyr Thr Ile Arg Met Arg Leu Val Asn Arg Phe Tyr Arg Arg Leu
        195                 200                 205

Ser Ala Leu Val Trp Glu Val Arg Tyr Ile Glu His Asn Ala Arg Thr
    210                 215                 220

Phe Asn Glu Pro Glu Ser Val Ile Ala Arg Ser Ala Lys Lys Ile Thr
225                 230                 235                 240

Asp Gln Leu Leu Lys Phe Ile Lys Asn Gln His Cys Thr Asn Ile Ser
                245                 250                 255

Glu Leu Ser Asn Thr Ser Glu Asn Asp Glu Gln Asn Ala Glu Asp Leu
            260                 265                 270

Asp Asp Ser Asp Leu Pro Lys Thr Ser Ser Gly Arg Arg Arg Asp Tyr
```

```
        275                 280                 285

Arg Asp Ile Ile Asp Thr Pro Met Asp Phe Gly Thr Val Arg Glu Thr
    290                 295                 300

Leu Asp Ala Gly Asn Tyr Asp Ser Pro Leu Glu Phe Cys Lys Asp Ile
305                 310                 315                 320

Arg Leu Ile Phe Ser Asn Ala Lys Ala Tyr Thr Pro Asn Lys Arg Ser
                325                 330                 335

Lys Ile Tyr Ser Met Thr Leu Arg Leu Ser Ala Leu Phe Glu Glu Lys
            340                 345                 350

Met Lys Lys Ile Ser Ser Asp Phe Lys Ile Gly Gln Lys Phe Asn Glu
        355                 360                 365

Lys Leu Arg Arg Ser Gln Arg Phe Lys Gln Arg Gln Asn Cys Lys Gly
    370                 375                 380

Asp Ser Gln Pro Asn Lys Ser Ile Arg Asn Leu Lys Pro Lys Arg Leu
385                 390                 395                 400

Lys Ser Gln Thr Lys Ile Ile Pro Glu Leu Val Gly Ser Pro Thr Gln
                405                 410                 415

Ser Thr Ser Ser Arg Thr Ala Tyr Leu Gly Thr His Lys Thr Ser Ala
            420                 425                 430

Gly Ile Ser Ser Gly Val Thr Ser Gly Asp Ser Ser Asp Ser Ala Glu
        435                 440                 445

Ser Ser Glu Arg
    450


<210> 9778
<211> 1802
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1979; "

<220>
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<221> source
<223> /note="Gene Symbol: BRWD3; "

<220>
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<223> /note="Gene Name:
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domain containing 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q6RI45; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362372"

<400> 9778

```
Met Ala Ala Ala Pro Thr Gln Ile Glu Ala Glu Leu Tyr Tyr Leu Ile
1               5                  10                  15

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

Val Gln Glu Leu Glu Glu His Gln Leu Ile Pro Arg Arg Leu Asp Trp
        35                  40                  45

Glu Gly Lys Glu His Arg Arg Ser Phe Glu Asp Leu Val Ala Ala Asn
    50                  55                  60

Ala His Ile Pro Pro Asp Tyr Leu Leu Lys Ile Cys Glu Arg Ile Gly
65                  70                  75                  80

Pro Leu Leu Asp Lys Glu Ile Pro Gln Ser Val Pro Gly Val Gln Thr
                85                  90                  95

Leu Leu Gly Val Gly Arg Gln Ser Leu Leu Arg Asp Ala Lys Asp Cys
            100                 105                 110

Lys Ser Thr Leu Trp Asn Gly Ser Ala Phe Ala Ala Leu His Arg Gly
        115                 120                 125

Arg Pro Pro Glu Leu Pro Val Asn Tyr Val Lys Pro Pro Asn Val Val
    130                 135                 140

Asn Ile Thr Ser Ala Arg Gln Leu Thr Gly Cys Ser Arg Phe Gly His
145                 150                 155                 160
```

```
Ile Phe Pro Ser Ser Ala Tyr Gln His Ile Lys Met His Lys Arg Ile
                165                 170                 175

Leu Gly His Leu Ser Ser Val Tyr Cys Val Ala Phe Asp Arg Ser Gly
            180                 185                 190

Arg Arg Ile Phe Thr Gly Ser Asp Asp Cys Leu Val Lys Ile Trp Ala
        195                 200                 205

Thr Asp Asp Gly Arg Leu Leu Ala Thr Leu Arg Gly His Ser Ala Glu
    210                 215                 220

Ile Ser Asp Met Ala Val Asn Tyr Glu Asn Thr Leu Ile Ala Ala Gly
225                 230                 235                 240

Ser Cys Asp Lys Val Val Arg Val Trp Cys Leu Arg Thr Cys Ala Pro
                245                 250                 255

Val Ala Val Leu Gln Gly His Ser Ala Ser Ile Thr Ser Ile Gln Phe
            260                 265                 270

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

Asp Gly Thr Ile Cys Phe Trp Gln Trp His Val Lys Thr Met Lys Phe
    290                 295                 300

Arg Asp Arg Pro Val Lys Phe Thr Glu Arg Ser Arg Pro Gly Val Gln
305                 310                 315                 320

Ile Ser Cys Ser Ser Phe Ser Ser Gly Gly Met Phe Ile Thr Thr Gly
                325                 330                 335

Ser Thr Asp His Val Ile Arg Ile Tyr Tyr Leu Gly Ser Glu Val Pro
            340                 345                 350

Glu Lys Ile Ala Glu Leu Glu Ser His Thr Asp Lys Val Val Ala Val
        355                 360                 365

Gln Phe Cys Asn Asn Gly Asp Ser Leu Arg Phe Val Ser Gly Ser Arg
    370                 375                 380
```

```
Asp Gly Thr Ala Arg Ile Trp Gln Tyr Gln Gln Gln Glu Trp Lys Ser
385                 390                 395                 400

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

Gly Glu Asp Lys Ile Thr Lys Leu Lys Val Thr Met Val Ala Trp Asp
            420                 425                 430

Arg Tyr Asp Thr Thr Val Ile Thr Ala Val Asn Asn Phe Leu Leu Lys
        435                 440                 445

Val Trp Asn Ser Ile Thr Gly Gln Leu Leu His Thr Leu Ser Gly His
    450                 455                 460

Asp Asp Glu Val Phe Val Leu Glu Ala His Pro Phe Asp Gln Arg Ile
465                 470                 475                 480

Ile Leu Ser Ala Gly His Asp Gly Asn Ile Phe Ile Trp Asp Leu Asp
                485                 490                 495

Arg Gly Thr Lys Ile Arg Asn Tyr Phe Asn Met Ile Glu Gly Gln Gly
            500                 505                 510

His Gly Ala Val Phe Asp Cys Lys Phe Ser Pro Asp Gly Asn His Phe
        515                 520                 525

Ala Cys Thr Asp Ser His Gly His Leu Leu Leu Phe Gly Phe Gly Cys
    530                 535                 540

Ser Lys Tyr Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe His Thr Asp
545                 550                 555                 560

Tyr Arg Pro Leu Ile Arg Asp Ala Asn Asn Tyr Val Leu Asp Glu Gln
                565                 570                 575

Thr Gln Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu Val Asp Val
            580                 585                 590

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

Glu Asn Cys Lys Asp Glu Gln Leu Ile Pro Gln Leu Gly Tyr Val Ala
```

610 615 620

Asn Gly Asp Gly Glu Val Val Glu Gln Val Ile Gly Gln Gln Thr Asn
625 630 635 640

Asp Gln Asp Glu Ser Ile Leu Asp Gly Ile Ile Arg Glu Leu Gln Arg
645 650 655

Glu Gln Asp Leu Arg Leu Ile Asn Glu Gly Asp Val Pro His Leu Pro
660 665 670

Val Asn Arg Ala Tyr Ser Val Asn Gly Ala Leu Arg Ser Pro Asn Met
675 680 685

Asp Ile Ser Ser Ser Pro Asn Ile Arg Leu Arg Arg His Ser Ser Gln
690 695 700

Ile Glu Gly Val Arg Gln Met His Asn Asn Ala Pro Arg Ser Gln Met
705 710 715 720

Ala Thr Glu Arg Asp Leu Met Ala Trp Ser Arg Arg Val Val Val Asn
725 730 735

Glu Leu Asn Asn Gly Val Ser Arg Val Gln Glu Glu Cys Arg Thr Ala
740 745 750

Lys Gly Asp Ile Glu Ile Ser Leu Tyr Thr Val Glu Lys Lys Lys Lys
755 760 765

Pro Ser Tyr Thr Thr Gln Arg Asn Asp Tyr Glu Pro Ser Cys Gly Arg
770 775 780

Ser Leu Arg Arg Thr Gln Arg Lys Arg Gln His Thr Tyr Gln Thr Arg
785 790 795 800

Ser Asn Ile Glu His Asn Ser Gln Ala Ser Cys Gln Asn Ser Gly Val
805 810 815

Gln Glu Asp Ser Asp Ser Ser Ser Glu Glu Asp Glu Thr Val Gly Thr
820 825 830

Ser Asp Ala Ser Val Glu Asp Pro Val Val Glu Trp Gln Ser Glu Ser
835 840 845

```
Ser Ser Ser Asp Ser Ser Ser Glu Tyr Ser Asp Trp Thr Ala Asp Ala
    850                 855                 860

Gly Ile Asn Leu Gln Pro Pro Lys Arg Gln Thr Arg Gln Thr Thr Arg
865                 870                 875                 880

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

Arg Gln Lys Lys Pro Lys Gln Thr Arg Lys Lys Lys Gly Gly Leu Val
            900                 905                 910

Ser Ile Ala Gly Glu Pro Asn Glu Glu Trp Phe Ala Pro Gln Trp Ile
        915                 920                 925

Leu Asp Thr Ile Pro Arg Arg Ser Pro Phe Val Pro Gln Met Gly Asp
    930                 935                 940

Glu Leu Ile Tyr Phe Arg Gln Gly His Glu Ala Tyr Val Arg Ala Val
945                 950                 955                 960

Arg Lys Ser Lys Ile Tyr Ser Val Asn Leu Gln Lys Gln Pro Trp Asn
                965                 970                 975

Lys Met Asp Leu Arg Glu Gln Glu Phe Val Lys Ile Val Gly Ile Lys
            980                 985                 990

Tyr Glu Val Gly Pro Pro Thr Leu  Cys Cys Leu Lys Leu  Ala Phe
Leu
        995                 1000                1005

Asp Pro  Ile Ser Gly Lys Met  Thr Gly Glu Ser Phe  Ser Ile Lys
    1010                1015                1020

Tyr His  Asp Met Pro Asp Val  Ile Asp Phe Leu Val  Leu His Gln
    1025                1030                1035

Phe Tyr  Asn Glu Ala Lys Glu  Arg Asn Trp Gln Ile  Gly Asp Arg
    1040                1045                1050

Phe Arg  Ser Ile Ile Asp Asp  Ala Trp Trp Phe Gly  Thr Val Glu
    1055                1060                1065
```

```
Ser Gln  Gln Pro Phe Gln Pro  Glu Tyr Pro Asp Ser  Ser Phe Gln
    1070                1075                1080

Cys Tyr  Ser Val His Trp Asp  Asn Asn Glu Arg Glu  Lys Met Ser
    1085                1090                1095

Pro Trp  Asp Met Glu Pro Ile  Pro Glu Gly Thr Ala  Phe Pro Asp
    1100                1105                1110

Glu Val  Gly Ala Gly Val Pro  Val Ser Gln Glu Glu  Leu Thr Ala
    1115                1120                1125

Leu Leu  Tyr Lys Pro Gln Glu  Gly Glu Trp Gly Ala  His Ser Arg
    1130                1135                1140

Asp Glu  Glu Cys Glu Arg Val  Ile Gln Gly Ile Asn  His Leu Leu
    1145                1150                1155

Ser Leu  Asp Phe Ala Ser Pro  Phe Ala Val Pro Val  Asp Leu Ser
    1160                1165                1170

Ala Tyr  Pro Leu Tyr Cys Thr  Val Val Ala Tyr Pro  Thr Asp Leu
    1175                1180                1185

Asn Thr  Ile Arg Arg Arg Leu  Glu Asn Arg Phe Tyr  Arg Arg Ile
    1190                1195                1200

Ser Ala  Leu Met Trp Glu Val  Arg Tyr Ile Glu His  Asn Ala Arg
    1205                1210                1215

Thr Phe  Asn Glu Pro Asp Ser  Pro Ile Val Lys Ala  Ala Lys Ile
    1220                1225                1230

Val Thr  Asp Val Leu Leu Arg  Phe Ile Gly Asp Gln  Ser Cys Thr
    1235                1240                1245

Asp Ile  Leu Asp Thr Tyr Asn  Lys Ile Lys Ala Glu  Glu Arg Asn
    1250                1255                1260

Ser Thr  Asp Ala Glu Glu Asp  Thr Glu Ile Val Asp  Leu Asp Ser
    1265                1270                1275
```

```
Asp Gly  Pro Gly Thr Ser Ser  Gly Arg Lys Val Lys  Cys Arg Gly
    1280                1285                1290

Arg Arg  Gln Ser Leu Lys Cys  Asn Pro Asp Ala Trp  Lys Lys Gln
    1295                1300                1305

Cys Lys  Glu Leu Leu Ser Leu  Ile Tyr Glu Arg Glu  Asp Ser Glu
    1310                1315                1320

Pro Phe  Arg Gln Pro Ala Asp  Leu Leu Ser Tyr Pro  Gly His Gln
    1325                1330                1335

Glu Gln  Glu Gly Glu Ser Ser  Glu Ser Val Val Pro  Glu Arg Gln
    1340                1345                1350

Gln Asp  Ser Ser Leu Ser Glu  Asp Tyr Gln Asp Val  Ile Asp Thr
    1355                1360                1365

Pro Val  Asp Phe Ser Thr Val  Lys Glu Thr Leu Glu  Ala Gly Asn
    1370                1375                1380

Tyr Gly  Ser Pro Leu Glu Phe  Tyr Lys Asp Val Arg  Gln Ile Phe
    1385                1390                1395

Asn Asn  Ser Lys Ala Tyr Thr  Ser Asn Lys Lys Ser  Arg Ile Tyr
    1400                1405                1410

Ser Met  Met Leu Arg Leu Ser  Ala Leu Phe Glu Ser  His Ile Lys
    1415                1420                1425

Asn Ile  Ile Ser Glu Tyr Lys  Ser Ala Ile Gln Ser  Gln Lys Arg
    1430                1435                1440

Arg Arg  Pro Arg Tyr Arg Lys  Arg Leu Arg Ser Ser  Ser Ser Ser
    1445                1450                1455

Leu Ser  Ser Ser Gly Ala Pro  Ser Pro Lys Gly Lys  Gln Lys Gln
    1460                1465                1470

Met Lys  Leu Gln Pro Lys Asn  Asp Gln Asn Thr Ser  Val Ser His
    1475                1480                1485
```

```
Ala Arg  Thr Ser Ser Pro Phe  Ser Ser Pro Val Ser  Asp Ala Ala
    1490                1495                1500

Glu Gly  Leu Ser Leu Tyr Leu  Leu Asp Asp Glu Pro  Asp Gly Pro
    1505                1510                1515

Phe Ser  Ser Ser Ser Phe Gly  Gly Tyr Ser Arg Ser  Gly Asn Ser
    1520                1525                1530

His Asp  Pro Gly Lys Ala Lys  Ser Phe Arg Asn Arg  Val Leu Pro
    1535                1540                1545

Val Lys  Gln Asp His Ser Leu  Asp Gly Pro Leu Thr  Asn Gly Asp
    1550                1555                1560

Gly Arg  Glu Pro Arg Thr Gly  Ile Lys Arg Lys Leu  Leu Ser Ala
    1565                1570                1575

Ser Glu  Glu Asp Glu Asn Met  Gly Gly Glu Asp Lys  Glu Lys Lys
    1580                1585                1590

Glu Thr  Lys Glu Lys Ser His  Leu Ser Thr Ser Glu  Ser Gly Glu
    1595                1600                1605

Leu Gly  Ser Ser Leu Ser Ser  Glu Ser Thr Cys Gly  Ser Asp Ser
    1610                1615                1620

Asp Ser  Glu Ser Thr Ser Arg  Thr Asp Gln Asp Tyr  Val Asp Gly
    1625                1630                1635

Asp His  Asp Tyr Ser Lys Phe  Ile Gln Thr Arg Pro  Lys Arg Lys
    1640                1645                1650

Leu Arg  Lys Gln His Gly Asn  Gly Lys Arg Asn Trp  Lys Thr Arg
    1655                1660                1665

Gly Thr  Gly Gly Arg Gly Arg  Trp Gly Arg Trp Gly  Arg Trp Ser
    1670                1675                1680

Arg Gly  Gly Arg Gly Arg Gly  Gly Arg Gly Arg Gly  Ser Arg Gly
    1685                1690                1695

Arg Gly  Gly Gly Gly Thr Arg  Gly Arg Gly Arg Gly  Arg Gly Gly
```

```
    1700                1705                1710

Arg Gly  Ala Ser Arg Gly Ala  Thr Arg Ala Lys Arg  Ala Arg Ile
    1715                1720                1725

Ala Asp  Asp Glu Phe Asp Thr  Met Phe Ser Gly Arg  Phe Ser Arg
    1730                1735                1740

Leu Pro  Arg Ile Lys Thr Arg  Asn Gln Gly Arg Arg  Thr Val Leu
    1745                1750                1755

Tyr Asn  Asp Asp Ser Asp Asn  Asp Asn Phe Val Ser  Thr Glu Asp
    1760                1765                1770

Pro Leu  Asn Leu Gly Thr Ser  Arg Ser Gly Arg Val  Arg Lys Met
    1775                1780                1785

Thr Glu  Lys Ala Arg Val Ser  His Leu Met Gly Trp  Asn Tyr
    1790                1795                1800


<210> 9779
<211> 1058
<212> PRT
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<400> 9779
Met Arg Arg Lys Gly Arg Cys His Arg Gly Ser Ala Ala Arg His Pro
1               5                  10                  15
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```
Ser Ser Pro Cys Ser Val Lys His Ser Pro Thr Arg Glu Thr Leu Thr
            20                  25                  30

Tyr Ala Gln Ala Gln Arg Met Val Glu Ile Glu Ile Glu Gly Arg Leu
        35                  40                  45

His Arg Ile Ser Ile Phe Asp Pro Leu Glu Ile Ile Leu Glu Asp Asp
    50                  55                  60

Leu Thr Ala Gln Glu Met Ser Glu Cys Asn Ser Asn Lys Glu Asn Ser
65                  70                  75                  80

Glu Arg Pro Pro Val Cys Leu Arg Thr Lys Arg His Lys Asn Asn Arg
                85                  90                  95

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

Ser Ala Ser Ala Leu Pro Glu Pro Lys Val Arg Ile Val Glu Tyr Ser
        115                 120                 125

Pro Pro Ser Ala Pro Arg Arg Pro Pro Val Tyr Tyr Lys Phe Ile Glu
    130                 135                 140

Lys Ser Ala Glu Glu Leu Asp Asn Glu Val Glu Tyr Asp Met Asp Glu
145                 150                 155                 160

Glu Asp Tyr Ala Trp Leu Glu Ile Val Asn Glu Lys Arg Lys Gly Asp
                165                 170                 175

Cys Val Pro Ala Val Ser Gln Ser Met Phe Glu Phe Leu Met Asp Arg
            180                 185                 190

Phe Glu Lys Glu Ser His Cys Glu Asn Gln Lys Gln Gly Glu Gln Gln
        195                 200                 205

Ser Leu Ile Asp Glu Asp Ala Val Cys Cys Ile Cys Met Asp Gly Glu
    210                 215                 220

Cys Gln Asn Ser Asn Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala
225                 230                 235                 240
```

```
Val His Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp
                245                 250                 255

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

Leu Cys Pro Asn Lys Gly Gly Ala Phe Lys Lys Thr Asp Asp Asp Arg
        275                 280                 285

Trp Gly His Val Val Cys Ala Leu Trp Ile Pro Glu Val Gly Phe Ala
    290                 295                 300

Asn Thr Val Phe Ile Glu Pro Ile Asp Gly Val Arg Asn Ile Pro Pro
305                 310                 315                 320

Ala Arg Trp Lys Leu Thr Cys Tyr Leu Cys Lys Gln Lys Gly Val Gly
                325                 330                 335

Ala Cys Ile Gln Cys His Lys Ala Asn Cys Tyr Thr Ala Phe His Val
            340                 345                 350

Thr Cys Ala Gln Lys Ala Gly Leu Tyr Met Lys Met Glu Pro Val Lys
        355                 360                 365

Glu Leu Thr Gly Gly Gly Thr Thr Phe Ser Val Arg Lys Thr Ala Tyr
    370                 375                 380

Cys Asp Val His Thr Pro Pro Gly Cys Thr Arg Arg Pro Leu Asn Ile
385                 390                 395                 400

Tyr Gly Asp Val Glu Met Lys Asn Gly Val Cys Arg Lys Glu Ser Ser
                405                 410                 415

Val Lys Thr Val Arg Ser Thr Ser Lys Val Arg Lys Lys Ala Lys Lys
            420                 425                 430

Ala Lys Lys Ala Leu Ala Glu Pro Cys Ala Val Leu Pro Thr Val Cys
        435                 440                 445

Ala Pro Tyr Ile Pro Pro Gln Arg Leu Asn Arg Ile Ala Asn Gln Val
    450                 455                 460

Ala Ile Gln Arg Lys Lys Gln Phe Val Glu Arg Ala His Ser Tyr Trp
```

```
465                 470                 475                 480

Leu Leu Lys Arg Leu Ser Arg Asn Gly Ala Pro Leu Leu Arg Arg Leu
                485                 490                 495

Gln Ser Ser Leu Gln Ser Gln Arg Ser Ser Gln Gln Arg Glu Asn Asp
            500                 505                 510

Glu Glu Met Lys Ala Ala Lys Glu Lys Leu Lys Tyr Trp Gln Arg Leu
        515                 520                 525

Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Leu Arg Lys
    530                 535                 540

Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Glu Gln Val Ala Met
545                 550                 555                 560

Glu Leu Arg Leu Thr Pro Leu Thr Val Leu Leu Arg Ser Val Leu Asp
                565                 570                 575

Gln Leu Gln Asp Lys Asp Pro Ala Arg Ile Phe Ala Gln Pro Val Ser
            580                 585                 590

Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
        595                 600                 605

Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
    610                 615                 620

His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
625                 630                 635                 640

Tyr Asn Ala Arg Asp Thr Val Phe Tyr Arg Ala Ala Val Arg Leu Arg
                645                 650                 655

Asp Gln Gly Gly Val Val Leu Arg Gln Ala Arg Arg Glu Val Asp Ser
            660                 665                 670

Ile Gly Leu Glu Glu Ala Ser Gly Met His Leu Pro Glu Arg Pro Ala
        675                 680                 685

Ala Ala Pro Arg Arg Pro Phe Ser Trp Glu Asp Val Asp Arg Leu Leu
    690                 695                 700
```

```
Asp Pro Ala Asn Arg Ala His Leu Gly Leu Glu Glu Gln Leu Arg Glu
705                 710                 715                 720

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

Arg Ser Lys Arg Ala Lys Leu Leu Lys Lys Glu Ile Ala Leu Leu Arg
            740                 745                 750

Asn Lys Leu Ser Gln Gln His Ser Gln Pro Leu Pro Thr Gly Pro Gly
        755                 760                 765

Leu Glu Gly Phe Glu Glu Asp Gly Ala Ala Leu Gly Pro Glu Ala Gly
    770                 775                 780

Glu Glu Val Leu Pro Arg Leu Glu Thr Leu Leu Gln Pro Arg Lys Arg
785                 790                 795                 800

Ser Arg Ser Thr Cys Gly Asp Ser Glu Val Glu Glu Glu Ser Pro Gly
                805                 810                 815

Lys Arg Leu Asp Ala Gly Leu Thr Asn Gly Phe Gly Gly Ala Arg Ser
            820                 825                 830

Glu Gln Glu Pro Gly Gly Gly Leu Gly Arg Lys Ala Thr Pro Arg Arg
        835                 840                 845

Arg Cys Ala Ser Glu Ser Ser Ile Ser Ser Ser Asn Ser Pro Leu Cys
    850                 855                 860

Asp Ser Ser Phe Asn Ala Pro Lys Cys Gly Arg Gly Lys Pro Ala Leu
865                 870                 875                 880

Val Arg Arg His Thr Leu Glu Asp Arg Ser Glu Leu Ile Ser Cys Ile
                885                 890                 895

Glu Asn Gly Asn Tyr Ala Lys Ala Ala Arg Ile Ala Ala Glu Val Gly
            900                 905                 910

Gln Ser Ser Met Trp Ile Ser Thr Asp Ala Ala Ala Ser Val Leu Glu
        915                 920                 925
```

```
Pro Leu Lys Val Val Trp Ala Lys Cys Ser Gly Tyr Pro Ser Tyr Pro
    930                 935                 940

Ala Leu Ile Ile Asp Pro Lys Met Pro Arg Val Pro Gly His His Asn
945                 950                 955                 960

Gly Val Thr Ile Pro Ala Pro Pro Leu Asp Val Leu Lys Ile Gly Glu
                965                 970                 975

His Met Gln Thr Lys Ser Asp Glu Lys Leu Phe Leu Val Leu Phe Phe
            980                 985                 990

Asp Asn Lys Arg Ser Trp Gln Trp  Leu Pro Lys Ser Lys  Met Val
Pro
        995                 1000                1005

Leu Gly  Ile Asp Glu Thr Ile  Asp Lys Leu Lys Met  Met Glu Gly
    1010                1015                1020

Arg Asn  Ser Ser Ile Arg Lys  Ala Val Arg Ile Ala  Phe Asp Arg
    1025                1030                1035

Ala Met  Asn His Leu Ser Arg  Val His Gly Glu Pro  Thr Ser Asp
    1040                1045                1050

Leu Ser  Asp Ile Asp
    1055


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<212> PRT
<213> Homo sapiens

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<400> 9780

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Met Arg Arg Lys Gly Arg Cys His Arg Gly Ser Ala Ala Arg His Pro
1               5                  10                  15

Ser Ser Pro Cys Ser Val Lys His Ser Pro Thr Arg Glu Thr Leu Thr
            20                  25                  30

Tyr Ala Gln Ala Gln Arg Met Val Glu Ile Glu Ile Glu Gly Arg Leu
        35                  40                  45

His Arg Ile Ser Ile Phe Asp Pro Leu Glu Ile Ile Leu Glu Asp Asp
    50                  55                  60

Leu Thr Ala Gln Glu Met Ser Glu Cys Asn Ser Asn Lys Glu Asn Ser
65                  70                  75                  80

Glu Arg Pro Pro Val Cys Leu Arg Thr Lys Arg His Lys Asn Asn Arg
                85                  90                  95

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

Ser Ala Ser Ala Leu Pro Glu Pro Lys Val Arg Ile Val Glu Tyr Ser
        115                 120                 125

Pro Pro Ser Ala Pro Arg Arg Pro Pro Val Tyr Tyr Lys Phe Ile Glu
    130                 135                 140

Lys Ser Ala Glu Glu Leu Asp Asn Glu Val Glu Tyr Asp Met Asp Glu
145                 150                 155                 160

Glu Asp Tyr Ala Trp Leu Glu Ile Val Asn Glu Lys Arg Lys Gly Asp
                165                 170                 175

Cys Val Pro Ala Val Ser Gln Ser Met Phe Glu Phe Leu Met Asp Arg
            180                 185                 190

Phe Glu Lys Glu Ser His Cys Glu Asn Gln Lys Gln Gly Glu Gln Gln
```

```
        195                 200                 205

Ser Leu Ile Asp Glu Asp Ala Val Cys Cys Ile Cys Met Asp Gly Glu
    210                 215                 220

Cys Gln Asn Ser Asn Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala
225                 230                 235                 240

Val His Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp
                245                 250                 255

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

Leu Cys Pro Asn Lys Gly Gly Ala Phe Lys Lys Thr Asp Asp Asp Arg
        275                 280                 285

Trp Gly His Val Val Cys Ala Leu Trp Ile Pro Glu Val Gly Phe Ala
    290                 295                 300

Asn Thr Val Phe Ile Glu Pro Ile Asp Gly Val Arg Asn Ile Pro Pro
305                 310                 315                 320

Ala Arg Trp Lys Leu Thr Cys Tyr Leu Cys Lys Gln Lys Gly Val Gly
                325                 330                 335

Ala Cys Ile Gln Cys His Lys Ala Asn Cys Tyr Thr Ala Phe His Val
            340                 345                 350

Thr Cys Ala Gln Lys Ala Gly Leu Tyr Met Lys Met Glu Pro Val Lys
        355                 360                 365

Glu Leu Thr Gly Gly Gly Thr Thr Phe Ser Val Arg Lys Thr Ala Tyr
    370                 375                 380

Cys Asp Val His Thr Pro Pro Gly Cys Thr Arg Arg Pro Leu Asn Ile
385                 390                 395                 400

Tyr Gly Asp Val Glu Met Lys Asn Gly Val Cys Arg Lys Glu Ser Ser
                405                 410                 415

Val Lys Thr Val Arg Ser Thr Ser Lys Val Arg Lys Lys Ala Lys Lys
            420                 425                 430
```

```
Ala Lys Lys Ala Leu Ala Glu Pro Cys Ala Val Leu Pro Thr Val Cys
        435                 440                 445

Ala Pro Tyr Ile Pro Pro Gln Arg Leu Asn Arg Ile Ala Asn Gln Val
    450                 455                 460

Ala Ile Gln Arg Lys Lys Gln Phe Val Glu Arg Ala His Ser Tyr Trp
465                 470                 475                 480

Leu Leu Lys Arg Leu Ser Arg Asn Gly Ala Pro Leu Leu Arg Arg Leu
                485                 490                 495

Gln Ser Ser Leu Gln Ser Gln Arg Ser Ser Gln Gln Arg Glu Asn Asp
            500                 505                 510

Glu Glu Met Lys Ala Ala Lys Glu Lys Leu Lys Tyr Trp Gln Arg Leu
        515                 520                 525

Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Leu Arg Lys
    530                 535                 540

Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Glu Gln Val Ala Met
545                 550                 555                 560

Glu Leu Arg Leu Thr Pro Leu Thr Val Leu Leu Arg Ser Val Leu Asp
                565                 570                 575

Gln Leu Gln Asp Lys Asp Pro Ala Arg Ile Phe Ala Gln Pro Val Ser
            580                 585                 590

Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
        595                 600                 605

Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
    610                 615                 620

His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
625                 630                 635                 640

Tyr Asn Ala Arg Asp Thr Val Phe Tyr Arg Ala Ala Val Arg Leu Arg
                645                 650                 655
```

```
Asp Gln Gly Gly Val Val Leu Arg Gln Ala Arg Arg Glu Val Asp Ser
            660                 665                 670

Ile Gly Leu Glu Glu Ala Ser Gly Met His Leu Pro Glu Arg Pro Ala
        675                 680                 685

Ala Ala Pro Arg Arg Pro Phe Ser Trp Glu Asp Val Asp Arg Leu Leu
    690                 695                 700

Asp Pro Ala Asn Arg Ala His Leu Gly Leu Glu Glu Gln Leu Arg Glu
705                 710                 715                 720

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

Arg Ser Lys Arg Ala Lys Leu Leu Lys Lys Glu Ile Ala Leu Leu Arg
            740                 745                 750

Asn Lys Leu Ser Gln Gln His Ser Gln Pro Leu Pro Thr Gly Pro Gly
        755                 760                 765

Leu Glu Gly Phe Glu Glu Asp Gly Ala Ala Leu Gly Pro Glu Ala Gly
    770                 775                 780

Glu Glu Val Leu Pro Arg Leu Glu Thr Leu Leu Gln Pro Arg Lys Arg
785                 790                 795                 800

Ser Arg Ser Thr Cys Gly Asp Ser Glu Val Glu Glu Glu Ser Pro Gly
                805                 810                 815

Lys Arg Leu Asp Ala Gly Leu Thr Asn Gly Phe Gly Gly Ala Arg Ser
            820                 825                 830

Glu Gln Glu Pro Gly Gly Gly Leu Gly Arg Lys Ala Thr Pro Arg Arg
        835                 840                 845

Arg Cys Ala Ser Glu Ser Ser Ile Ser Ser Ser Asn Ser Pro Leu Cys
    850                 855                 860

Asp Ser Ser Phe Asn Ala Pro Lys Cys Gly Arg Gly Lys Pro Ala Leu
865                 870                 875                 880
```

Val Arg Arg His Thr Leu Glu Asp Arg Ser Glu Leu Ile Ser Cys Ile
885 890 895

Glu Asn Gly Asn Tyr Ala Lys Ala Ala Arg Ile Ala Ala Glu Val Gly
900 905 910

Gln Ser Ser Met Trp Ile Ser Thr Asp Ala Ala Ala Ser Val Leu Glu
915 920 925

Pro Leu Lys Val Val Trp Ala Lys Cys Ser Gly Tyr Pro Ser Tyr Pro
930 935 940

Ala Leu Ile Ile Asp Pro Lys Met Pro Arg Val Pro Gly His His Asn
945 950 955 960

Gly Val Thr Ile Pro Ala Pro Pro Leu Asp Val Leu Lys Ile Gly Glu
965 970 975

His Met Gln Thr Lys Ser Asp Glu Lys Leu Phe Leu Val Leu Phe Phe
980 985 990

Asp Asn Lys Arg Ser Trp Gln Trp Leu Pro Lys Ser Lys Met Val
Pro
995 1000 1005

Leu Gly Ile Asp Glu Thr Ile Asp Lys Leu Lys Met Met Glu Gly
1010 1015 1020

Arg Asn Ser Ser Ile Arg Lys Ala Val Arg Ile Ala Phe Asp Arg
1025 1030 1035

Ala Met Asn His Leu Ser Arg Val His Gly Glu Pro Thr Ser Asp
1040 1045 1050

Leu Ser Asp Ile Asp
1055

<210> 9781
<211> 1189
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<400> 9781

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Met Arg Arg Lys Gly Arg Cys His Arg Gly Ser Ala Ala Arg His Pro
1               5                  10                  15

Ser Ser Pro Cys Ser Val Lys His Ser Pro Thr Arg Glu Thr Leu Thr
            20                  25                  30

Tyr Ala Gln Ala Gln Arg Met Val Glu Ile Glu Ile Glu Gly Arg Leu
        35                  40                  45

His Arg Ile Ser Ile Phe Asp Pro Leu Glu Ile Ile Leu Glu Asp Asp
    50                  55                  60

Leu Thr Ala Gln Glu Met Ser Glu Cys Asn Ser Asn Lys Glu Asn Ser
65                  70                  75                  80

Glu Arg Pro Pro Val Cys Leu Arg Thr Lys Arg His Lys Asn Asn Arg
                85                  90                  95

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

Ser Ala Ser Ala Leu Pro Glu Pro Lys Val Arg Ile Val Glu Tyr Ser
        115                 120                 125

Pro Pro Ser Ala Pro Arg Arg Pro Pro Val Tyr Tyr Lys Phe Ile Glu
    130                 135                 140

Lys Ser Ala Glu Glu Leu Asp Asn Glu Val Glu Tyr Asp Met Asp Glu
145                 150                 155                 160
```

```
Glu Asp Tyr Ala Trp Leu Glu Ile Val Asn Glu Lys Arg Lys Gly Asp
                165                 170                 175

Cys Val Pro Ala Val Ser Gln Ser Met Phe Glu Phe Leu Met Asp Arg
            180                 185                 190

Phe Glu Lys Glu Ser His Cys Glu Asn Gln Lys Gln Gly Glu Gln Gln
        195                 200                 205

Ser Leu Ile Asp Glu Asp Ala Val Cys Cys Ile Cys Met Asp Gly Glu
    210                 215                 220

Cys Gln Asn Ser Asn Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala
225                 230                 235                 240

Val His Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp
                245                 250                 255

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

Leu Cys Pro Asn Lys Gly Gly Ala Phe Lys Lys Thr Asp Asp Asp Arg
        275                 280                 285

Trp Gly His Val Val Cys Ala Leu Trp Ile Pro Glu Val Gly Phe Ala
    290                 295                 300

Asn Thr Val Phe Ile Glu Pro Ile Asp Gly Val Arg Asn Ile Pro Pro
305                 310                 315                 320

Ala Arg Trp Lys Leu Thr Cys Tyr Leu Cys Lys Gln Lys Gly Val Gly
                325                 330                 335

Ala Cys Ile Gln Cys His Lys Ala Asn Cys Tyr Thr Ala Phe His Val
            340                 345                 350

Thr Cys Ala Gln Lys Ala Gly Leu Tyr Met Lys Met Glu Pro Val Lys
        355                 360                 365

Glu Leu Thr Gly Gly Gly Thr Thr Phe Ser Val Arg Lys Thr Ala Tyr
    370                 375                 380
```

```
Cys Asp Val His Thr Pro Pro Gly Cys Thr Arg Arg Pro Leu Asn Ile
385                 390                 395                 400

Tyr Gly Asp Val Glu Met Lys Asn Gly Val Cys Arg Lys Glu Ser Ser
                405                 410                 415

Val Lys Thr Val Arg Ser Thr Ser Lys Val Arg Lys Lys Ala Lys Lys
            420                 425                 430

Ala Lys Lys Ala Leu Ala Glu Pro Cys Ala Val Leu Pro Thr Val Cys
        435                 440                 445

Ala Pro Tyr Ile Pro Pro Gln Arg Leu Asn Arg Ile Ala Asn Gln Val
    450                 455                 460

Ala Ile Gln Arg Lys Lys Gln Phe Val Glu Arg Ala His Ser Tyr Trp
465                 470                 475                 480

Leu Leu Lys Arg Leu Ser Arg Asn Gly Ala Pro Leu Leu Arg Arg Leu
                485                 490                 495

Gln Ser Ser Leu Gln Ser Gln Arg Ser Ser Gln Gln Arg Glu Asn Asp
            500                 505                 510

Glu Glu Met Lys Ala Ala Lys Glu Lys Leu Lys Tyr Trp Gln Arg Leu
        515                 520                 525

Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Leu Arg Lys
    530                 535                 540

Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Glu Gln Val Ala Met
545                 550                 555                 560

Glu Leu Arg Leu Thr Pro Leu Thr Val Leu Leu Arg Ser Val Leu Asp
                565                 570                 575

Gln Leu Gln Asp Lys Asp Pro Ala Arg Ile Phe Ala Gln Pro Val Ser
            580                 585                 590

Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
        595                 600                 605
```

```
Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
    610                 615                 620

His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
625                 630                 635                 640

Tyr Asn Ala Arg Asp Thr Val Phe Tyr Arg Ala Ala Val Arg Leu Arg
                645                 650                 655

Asp Gln Gly Gly Val Val Leu Arg Gln Ala Arg Arg Glu Val Asp Ser
            660                 665                 670

Ile Gly Leu Glu Glu Ala Ser Gly Met His Leu Pro Glu Arg Pro Ala
        675                 680                 685

Ala Ala Pro Arg Arg Pro Phe Ser Trp Glu Asp Val Asp Arg Leu Leu
    690                 695                 700

Asp Pro Ala Asn Arg Ala His Leu Gly Leu Glu Glu Gln Leu Arg Glu
705                 710                 715                 720

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

Arg Ser Lys Arg Ala Lys Leu Leu Lys Lys Glu Ile Ala Leu Leu Arg
            740                 745                 750

Asn Lys Leu Ser Gln Gln His Ser Gln Pro Leu Pro Thr Gly Pro Gly
        755                 760                 765

Leu Glu Gly Phe Glu Glu Asp Gly Ala Ala Leu Gly Pro Glu Ala Gly
    770                 775                 780

Glu Glu Gly Asp Lys Ser Pro Pro Lys Leu Glu Pro Ser Asp Ala Leu
785                 790                 795                 800

Pro Leu Pro Ser Asn Ser Glu Thr Asn Ser Glu Pro Pro Thr Leu Lys
                805                 810                 815

Pro Val Glu Leu Asn Pro Glu Gln Ser Lys Leu Phe Lys Arg Val Thr
            820                 825                 830

Phe Asp Asn Glu Ser His Ser Ala Cys Thr Gln Ser Ala Leu Val Ser
```

```
        835                 840                 845

Gly Arg Pro Pro Glu Pro Thr Arg Ala Ser Ser Gly Asp Val Pro Ala
    850                 855                 860

Ala Ala Ala Ser Ala Val Ala Glu Pro Ala Ser Asp Val Asn Arg Arg
865                 870                 875                 880

Thr Ser Val Leu Phe Cys Lys Ser Lys Ser Val Ser Pro Pro Lys Ser
                885                 890                 895

Ala Lys Asn Thr Glu Thr Gln Pro Thr Ser Pro Gln Leu Gly Thr Lys
            900                 905                 910

Thr Phe Leu Ser Val Val Leu Pro Arg Leu Glu Thr Leu Leu Gln Pro
        915                 920                 925

Arg Lys Arg Ser Arg Ser Thr Cys Gly Asp Ser Glu Val Glu Glu Glu
    930                 935                 940

Ser Pro Gly Lys Arg Leu Asp Ala Gly Leu Thr Asn Gly Phe Gly Gly
945                 950                 955                 960

Ala Arg Ser Glu Gln Glu Pro Gly Gly Gly Leu Gly Arg Lys Ala Thr
                965                 970                 975

Pro Arg Arg Arg Cys Ala Ser Glu Ser Ser Ile Ser Ser Ser Asn Ser
            980                 985                 990

Pro Leu Cys Asp Ser Ser Phe Asn  Ala Pro Lys Cys Gly  Arg Gly
Lys
        995                 1000                1005

Pro Ala  Leu Val Arg Arg His  Thr Leu Glu Asp Arg  Ser Glu Leu
    1010                1015                1020

Ile Ser  Cys Ile Glu Asn Gly  Asn Tyr Ala Lys Ala  Ala Arg Ile
    1025                1030                1035

Ala Ala  Glu Val Gly Gln Ser  Ser Met Trp Ile Ser  Thr Asp Ala
    1040                1045                1050

Ala Ala  Ser Val Leu Glu Pro  Leu Lys Val Val Trp  Ala Lys Cys
```

```
    1055                1060                1065

Ser Gly  Tyr Pro Ser Tyr Pro  Ala Leu Ile Ile Asp  Pro Lys Met
    1070                1075                1080

Pro Arg  Val Pro Gly His His  Asn Gly Val Thr Ile  Pro Ala Pro
    1085                1090                1095

Pro Leu  Asp Val Leu Lys Ile  Gly Glu His Met Gln  Thr Lys Ser
    1100                1105                1110

Asp Glu  Lys Leu Phe Leu Val  Leu Phe Phe Asp Asn  Lys Arg Ser
    1115                1120                1125

Trp Gln  Trp Leu Pro Lys Ser  Lys Met Val Pro Leu  Gly Ile Asp
    1130                1135                1140

Glu Thr  Ile Asp Lys Leu Lys  Met Met Glu Gly Arg  Asn Ser Ser
    1145                1150                1155

Ile Arg  Lys Ala Val Arg Ile  Ala Phe Asp Arg Ala  Met Asn His
    1160                1165                1170

Leu Ser  Arg Val His Gly Glu  Pro Thr Ser Asp Leu  Ser Asp Ile
    1175                1180                1185

Asp
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<210> 9782
<211> 509
<212> PRT
<213> Homo sapiens

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<220>
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<400> 9782
Glu Leu Thr Gly Gly Gly Thr Thr Phe Ser Val Arg Lys Thr Ala Tyr
1   5   10   15

Cys Asp Val His Thr Pro Pro Gly Cys Thr Arg Arg Pro Leu Asn Ile
            20   25   30

Tyr Gly Asp Val Glu Met Lys Asn Gly Val Cys Arg Lys Glu Ser Ser
        35   40   45

Val Lys Thr Val Arg Ser Thr Ser Lys Val Arg Lys Lys Ala Lys Lys
    50   55   60

Ala Lys Lys Ala Leu Ala Glu Pro Cys Ala Val Leu Pro Thr Val Cys
65   70   75   80

Ala Pro Tyr Ile Pro Pro Gln Arg Leu Asn Arg Ile Ala Asn Gln Val
                85   90   95

Ala Ile Gln Arg Lys Lys Gln Phe Val Glu Arg Ala His Ser Tyr Trp
            100   105   110

Leu Leu Lys Arg Leu Ser Arg Asn Gly Ala Pro Leu Leu Arg Arg Leu
        115   120   125

Gln Ser Ser Leu Gln Ser Gln Arg Ser Ser Gln Gln Arg Glu Asn Asp
    130   135   140

Glu Glu Met Lys Ala Ala Lys Glu Lys Leu Lys Tyr Trp Gln Arg Leu
145   150   155   160

Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Leu Arg Lys
                165   170   175

Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Glu Gln Val Ala Met
            180   185   190

Glu Leu Arg Leu Thr Pro Leu Thr Val Leu Leu Arg Ser Val Leu Asp
        195   200   205

```
Gln Leu Gln Asp Lys Asp Pro Ala Arg Ile Phe Ala Gln Pro Val Ser
    210                 215                 220

Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
225                 230                 235                 240

Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
                245                 250                 255

His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
            260                 265                 270

Tyr Asn Ala Arg Asp Thr Val Phe Tyr Arg Ala Ala Val Arg Leu Arg
        275                 280                 285

Asp Gln Gly Gly Val Val Leu Arg Gln Ala Arg Arg Glu Val Asp Ser
    290                 295                 300

Ile Gly Leu Glu Glu Ala Ser Gly Met His Leu Pro Glu Arg Pro Ala
305                 310                 315                 320

Ala Ala Pro Arg Arg Pro Phe Ser Trp Glu Asp Val Asp Arg Leu Leu
                325                 330                 335

Asp Pro Ala Asn Arg Ala His Leu Gly Leu Glu Glu Gln Leu Arg Glu
            340                 345                 350

Leu Leu Asp Met Leu Asp Leu Thr Cys Ala Met Lys Ser Ser Gly Ser
        355                 360                 365

Arg Ser Lys Arg Ala Lys Leu Leu Lys Lys Glu Ile Ala Leu Leu Arg
    370                 375                 380

Asn Lys Leu Ser Gln Gln His Ser Gln Pro Leu Pro Thr Gly Pro Gly
385                 390                 395                 400

Leu Glu Gly Phe Glu Glu Asp Gly Ala Ala Leu Gly Pro Glu Ala Gly
                405                 410                 415

Glu Glu Ala Arg Asp Gln Asn Leu Phe Val Cys Ser Pro Ser Glu Val
            420                 425                 430

Gly Asp Ser Ser Ala Ala Lys Glu Lys Val Ala Glu His Met Arg Arg
```

```
        435                 440                 445

Leu Arg Gly Gly Gly Gly Val Pro Arg Lys Ala Pro Gly Arg Arg Ser
    450                 455                 460

His Gln Arg Leu Trp Gly Cys Glu Glu Arg Ala Gly Ala Gly Arg Arg
465                 470                 475                 480

Pro Gly Glu Glu Gly His Thr Pro Thr Thr Leu Cys Leu Arg Val Gln
                485                 490                 495

His Leu Leu Gln Gln Gln Pro Ala Leu Arg Leu Glu Leu
            500                 505


<210> 9783
<211> 1189
<212> PRT
<213> Homo sapiens

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<400> 9783
Met Arg Arg Lys Gly Arg Cys His Arg Gly Ser Ala Ala Arg His Pro
1               5                   10                  15

Ser Ser Pro Cys Ser Val Lys His Ser Pro Thr Arg Glu Thr Leu Thr
            20                  25                  30

Tyr Ala Gln Ala Gln Arg Met Val Glu Ile Glu Ile Glu Gly Arg Leu
        35                  40                  45
```

```
His Arg Ile Ser Ile Phe Asp Pro Leu Glu Ile Ile Leu Glu Asp Asp
    50                  55                  60

Leu Thr Ala Gln Glu Met Ser Glu Cys Asn Ser Asn Lys Glu Asn Ser
65                  70                  75                  80

Glu Arg Pro Pro Val Cys Leu Arg Thr Lys Arg His Lys Asn Asn Arg
                85                  90                  95

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

Ser Ala Ser Ala Leu Pro Glu Pro Lys Val Arg Ile Val Glu Tyr Ser
        115                 120                 125

Pro Pro Ser Ala Pro Arg Arg Pro Pro Val Tyr Tyr Lys Phe Ile Glu
    130                 135                 140

Lys Ser Ala Glu Glu Leu Asp Asn Glu Val Glu Tyr Asp Met Asp Glu
145                 150                 155                 160

Glu Asp Tyr Ala Trp Leu Glu Ile Val Asn Glu Lys Arg Lys Gly Asp
                165                 170                 175

Cys Val Pro Ala Val Ser Gln Ser Met Phe Glu Phe Leu Met Asp Arg
            180                 185                 190

Phe Glu Lys Glu Ser His Cys Glu Asn Gln Lys Gln Gly Glu Gln Gln
        195                 200                 205

Ser Leu Ile Asp Glu Asp Ala Val Cys Cys Ile Cys Met Asp Gly Glu
    210                 215                 220

Cys Gln Asn Ser Asn Val Ile Leu Phe Cys Asp Met Cys Asn Leu Ala
225                 230                 235                 240

Val His Gln Glu Cys Tyr Gly Val Pro Tyr Ile Pro Glu Gly Gln Trp
                245                 250                 255

Leu Cys Arg His Cys Leu Gln Ser Arg Ala Arg Pro Ala Asp Cys Val
            260                 265                 270
```

```
Leu Cys Pro Asn Lys Gly Gly Ala Phe Lys Lys Thr Asp Asp Asp Arg
        275                 280                 285

Trp Gly His Val Val Cys Ala Leu Trp Ile Pro Glu Val Gly Phe Ala
    290                 295                 300

Asn Thr Val Phe Ile Glu Pro Ile Asp Gly Val Arg Asn Ile Pro Pro
305                 310                 315                 320

Ala Arg Trp Lys Leu Thr Cys Tyr Leu Cys Lys Gln Lys Gly Val Gly
                325                 330                 335

Ala Cys Ile Gln Cys His Lys Ala Asn Cys Tyr Thr Ala Phe His Val
            340                 345                 350

Thr Cys Ala Gln Lys Ala Gly Leu Tyr Met Lys Met Glu Pro Val Lys
        355                 360                 365

Glu Leu Thr Gly Gly Gly Thr Thr Phe Ser Val Arg Lys Thr Ala Tyr
    370                 375                 380

Cys Asp Val His Thr Pro Pro Gly Cys Thr Arg Arg Pro Leu Asn Ile
385                 390                 395                 400

Tyr Gly Asp Val Glu Met Lys Asn Gly Val Cys Arg Lys Glu Ser Ser
                405                 410                 415

Val Lys Thr Val Arg Ser Thr Ser Lys Val Arg Lys Lys Ala Lys Lys
            420                 425                 430

Ala Lys Lys Ala Leu Ala Glu Pro Cys Ala Val Leu Pro Thr Val Cys
        435                 440                 445

Ala Pro Tyr Ile Pro Pro Gln Arg Leu Asn Arg Ile Ala Asn Gln Val
    450                 455                 460

Ala Ile Gln Arg Lys Lys Gln Phe Val Glu Arg Ala His Ser Tyr Trp
465                 470                 475                 480

Leu Leu Lys Arg Leu Ser Arg Asn Gly Ala Pro Leu Leu Arg Arg Leu
                485                 490                 495

Gln Ser Ser Leu Gln Ser Gln Arg Ser Ser Gln Gln Arg Glu Asn Asp
```

```
            500                 505                 510

Glu Glu Met Lys Ala Ala Lys Glu Lys Leu Lys Tyr Trp Gln Arg Leu
        515                 520                 525

Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Leu Arg Lys
    530                 535                 540

Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Glu Gln Val Ala Met
545                 550                 555                 560

Glu Leu Arg Leu Thr Pro Leu Thr Val Leu Leu Arg Ser Val Leu Asp
                565                 570                 575

Gln Leu Gln Asp Lys Asp Pro Ala Arg Ile Phe Ala Gln Pro Val Ser
            580                 585                 590

Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
        595                 600                 605

Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
    610                 615                 620

His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
625                 630                 635                 640

Tyr Asn Ala Arg Asp Thr Val Phe Tyr Arg Ala Ala Val Arg Leu Arg
                645                 650                 655

Asp Gln Gly Gly Val Val Leu Arg Gln Ala Arg Arg Glu Val Asp Ser
            660                 665                 670

Ile Gly Leu Glu Glu Ala Ser Gly Met His Leu Pro Glu Arg Pro Ala
        675                 680                 685

Ala Ala Pro Arg Arg Pro Phe Ser Trp Glu Asp Val Asp Arg Leu Leu
    690                 695                 700

Asp Pro Ala Asn Arg Ala His Leu Gly Leu Glu Glu Gln Leu Arg Glu
705                 710                 715                 720

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

```
Arg Ser Lys Arg Ala Lys Leu Leu Lys Lys Glu Ile Ala Leu Leu Arg
            740                 745                 750

Asn Lys Leu Ser Gln Gln His Ser Gln Pro Leu Pro Thr Gly Pro Gly
        755                 760                 765

Leu Glu Gly Phe Glu Glu Asp Gly Ala Ala Leu Gly Pro Glu Ala Gly
    770                 775                 780

Glu Glu Gly Asp Lys Ser Pro Pro Lys Leu Glu Pro Ser Asp Ala Leu
785                 790                 795                 800

Pro Leu Pro Ser Asn Ser Glu Thr Asn Ser Glu Pro Pro Thr Leu Lys
                805                 810                 815

Pro Val Glu Leu Asn Pro Glu Gln Ser Lys Leu Phe Lys Arg Val Thr
            820                 825                 830

Phe Asp Asn Glu Ser His Ser Ala Cys Thr Gln Ser Ala Leu Val Ser
        835                 840                 845

Gly Arg Pro Pro Glu Pro Thr Arg Ala Ser Ser Gly Asp Val Pro Ala
    850                 855                 860

Ala Ala Ala Ser Ala Val Ala Glu Pro Ala Ser Asp Val Asn Arg Arg
865                 870                 875                 880

Thr Ser Val Leu Phe Cys Lys Ser Lys Ser Val Ser Pro Pro Lys Ser
                885                 890                 895

Ala Lys Asn Thr Glu Thr Gln Pro Thr Ser Pro Gln Leu Gly Thr Lys
            900                 905                 910

Thr Phe Leu Ser Val Val Leu Pro Arg Leu Glu Thr Leu Leu Gln Pro
        915                 920                 925

Arg Lys Arg Ser Arg Ser Thr Cys Gly Asp Ser Glu Val Glu Glu Glu
    930                 935                 940

Ser Pro Gly Lys Arg Leu Asp Ala Gly Leu Thr Asn Gly Phe Gly Gly
945                 950                 955                 960
```

```
Ala Arg Ser Glu Gln Glu Pro Gly Gly Gly Leu Gly Arg Lys Ala Thr
               965                 970                 975

Pro Arg Arg Arg Cys Ala Ser Glu Ser Ser Ile Ser Ser Ser Asn Ser
           980                 985                 990

Pro Leu Cys Asp Ser Ser Phe Asn  Ala Pro Lys Cys Gly  Arg Gly
Lys
        995                1000                1005

Pro Ala  Leu Val Arg Arg His  Thr Leu Glu Asp Arg  Ser Glu Leu
    1010                1015                1020

Ile Ser  Cys Ile Glu Asn Gly  Asn Tyr Ala Lys Ala  Ala Arg Ile
    1025                1030                1035

Ala Ala  Glu Val Gly Gln Ser  Ser Met Trp Ile Ser  Thr Asp Ala
    1040                1045                1050

Ala Ala  Ser Val Leu Glu Pro  Leu Lys Val Val Trp  Ala Lys Cys
    1055                1060                1065

Ser Gly  Tyr Pro Ser Tyr Pro  Ala Leu Ile Ile Asp  Pro Lys Met
    1070                1075                1080

Pro Arg  Val Pro Gly His His  Asn Gly Val Thr Ile  Pro Ala Pro
    1085                1090                1095

Pro Leu  Asp Val Leu Lys Ile  Gly Glu His Met Gln  Thr Lys Ser
    1100                1105                1110

Asp Glu  Lys Leu Phe Leu Val  Leu Phe Phe Asp Asn  Lys Arg Ser
    1115                1120                1125

Trp Gln  Trp Leu Pro Lys Ser  Lys Met Val Pro Leu  Gly Ile Asp
    1130                1135                1140

Glu Thr  Ile Asp Lys Leu Lys  Met Met Glu Gly Arg  Asn Ser Ser
    1145                1150                1155

Ile Arg  Lys Ala Val Arg Ile  Ala Phe Asp Arg Ala  Met Asn His
    1160                1165                1170
```

Leu Ser Arg Val His Gly Glu Pro Thr Ser Asp Leu Ser Asp Ile
1175 1180 1185

Asp

<210> 9784
<211> 801
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: P25440; "

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<400> 9784
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
50 55 60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala

```
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320
```

```
Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540
```

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545 550 555 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
565 570 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
580 585 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
595 600 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625 630 635 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
645 650 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
660 665 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
675 680 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
690 695 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705 710 715 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
725 730 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
740 745 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
755 760 765

```
Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
    770                 775                 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785                 790                 795                 800

Gly
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<210> 9785
<211> 801
<212> PRT
<213> Homo sapiens

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<400> 9785

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                   10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln Leu Gln
65                  70                  75                  80
```

```
Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300
```

```
Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525
```

```
Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625                 630                 635                 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
                645                 650                 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
            660                 665                 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
        675                 680                 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
    690                 695                 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705                 710                 715                 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
                725                 730                 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
            740                 745                 750

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

```
        755                 760                 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
    770                 775                 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785                 790                 795                 800

Gly
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<210> 9786
<211> 801
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<400> 9786

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                   10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60
```

```
Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln Leu Gln
65                  70                  75                  80

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285
```

```
Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
```

```
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625                 630                 635                 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
                645                 650                 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
            660                 665                 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
        675                 680                 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
    690                 695                 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705                 710                 715                 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
                725                 730                 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
            740                 745                 750
```

```
Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
        755                 760                 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
    770                 775                 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785                 790                 795                 800

Gly
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<210> 9787
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<212> PRT
<213> Homo sapiens

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<400> 9787

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                   10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45
```

```
Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

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

```
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510
```

```
Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

Gly Gly Ser Gly Thr Lys Leu Gln Ala Gly Val Gln Trp Arg Asp Leu
    610                 615                 620

Gly Leu Leu Gln Pro Pro Leu Leu Gly Phe Lys Arg Phe Ser Cys Leu
625                 630                 635                 640

Ser Leu Pro Ser Ser Gln Asp Tyr Arg Leu Pro Lys Lys Ala Thr Lys
                645                 650                 655

Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu
            660                 665                 670

Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp
        675                 680                 685

Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile
    690                 695                 700

Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu
705                 710                 715                 720

Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg
                725                 730                 735
```

```
Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile
            740                 745                 750

Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys
        755                 760                 765

Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser
    770                 775                 780

Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser
785                 790                 795                 800

Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser
                805                 810                 815

Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp
            820                 825                 830

Ser Asp Ser Gly
        835


<210> 9788
<211> 836
<212> PRT
<213> Homo sapiens

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<221> source
<223> /note="Uniprot ID:  P25440; "

<220>
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<400> 9788
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
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1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
50 55 60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
85 90 95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
115 120 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
130 135 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145 150 155 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
165 170 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
180 185 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
195 200 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
210 215 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225 230 235 240

```
Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460
```

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465 470 475 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
485 490 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
500 505 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
515 520 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
530 535 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545 550 555 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
565 570 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
580 585 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
595 600 605

Gly Gly Ser Gly Thr Lys Leu Gln Ala Gly Val Gln Trp Arg Asp Leu
610 615 620

Gly Leu Leu Gln Pro Pro Leu Leu Gly Phe Lys Arg Phe Ser Cys Leu
625 630 635 640

Ser Leu Pro Ser Ser Gln Asp Tyr Arg Leu Pro Lys Lys Ala Thr Lys
645 650 655

Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu
660 665 670

Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp
675 680 685

```
Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile
    690                 695                 700

Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu
705                 710                 715                 720

Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg
                725                 730                 735

Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile
            740                 745                 750

Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys
        755                 760                 765

Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser
    770                 775                 780

Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser
785                 790                 795                 800

Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser
                805                 810                 815

Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp
            820                 825                 830

Ser Asp Ser Gly
        835


<210> 9789
<211> 801
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1981; "

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<220>
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<223> /note="Gene Name:
      bromodomain containing 2; "
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000382444"

<400> 9789
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1   5   10   15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20   25   30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35   40   45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50   55   60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85   90   95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115   120   125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130   135   140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145   150   155   160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165   170   175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180   185   190

```
Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415
```

```
Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625                 630                 635                 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
```

645 650 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
660 665 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
675 680 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
690 695 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705 710 715 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
725 730 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
740 745 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
755 760 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
770 775 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785 790 795 800

Gly

<210> 9790
<211> 801
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<400> 9790

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175
```

```
Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
```

```
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625                 630                 635                 640
```

```
Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
                645                 650                 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
            660                 665                 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
        675                 680                 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
    690                 695                 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705                 710                 715                 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
                725                 730                 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
            740                 745                 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
        755                 760                 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
    770                 775                 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785                 790                 795                 800

Gly
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<210> 9791
<211> 613
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
bromodomain containing 2; "

<220>
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<223> /note="ENSP ID: ENSP00000390267"

<400> 9791

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
```

```
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415
```

```
Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

Gly Gly Ser Gly Thr
    610
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<210> 9792
<211> 328
<212> PRT

<213> Homo sapiens

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<220>
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<220>
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bromodomain containing 2; "

<220>
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<223> /note="ENSP ID: ENSP00000391113"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9792

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Xaa Ala Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu
1               5                  10                  15

Ser Ser Ser Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Glu Glu Glu
            20                  25                  30

Glu Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala
        35                  40                  45

Glu Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu
    50                  55                  60

Ser Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu
65                  70                  75                  80

Lys Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala
                85                  90                  95

Asp Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys
            100                 105                 110

Lys Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly
        115                 120                 125
```

```
Pro Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys
    130                 135                 140

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

Glu Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln
                165                 170                 175

Leu Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val
            180                 185                 190

Val His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro
        195                 200                 205

Glu Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg
    210                 215                 220

Glu Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys
225                 230                 235                 240

Pro Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala
                245                 250                 255

Leu Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly
            260                 265                 270

Gln Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr
        275                 280                 285

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

Ser Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
305                 310                 315                 320

Asp Thr Ser Asp Ser Asp Ser Gly
                325
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<210> 9793
<211> 801
<212> PRT
<213> Homo sapiens

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<400> 9793

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140
```

```
Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Phe Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365
```

```
Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590
```

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
595 600 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625 630 635 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
645 650 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
660 665 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
675 680 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
690 695 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705 710 715 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
725 730 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
740 745 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
755 760 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
770 775 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785 790 795 800

Gly

<210> 9794

<211> 296
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9794

```
Xaa Arg Pro Leu Gly Val Gln Gln Pro Gly Ala Arg Leu Pro Gly Glu
1               5                  10                  15

Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly
            20                  25                  30

Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro
        35                  40                  45

Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro
    50                  55                  60

Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln
65                  70                  75                  80

Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln
                85                  90                  95

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

Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile
```

```
        115                 120                 125

Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met
    130                 135                 140

Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro
145                 150                 155                 160

Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu
                165                 170                 175

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

Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln
        195                 200                 205

Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser
    210                 215                 220

His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu
225                 230                 235                 240

Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu
                245                 250                 255

His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala
            260                 265                 270

Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr
        275                 280                 285

Thr Pro Thr Pro Thr Ala Ile Leu
    290                 295


<210> 9795
<211> 328
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9795

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Xaa Ala Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu
1               5                  10                  15

Ser Ser Ser Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Glu Glu Glu
            20                  25                  30

Glu Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala
        35                  40                  45

Glu Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu
    50                  55                  60

Ser Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu
65                  70                  75                  80

Lys Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala
                85                  90                  95

Asp Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys
            100                 105                 110

Lys Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly
        115                 120                 125

Pro Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys
    130                 135                 140

Lys Ala Thr Lys Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser
145                 150                 155                 160
```

```
Glu Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln
                165                 170                 175

Leu Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val
            180                 185                 190

Val His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro
        195                 200                 205

Glu Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg
    210                 215                 220

Glu Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys
225                 230                 235                 240

Pro Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala
                245                 250                 255

Leu Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly
            260                 265                 270

Gln Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr
        275                 280                 285

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

Ser Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
305                 310                 315                 320

Asp Thr Ser Asp Ser Asp Ser Gly
                325
```

<210> 9796
<211> 801
<212> PRT
<213> Homo sapiens

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<400> 9796

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
```

```
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Phe Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400
```

```
Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys Ala Thr Lys Thr Ala Pro
    610                 615                 620
```

```
Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625                 630                 635                 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
                645                 650                 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
            660                 665                 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
        675                 680                 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
    690                 695                 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705                 710                 715                 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
                725                 730                 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
            740                 745                 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
        755                 760                 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
    770                 775                 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785                 790                 795                 800

Gly
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<210> 9797
<211> 613
<212> PRT
<213> Homo sapiens

<220>
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<400> 9797

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Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175
```

```
Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400
```

```
Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

Gly Gly Ser Gly Thr
    610
```

<210> 9798
<211> 807
<212> PRT
<213> Homo sapiens

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9798
Xaa Asn Gly Gly Gly Gly Ser Ala Thr Ala Arg Gly Gly Glu Tyr Arg
1 5 10 15

Leu Pro Gly Glu Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala
20 25 30

Ala Ala Pro Gly Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly
35 40 45

Phe Glu Ser Pro Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro
50 55 60

Ala Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg
65 70 75 80

Val Thr Asn Gln Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu
85 90 95

Trp Lys His Gln Phe Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val
100 105 110

```
Lys Leu Gly Leu Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp
        115                 120                 125

Met Gly Thr Ile Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala
    130                 135                 140

Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile
145                 150                 155                 160

Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu
                165                 170                 175

Lys Ile Phe Leu Gln Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu
            180                 185                 190

Leu Val Val Thr Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu
        195                 200                 205

Ala Ala Leu Gln Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val
    210                 215                 220

Ser Ser Val Ser His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro
225                 230                 235                 240

Thr Thr Val Phe Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu
                245                 250                 255

Leu Lys Ser Leu His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala
            260                 265                 270

Ala Pro Pro Ala Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys
        275                 280                 285

Ala Asp Thr Thr Thr Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser
    290                 295                 300

Pro Ala Ser Pro Pro Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro
305                 310                 315                 320

Pro Met Arg Arg Glu Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp
                325                 330                 335

Leu Pro Asp Ser Gln Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu
```

```
            340                 345                 350

Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser
        355                 360                 365

Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala
    370                 375                 380

Ser Ala Leu Gly Leu His Asp Tyr His Asp Ile Ile Lys His Pro Met
385                 390                 395                 400

Asp Leu Ser Thr Val Lys Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp
                405                 410                 415

Ala Gln Glu Phe Ala Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr
            420                 425                 430

Lys Tyr Asn Pro Pro Asp His Asp Val Val Ala Met Ala Arg Lys Leu
        435                 440                 445

Gln Asp Val Phe Glu Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu
    450                 455                 460

Glu Pro Gly Pro Leu Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala
465                 470                 475                 480

Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser
                485                 490                 495

Ser Glu Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu
            500                 505                 510

Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu
        515                 520                 525

Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser
    530                 535                 540

Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys
545                 550                 555                 560

Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp
                565                 570                 575
```

```
Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys
            580                 585                 590

Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro
        595                 600                 605

Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys
    610                 615                 620

Ala Thr Lys Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu
625                 630                 635                 640

Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu
                645                 650                 655

Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val
            660                 665                 670

His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu
        675                 680                 685

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

Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro
705                 710                 715                 720

Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu
                725                 730                 735

Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln
            740                 745                 750

Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu
        755                 760                 765

Ser Ser Ser Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser
    770                 775                 780

Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp
785                 790                 795                 800
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Thr Ser Asp Ser Asp Ser Gly
805

<210> 9799
<211> 801
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: P25440; "

<220>
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<223> /note="ENSP ID: ENSP00000401791"

<400> 9799
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
50 55 60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
85 90 95

Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Asp

```
            100                 105                 110

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335
```

```
Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560
```

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
565 570 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
580 585 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
595 600 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625 630 635 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
645 650 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
660 665 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
675 680 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
690 695 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705 710 715 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
725 730 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
740 745 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
755 760 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
770 775 780

```
Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785                 790                 795                 800


Gly



<210> 9800
<211> 619
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
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<223> /note="Gene Name:
      bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402220"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9800
Xaa Asn Gly Gly Gly Gly Ser Ala Thr Ala Arg Gly Gly Glu Tyr Arg
1               5                   10                  15


Leu Pro Gly Glu Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala
            20                  25                  30


Ala Ala Pro Gly Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly
        35                  40                  45


Phe Glu Ser Pro Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro
    50                  55                  60


Ala Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg
65                  70                  75                  80
```

```
Val Thr Asn Gln Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu
                85                  90                  95

Trp Lys His Gln Phe Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val
            100                 105                 110

Lys Leu Gly Leu Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp
        115                 120                 125

Met Gly Thr Ile Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala
    130                 135                 140

Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile
145                 150                 155                 160

Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu
                165                 170                 175

Lys Ile Phe Leu Gln Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu
            180                 185                 190

Leu Val Val Thr Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu
        195                 200                 205

Ala Ala Leu Gln Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val
    210                 215                 220

Ser Ser Val Ser His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro
225                 230                 235                 240

Thr Thr Val Leu Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu
                245                 250                 255

Leu Lys Ser Leu His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala
            260                 265                 270

Ala Pro Pro Ala Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys
        275                 280                 285

Ala Asp Thr Thr Thr Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser
    290                 295                 300

Pro Ala Ser Pro Pro Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro
```

305 310 315 320

Pro Met Arg Arg Glu Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp
325 330 335

Leu Pro Asp Ser Gln Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu
340 345 350

Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser
355 360 365

Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala
370 375 380

Ser Ala Leu Gly Leu His Asp Tyr His Asp Ile Ile Lys His Pro Met
385 390 395 400

Asp Leu Ser Thr Val Lys Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp
405 410 415

Ala Gln Glu Phe Ala Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr
420 425 430

Lys Tyr Asn Pro Pro Asp His Asp Val Val Ala Met Ala Arg Lys Leu
435 440 445

Gln Asp Val Phe Glu Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu
450 455 460

Glu Pro Gly Pro Leu Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala
465 470 475 480

Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser
485 490 495

Ser Glu Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu
500 505 510

Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu
515 520 525

Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser
530 535 540

```
Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys
545                 550                 555                 560


Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp
                565                 570                 575


Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys
            580                 585                 590


Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro
        595                 600                 605


Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr
    610                 615


<210> 9801
<211> 363
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000403393"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9801
Xaa Ala Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu
1               5                   10                  15


Ser Ser Ser Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Glu Glu Glu
            20                  25                  30
```

```
Glu Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala
        35                  40                  45

Glu Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu
    50                  55                  60

Ser Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu
65                  70                  75                  80

Lys Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala
                85                  90                  95

Asp Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys
            100                 105                 110

Lys Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly
        115                 120                 125

Pro Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Gln Ala
    130                 135                 140

Gly Val Gln Trp Arg Asp Leu Gly Leu Leu Gln Pro Pro Leu Leu Gly
145                 150                 155                 160

Phe Lys Arg Phe Ser Cys Leu Ser Leu Pro Ser Ser Gln Asp Tyr Arg
                165                 170                 175

Leu Pro Lys Lys Ala Thr Lys Thr Ala Pro Pro Ala Leu Pro Thr Gly
            180                 185                 190

Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu
        195                 200                 205

Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu
    210                 215                 220

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

Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys Pro Ser
                245                 250                 255
```

```
Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys
            260                 265                 270

Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu
        275                 280                 285

Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp
    290                 295                 300

Val Ser Gly Gln Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn
305                 310                 315                 320

Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln Val Ala Val Ser Arg Leu
                325                 330                 335

Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser
            340                 345                 350

Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser Gly
        355                 360


<210> 9802
<211> 807
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404221"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid
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<400> 9802
Xaa Asn Gly Gly Gly Gly Ser Ala Thr Ala Arg Gly Gly Glu Tyr Arg
1 5 10 15

Leu Pro Gly Glu Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala
20 25 30

Ala Ala Pro Gly Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly
35 40 45

Phe Glu Ser Pro Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro
50 55 60

Ala Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg
65 70 75 80

Val Thr Asn Gln Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu
85 90 95

Trp Lys His Gln Phe Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val
100 105 110

Lys Leu Gly Leu Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp
115 120 125

Met Gly Thr Ile Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala
130 135 140

Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile
145 150 155 160

Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu
165 170 175

Lys Ile Phe Leu Gln Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu
180 185 190

Leu Val Val Thr Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu
195 200 205

Ala Ala Leu Gln Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val
210 215 220

```
Ser Ser Val Ser His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro
225                 230                 235                 240

Thr Thr Val Leu Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu
                245                 250                 255

Leu Lys Ser Leu His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala
            260                 265                 270

Ala Pro Pro Ala Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys
        275                 280                 285

Ala Asp Thr Thr Thr Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser
    290                 295                 300

Pro Ala Ser Pro Pro Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro
305                 310                 315                 320

Pro Met Arg Arg Glu Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp
                325                 330                 335

Leu Pro Asp Ser Gln Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu
            340                 345                 350

Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser
        355                 360                 365

Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala
    370                 375                 380

Ser Ala Leu Gly Leu His Asp Tyr His Asp Ile Ile Lys His Pro Met
385                 390                 395                 400

Asp Leu Ser Thr Val Lys Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp
                405                 410                 415

Ala Gln Glu Phe Ala Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr
            420                 425                 430

Lys Tyr Asn Pro Pro Asp His Asp Val Val Ala Met Ala Arg Lys Leu
        435                 440                 445

Gln Asp Val Phe Glu Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu
```

```
    450                 455                 460

Glu Pro Gly Pro Leu Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala
465                 470                 475                 480

Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser
                485                 490                 495

Ser Glu Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu
            500                 505                 510

Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu
        515                 520                 525

Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser
    530                 535                 540

Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys
545                 550                 555                 560

Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp
                565                 570                 575

Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys
            580                 585                 590

Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro
        595                 600                 605

Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys
    610                 615                 620

Ala Thr Lys Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu
625                 630                 635                 640

Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu
                645                 650                 655

Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val
            660                 665                 670

His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu
        675                 680                 685
```

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

Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro
705                 710                 715                 720

Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu
                725                 730                 735

Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln
            740                 745                 750

Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu
        755                 760                 765

Ser Ser Ser Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser
    770                 775                 780

Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp
785                 790                 795                 800

Thr Ser Asp Ser Asp Ser Gly
                805
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<210> 9803
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
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bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405050"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9803
Xaa Arg Pro Leu Gly Val Gln Gln Pro Gly Ala Arg Leu Pro Gly Glu
1 5 10 15

Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly
20 25 30

Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro
35 40 45

Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro
50 55 60

Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln
65 70 75 80

Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln
85 90 95

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

Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile
115 120 125

Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met
130 135 140

Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro
145 150 155 160

Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu
165 170 175

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

Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln
195 200 205

```
Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser
    210                 215                 220

His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu
225                 230                 235                 240

Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu
                245                 250                 255

His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala
            260                 265                 270

Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr
        275                 280                 285

Thr Pro Thr Pro Thr Ala Ile Leu
    290                 295


<210> 9804
<211> 754
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID:  P25440; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405634"

<400> 9804
Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro
1               5                   10                  15

Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln Leu
```

```
            20                  25                  30

Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe
        35                  40                  45

Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro
    50                  55                  60

Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys
65                  70                  75                  80

Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln
                85                  90                  95

Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr
            100                 105                 110

Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln
        115                 120                 125

Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile
    130                 135                 140

Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly
145                 150                 155                 160

Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His
                165                 170                 175

Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn
            180                 185                 190

Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His
        195                 200                 205

Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln
    210                 215                 220

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

Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro
                245                 250                 255
```

```
Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu
            260                 265                 270

Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln
        275                 280                 285

Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys
    290                 295                 300

His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala
305                 310                 315                 320

Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu
                325                 330                 335

His Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val
            340                 345                 350

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

Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro
    370                 375                 380

Asp His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu
385                 390                 395                 400

Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu
                405                 410                 415

Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu
            420                 425                 430

Ser Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu
        435                 440                 445

Glu Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp
    450                 455                 460

Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu
465                 470                 475                 480
```

Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser
485 490 495

Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys
500 505 510

Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly
515 520 525

Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser
530 535 540

Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro
545 550 555 560

Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys Ala Thr Lys Thr Ala
565 570 575

Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser
580 585 590

Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn
595 600 605

Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala
610 615 620

Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp
625 630 635 640

Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val
645 650 655

Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys
660 665 670

Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu
675 680 685

Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys
690 695 700

```
Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln
705                 710                 715                 720


Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser
                725                 730                 735


Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp
            740                 745                 750


Ser Gly



<210> 9805
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
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<223> /note="Gene Name:
      bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405661"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9805
Xaa Arg Pro Leu Gly Val Gln Gln Pro Gly Ala Arg Leu Pro Gly Glu
1               5                   10                  15


Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly
            20                  25                  30


Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro
        35                  40                  45
```

```
Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro
    50                  55                  60

Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln
65                  70                  75                  80

Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln
                85                  90                  95

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

Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile
        115                 120                 125

Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met
    130                 135                 140

Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro
145                 150                 155                 160

Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu
                165                 170                 175

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

Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln
        195                 200                 205

Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser
    210                 215                 220

His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu
225                 230                 235                 240

Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu
                245                 250                 255

His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala
            260                 265                 270

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

275 280 285

Thr Pro Thr Pro Thr Ala Ile Leu
290 295

<210> 9806
<211> 807
<212> PRT
<213> Homo sapiens

<220>
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<223> Any amino acid

<400> 9806
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1 5 10 15

Leu Pro Gly Glu Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala
20 25 30

Ala Ala Pro Gly Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly
35 40 45

Phe Glu Ser Pro Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro
50 55 60

Ala Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg
65 70 75 80

Val Thr Asn Gln Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu

```
                85                  90                  95

Trp Lys His Gln Phe Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val
            100                 105                 110

Lys Leu Gly Leu Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp
        115                 120                 125

Met Gly Thr Ile Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala
    130                 135                 140

Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile
145                 150                 155                 160

Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu
                165                 170                 175

Lys Ile Phe Leu Gln Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu
            180                 185                 190

Leu Val Val Thr Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu
        195                 200                 205

Ala Ala Leu Gln Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val
    210                 215                 220

Ser Ser Val Ser His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro
225                 230                 235                 240

Thr Thr Val Leu Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu
                245                 250                 255

Leu Lys Ser Leu His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala
            260                 265                 270

Ala Pro Pro Ala Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys
        275                 280                 285

Ala Asp Thr Thr Thr Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser
    290                 295                 300

Pro Ala Ser Pro Pro Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro
305                 310                 315                 320
```

```
Pro Met Arg Arg Glu Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp
                325                 330                 335

Leu Pro Asp Ser Gln Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu
            340                 345                 350

Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser
        355                 360                 365

Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala
    370                 375                 380

Ser Ala Leu Gly Leu His Asp Tyr His Asp Ile Ile Lys His Pro Met
385                 390                 395                 400

Asp Leu Ser Thr Val Lys Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp
                405                 410                 415

Ala Gln Glu Phe Ala Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr
            420                 425                 430

Lys Tyr Asn Pro Pro Asp His Asp Val Val Ala Met Ala Arg Lys Leu
        435                 440                 445

Gln Asp Val Phe Glu Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu
    450                 455                 460

Glu Pro Gly Pro Leu Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala
465                 470                 475                 480

Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser
                485                 490                 495

Ser Glu Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu
            500                 505                 510

Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu
        515                 520                 525

Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser
    530                 535                 540
```

```
Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys
545                 550                 555                 560

Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp
                565                 570                 575

Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys
            580                 585                 590

Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro
        595                 600                 605

Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys
    610                 615                 620

Ala Thr Lys Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu
625                 630                 635                 640

Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu
                645                 650                 655

Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val
            660                 665                 670

His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu
        675                 680                 685

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

Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro
705                 710                 715                 720

Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu
                725                 730                 735

Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln
            740                 745                 750

Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu
        755                 760                 765
```

```
Ser Ser Ser Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser
    770                 775                 780

Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp
785                 790                 795                 800

Thr Ser Asp Ser Asp Ser Gly
                805

<210> 9807
<211> 754
<212> PRT
<213> Homo sapiens

<220>
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      bromodomain containing 2; "

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<220>
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<400> 9807
Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro
1               5                   10                  15

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

Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe
        35                  40                  45

Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro
    50                  55                  60

Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys
65                  70                  75                  80
```

Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln
85 90 95

Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr
100 105 110

Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln
115 120 125

Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile
130 135 140

Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly
145 150 155 160

Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His
165 170 175

Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn
180 185 190

Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His
195 200 205

Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln
210 215 220

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

Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro
245 250 255

Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu
260 265 270

Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln
275 280 285

Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys
290 295 300

```
His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala
305                 310                 315                 320

Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu
                325                 330                 335

His Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val
            340                 345                 350

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

Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro
    370                 375                 380

Asp His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu
385                 390                 395                 400

Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu
                405                 410                 415

Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu
            420                 425                 430

Ser Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu
        435                 440                 445

Glu Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp
    450                 455                 460

Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu
465                 470                 475                 480

Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser
                485                 490                 495

Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys
            500                 505                 510

Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly
        515                 520                 525
```

```
Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser
    530                 535                 540

Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro
545                 550                 555                 560

Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys Ala Thr Lys Thr Ala
                565                 570                 575

Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser
            580                 585                 590

Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn
        595                 600                 605

Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala
    610                 615                 620

Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp
625                 630                 635                 640

Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val
                645                 650                 655

Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys
            660                 665                 670

Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu
        675                 680                 685

Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys
    690                 695                 700

Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln
705                 710                 715                 720

Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser
                725                 730                 735

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp
            740                 745                 750

Ser Gly
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<210> 9808
<211> 807
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> Any amino acid

<400> 9808
Xaa Asn Gly Gly Gly Gly Ser Ala Thr Ala Arg Gly Gly Glu Tyr Arg
1 5 10 15

Leu Pro Gly Glu Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala
20 25 30

Ala Ala Pro Gly Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly
35 40 45

Phe Glu Ser Pro Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro
50 55 60

Ala Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg
65 70 75 80

Val Thr Asn Gln Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu
85 90 95

Trp Lys His Gln Phe Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val

```
            100                 105                 110

Lys Leu Gly Leu Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp
        115                 120                 125

Met Gly Thr Ile Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala
    130                 135                 140

Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile
145                 150                 155                 160

Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu
                165                 170                 175

Lys Ile Phe Leu Gln Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu
            180                 185                 190

Leu Val Val Thr Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu
        195                 200                 205

Ala Ala Leu Gln Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val
    210                 215                 220

Ser Ser Val Ser His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro
225                 230                 235                 240

Thr Thr Val Leu Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu
                245                 250                 255

Leu Lys Ser Leu His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala
            260                 265                 270

Ala Pro Pro Ala Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys
        275                 280                 285

Ala Asp Thr Thr Thr Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser
    290                 295                 300

Pro Ala Ser Pro Pro Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro
305                 310                 315                 320

Pro Met Arg Arg Glu Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp
                325                 330                 335
```

```
Leu Pro Asp Ser Gln Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu
            340                 345                 350

Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser
        355                 360                 365

Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala
    370                 375                 380

Ser Ala Leu Gly Leu His Asp Tyr His Asp Ile Ile Lys His Pro Met
385                 390                 395                 400

Asp Leu Ser Thr Val Lys Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp
                405                 410                 415

Ala Gln Glu Phe Ala Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr
            420                 425                 430

Lys Tyr Asn Pro Pro Asp His Asp Val Val Ala Met Ala Arg Lys Leu
        435                 440                 445

Gln Asp Val Phe Glu Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu
    450                 455                 460

Glu Pro Gly Pro Leu Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala
465                 470                 475                 480

Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser
                485                 490                 495

Ser Glu Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu
            500                 505                 510

Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu
        515                 520                 525

Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser
    530                 535                 540

Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys
545                 550                 555                 560
```

Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp
565 570 575

Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys
580 585 590

Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro
595 600 605

Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys
610 615 620

Ala Thr Lys Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu
625 630 635 640

Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu
645 650 655

Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val
660 665 670

His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu
675 680 685

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

Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro
705 710 715 720

Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu
725 730 735

Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln
740 745 750

Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu
755 760 765

Ser Ser Ser Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser
770 775 780

```
Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp
785                 790                 795                 800


Thr Ser Asp Ser Asp Ser Gly
                805


<210> 9809
<211> 836
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000410994"

<400> 9809
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15


Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30


Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45


Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60


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


Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95
```

```
Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Asp
            100                 105                 110

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320
```

```
Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540
```

```
Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

Gly Gly Ser Gly Thr Lys Leu Gln Ala Gly Val Gln Trp Arg Asp Leu
    610                 615                 620

Gly Leu Leu Gln Pro Pro Leu Leu Gly Phe Lys Arg Phe Ser Cys Leu
625                 630                 635                 640

Ser Leu Pro Ser Ser Gln Asp Tyr Arg Leu Pro Lys Lys Ala Thr Lys
                645                 650                 655

Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu
            660                 665                 670

Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp
        675                 680                 685

Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile
    690                 695                 700

Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu
705                 710                 715                 720

Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg
                725                 730                 735

Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile
            740                 745                 750

Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys
        755                 760                 765

Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser
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770 775 780

Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser
785 790 795 800

Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser
805 810 815

Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp
820 825 830

Ser Asp Ser Gly
835

<210> 9810
<211> 296
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1981; "

<220>
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<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9810
Xaa Arg Pro Leu Gly Val Gln Gln Pro Gly Ala Arg Leu Pro Gly Glu
1 5 10 15

Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly
20 25 30

Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro

```
        35                  40                  45

Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro
    50                  55                  60

Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln
65                  70                  75                  80

Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln
                85                  90                  95

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

Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile
        115                 120                 125

Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met
    130                 135                 140

Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro
145                 150                 155                 160

Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu
                165                 170                 175

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

Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln
        195                 200                 205

Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser
    210                 215                 220

His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu
225                 230                 235                 240

Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu
                245                 250                 255

His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala
            260                 265                 270
```

```
Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr
        275                 280                 285


Thr Pro Thr Pro Thr Ala Ile Leu
    290                 295


<210> 9811
<211> 296
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9811
Xaa Arg Pro Leu Gly Val Gln Gln Pro Gly Ala Arg Leu Pro Gly Glu
1               5                   10                  15


Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly
            20                  25                  30


Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro
        35                  40                  45


Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro
    50                  55                  60


Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln
65                  70                  75                  80
```

```
Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln
                85                  90                  95

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

Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile
        115                 120                 125

Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met
    130                 135                 140

Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro
145                 150                 155                 160

Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu
                165                 170                 175

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

Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln
        195                 200                 205

Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser
    210                 215                 220

His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu
225                 230                 235                 240

Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu
                245                 250                 255

His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala
            260                 265                 270

Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr
        275                 280                 285

Thr Pro Thr Pro Thr Ala Ile Leu
    290                 295
```

<210> 9812
<211> 836
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1981; "

<220>
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<223> /note="Gene Symbol: BRD2; "

<220>
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<220>
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<223> /note="Uniprot ID: P25440; "

<220>
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<223> /note="ENSP ID: ENSP00000412885"

<400> 9812
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1   5   10   15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20   25   30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35   40   45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50   55   60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85   90   95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg

115 120 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
130 135 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145 150 155 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
165 170 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
180 185 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
195 200 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
210 215 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225 230 235 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
245 250 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
260 265 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
275 280 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
290 295 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305 310 315 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
325 330 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
340 345 350

```
Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575
```

```
Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

Gly Gly Ser Gly Thr Lys Leu Gln Ala Gly Val Gln Trp Arg Asp Leu
    610                 615                 620

Gly Leu Leu Gln Pro Pro Leu Leu Gly Phe Lys Arg Phe Ser Cys Leu
625                 630                 635                 640

Ser Leu Pro Ser Ser Gln Asp Tyr Arg Leu Pro Lys Lys Ala Thr Lys
                645                 650                 655

Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu
            660                 665                 670

Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp
        675                 680                 685

Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile
    690                 695                 700

Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu
705                 710                 715                 720

Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg
                725                 730                 735

Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile
            740                 745                 750

Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys
        755                 760                 765

Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser
    770                 775                 780

Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser
785                 790                 795                 800
```

```
Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser
                805                 810                 815

Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp
            820                 825                 830

Ser Asp Ser Gly
        835


<210> 9813
<211> 328
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413125"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9813
Xaa Ala Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu
1               5                   10                  15

Ser Ser Ser Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Glu Glu Glu
            20                  25                  30

Glu Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala
        35                  40                  45

Glu Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu
    50                  55                  60
```

```
Ser Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu
65                  70                  75                  80

Lys Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala
                85                  90                  95

Asp Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys
            100                 105                 110

Lys Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly
        115                 120                 125

Pro Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys
    130                 135                 140

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

Glu Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln
                165                 170                 175

Leu Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val
            180                 185                 190

Val His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro
        195                 200                 205

Glu Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg
    210                 215                 220

Glu Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys
225                 230                 235                 240

Pro Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala
                245                 250                 255

Leu Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly
            260                 265                 270

Gln Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr
        275                 280                 285

Glu Ser Ser Ser Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser
```

290 295 300

Ser Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
305 310 315 320

Asp Thr Ser Asp Ser Asp Ser Gly
325

<210> 9814
<211> 836
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
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<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000413845"

<400> 9814
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
50 55 60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
85 90 95

```
Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Asp
            100                 105                 110

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Phe Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320
```

```
Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
```

545 550 555 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
565 570 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
580 585 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
595 600 605

Gly Gly Ser Gly Thr Lys Leu Gln Ala Gly Val Gln Trp Arg Asp Leu
610 615 620

Gly Leu Leu Gln Pro Pro Leu Leu Gly Phe Lys Arg Phe Ser Cys Leu
625 630 635 640

Ser Leu Pro Ser Ser Gln Asn Tyr Arg Leu Pro Lys Lys Ala Thr Lys
645 650 655

Thr Ala Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu
660 665 670

Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp
675 680 685

Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile
690 695 700

Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu
705 710 715 720

Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg
725 730 735

Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile
740 745 750

Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys
755 760 765

Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser
770 775 780

```
Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser
785                 790                 795                 800


Ala Gln Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser
                805                 810                 815


Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp
            820                 825                 830


Ser Asp Ser Gly
        835


<210> 9815
<211> 648
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414641"

<400> 9815
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                   10                  15


Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30


Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45


Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60
```

```
Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln Leu Gln
65                  70                  75                  80

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
```

```
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525
```

```
Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
        595                 600                 605

Gly Gly Ser Gly Thr Lys Leu Gln Ala Gly Val Gln Trp Arg Asp Leu
    610                 615                 620

Gly Leu Leu Gln Pro Pro Leu Leu Gly Phe Lys Arg Phe Ser Cys Leu
625                 630                 635                 640

Ser Leu Pro Ser Ser Gln Asp Tyr
                645
```

<210> 9816
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416399"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9816
Xaa Arg Pro Leu Gly Val Gln Gln Pro Gly Ala Arg Leu Pro Gly Glu
1 5 10 15

Gly Asn Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly
20 25 30

Lys Arg Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro
35 40 45

Thr Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro
50 55 60

Pro Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln
65 70 75 80

Leu Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln
85 90 95

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

Pro Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile
115 120 125

Lys Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met
130 135 140

Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro
145 150 155 160

Thr Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu
165 170 175

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

Ile Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln
195 200 205

```
Gly Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser
    210                 215                 220

His Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Phe
225                 230                 235                 240

Asn Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu
                245                 250                 255

His Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala
            260                 265                 270

Gln Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr
        275                 280                 285

Thr Pro Thr Pro Thr Ala Ile Leu
    290                 295
```

<210> 9817
<211> 328
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428080"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9817

```
Xaa Ala Lys Ser Ser Ser Glu Ser Ser Ser Glu Glu Ser Ser Ser Glu
1               5                   10                  15
```

```
Ser Ser Ser Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Glu Glu Glu
            20                  25                  30

Glu Ser Glu Ser Ser Asp Ser Glu Glu Glu Arg Ala His Arg Leu Ala
        35                  40                  45

Glu Leu Gln Glu Gln Leu Arg Ala Val His Glu Gln Leu Ala Ala Leu
    50                  55                  60

Ser Gln Gly Pro Ile Ser Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu
65                  70                  75                  80

Lys Lys Lys Lys Arg Lys Ala Glu Lys His Arg Gly Arg Ala Gly Ala
                85                  90                  95

Asp Glu Asp Asp Lys Gly Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys
            100                 105                 110

Lys Ser Lys Lys Ala Ser Gly Ser Gly Gly Gly Ser Ala Ala Leu Gly
        115                 120                 125

Pro Ser Gly Phe Gly Pro Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys
    130                 135                 140

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

Glu Glu Glu Glu Glu Ser Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln
                165                 170                 175

Leu Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val
            180                 185                 190

Val His Ile Ile Gln Ala Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro
        195                 200                 205

Glu Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg
    210                 215                 220

Glu Leu Glu Arg Tyr Val Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys
225                 230                 235                 240
```

```
Pro Tyr Thr Ile Lys Lys Pro Val Gly Lys Thr Lys Glu Glu Leu Ala
                245                 250                 255

Leu Glu Lys Lys Arg Glu Leu Glu Lys Arg Leu Gln Asp Val Ser Gly
            260                 265                 270

Gln Leu Asn Ser Thr Lys Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr
        275                 280                 285

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

Ser Ser Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
305                 310                 315                 320

Asp Thr Ser Asp Ser Asp Ser Gly
                325
```

<210> 9818
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431499"

<400> 9818

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                   10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45
```

```
Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Ile
            100                 105                 110

Pro Thr Ser Gly Trp Glu Arg Thr Thr Val Ala Lys Ile Leu Ser Phe
        115                 120                 125

Phe Leu Ser Leu Met Gln Pro Met Asp Ser Gln Pro Gln Arg Ile Ile
    130                 135                 140

Thr Lys Leu
145
```

<210> 9819
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431514"

<400> 9819

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                   10                  15
```

```
Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Ile
            100                 105                 110

Pro Thr Ser Gly Trp Glu Arg Thr Thr Val Ala Lys Ile Leu Ser Phe
        115                 120                 125

Phe Leu Ser Leu Met Gln Pro Met Asp Ser Gln Pro Gln Arg Ile Ile
    130                 135                 140

Thr Lys Leu
145
```

<210> 9820
<211> 137
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000432478"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9820
Xaa Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Pro Thr Ala Ile
1 5 10 15

Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly Ser Leu Glu Pro Lys
20 25 30

Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser Gly Arg Pro Ile Lys
35 40 45

Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln Gln His Gln Ser Ser
50 55 60

Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu
65 70 75 80

Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr
85 90 95

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

Ile Lys His Pro Met Asp Leu Ser Thr Val Lys Leu Leu Met Leu Pro
115 120 125

Pro Ser Ala Ala Glu Asp Gly Glu Pro
130 135

<210> 9821
<211> 137
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9821
Xaa Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Pro Thr Ala Ile
1 5 10 15

Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly Ser Leu Glu Pro Lys
20 25 30

Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser Gly Arg Pro Ile Lys
35 40 45

Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln Gln His Gln Ser Ser
50 55 60

Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu
65 70 75 80

Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr
85 90 95

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

Ile Lys His Pro Met Asp Leu Ser Thr Val Lys Leu Leu Met Leu Pro
115 120 125

Pro Ser Ala Ala Glu Asp Gly Glu Pro
130 135

<210> 9822
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000434155"

<400> 9822
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
50 55 60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
85 90 95

Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Ile
100 105 110

Pro Thr Ser Gly Trp Glu Arg Thr Thr Val Ala Lys Ile Leu Ser Phe
115 120 125

Phe Leu Ser Leu Met Gln Pro Met Asp Ser Gln Pro Gln Arg Ile Ile
130 135 140

Thr Lys Leu
145

<210> 9823
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1981; "

<220>
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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000434843"

<400> 9823

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Ile
            100                 105                 110

Pro Thr Ser Gly Trp Glu Arg Thr Thr Val Ala Lys Ile Leu Ser Phe
        115                 120                 125

Phe Leu Ser Leu Met Gln Pro Met Asp Ser Gln Pro Gln Arg Ile Ile
```

130 135 140

Thr Lys Leu
145

<210> 9824
<211> 401
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000434978"

<400> 9824
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
50 55 60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
85 90 95

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

```
Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335
```

```
Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Thr
```

<210> 9825
<211> 401
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
<221> source
<223> /note="Gene Symbol: BRD2; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435693"

<400> 9825

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                   10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60
```

```
Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln Leu Gln
65                  70                  75                  80

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285
```

```
Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Thr
```

<210> 9826
<211> 401
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1981; "

<220>
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<220>
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<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436322"

<400> 9826

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
```

1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
50 55 60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
85 90 95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
115 120 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
130 135 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145 150 155 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
165 170 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
180 185 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
195 200 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
210 215 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225 230 235 240

```
Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Thr
```

<210> 9827
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
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<223> /note="Gene Symbol: BRD2; "

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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000437126"

<400> 9827

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro Ile
            100                 105                 110

Pro Thr Ser Gly Trp Glu Arg Thr Thr Val Ala Lys Ile Leu Ser Phe
        115                 120                 125

Phe Leu Ser Leu Met Gln Pro Met Asp Ser Gln Pro Gln Arg Ile Ile
    130                 135                 140

Thr Lys Leu
145
```

<210> 9828
<211> 801
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1981; "

<220>
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<223> /note="Gene Symbol: BRD2; "

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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000449380"

<400> 9828

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45

Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140
```

```
Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365
```

```
Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
```

595 600 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625 630 635 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
645 650 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
660 665 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
675 680 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
690 695 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705 710 715 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
725 730 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
740 745 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
755 760 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
770 775 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785 790 795 800

Gly

<210> 9829
<211> 801

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
bromodomain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID: P25440; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449609"

<400> 9829

```
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1               5                  10                  15


Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
            20                  25                  30


Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
        35                  40                  45


Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60


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


Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95


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


Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125
```

```
Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270

Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
```

```
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Lys Arg Lys Ala
545                 550                 555                 560

Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly Pro
                565                 570                 575

Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser Gly
            580                 585                 590
```

Ser Gly Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro Ser
595 600 605

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

Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Glu Ser Arg
625 630 635 640

Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
645 650 655

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ala Arg
660 665 670

Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp Phe
675 680 685

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Leu
690 695 700

Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys Pro
705 710 715 720

Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu Leu
725 730 735

Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys Lys
740 745 750

Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln Gln
755 760 765

Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser Ser
770 775 780

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp Ser
785 790 795 800

Gly

<210> 9830
<211> 162
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1981; "

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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000464077"

<400> 9830
Met Ala Ser Leu Met Pro Pro Tyr Pro Leu Glu Gly Lys Gly Val Arg
1 5 10 15

Gly Arg Cys Gly Pro Pro Tyr Ser Ile Arg Pro Leu Gly Val Gln Gln
20 25 30

Pro Gly Ala Arg Phe Phe Ala Ala Ala Ala Leu Pro Pro Arg Thr Thr
35 40 45

Thr Arg Gln Ala Ser Cys Gly His Thr Pro Gly Gly Phe Arg Gln Ala
50 55 60

Thr Pro Thr Arg Pro Leu Pro Phe Pro Cys Phe Gly Gln Trp Arg Ser
65 70 75 80

Tyr Glu Trp His Asp Leu Leu Glu Leu Gly Ser Leu Gln Leu Gly Cys
85 90 95

Ala Trp Lys Leu Gly Lys Thr Leu Leu Glu Gly Glu Ala Gly Arg Glu
100 105 110

Cys Trp Arg Leu Trp Gly Asp Gly Phe Arg Thr Ser Ser Asn His Pro
115 120 125

Leu Ser Leu Glu Ser Ala Asp His Ser Ser Ala Asn Trp Leu Gly Asp

130 135 140

Val Ala Gly Cys His Phe Pro Val Gly Leu Cys Gly Thr Leu Leu Pro
145 150 155 160

Gly Asp

<210> 9831
<211> 159
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9831
Xaa Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro Leu
1 5 10 15

Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr
20 25 30

Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly Ser
35 40 45

Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser Gly
50 55 60

Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln Gln

65 70 75 80

His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His Cys
85 90 95

Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr Ala
100 105 110

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

Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys Val
130 135 140

Pro Thr Ala Trp Gly Arg Trp Asp Ala Gln Ala Val Met Gly Ala
145 150 155

<210> 9832
<211> 552
<212> PRT
<213> Homo sapiens

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<220>
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<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000475691"

<400> 9832
Met Leu Gln Asn Val Thr Pro His Asn Lys Leu Pro Gly Glu Gly Asn
1 5 10 15

Ala Gly Leu Leu Gly Leu Gly Pro Glu Ala Ala Ala Pro Gly Lys Arg
20 25 30

Ile Arg Lys Pro Ser Leu Leu Tyr Glu Gly Phe Glu Ser Pro Thr Met
35 40 45

```
Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro Pro
    50                  55                  60

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

Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe Ala
                85                  90                  95

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

Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys Arg
        115                 120                 125

Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp
    130                 135                 140

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp
145                 150                 155                 160

Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys
                165                 170                 175

Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile Pro
            180                 185                 190

Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly Ser
        195                 200                 205

Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His Thr
    210                 215                 220

Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn Ile
225                 230                 235                 240

Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His Ser
                245                 250                 255

Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln Pro
            260                 265                 270
```

```
Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
        275                 280                 285

Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro Gly
    290                 295                 300

Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu Ser
305                 310                 315                 320

Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln Gln
                325                 330                 335

Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His
            340                 345                 350

Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr
        355                 360                 365

Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His
    370                 375                 380

Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val Lys
385                 390                 395                 400

Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala
                405                 410                 415

Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp
            420                 425                 430

His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe
        435                 440                 445

Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu Pro
    450                 455                 460

Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu Ser
465                 470                 475                 480

Ser Ser Glu Glu Ser Ser Ser Glu Ser Ser Ser Glu Glu Glu Glu Glu
                485                 490                 495

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp Ser
```

```
            500                 505                 510

Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu Arg
        515                 520                 525

Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser Lys
    530                 535                 540

Pro Lys Arg Lys Arg Glu Lys Lys
545                 550


<210> 9833
<211> 726
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1982; "

<220>
<221> source
<223> /note="Gene Symbol: BRD3; "

<220>
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<223> /note="Gene Name:
      bromodomain containing 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q15059; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000305918"

<400> 9833
Met Ser Thr Ala Thr Thr Val Ala Pro Ala Gly Ile Pro Ala Thr Pro
1               5                   10                  15

Gly Pro Val Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Ser Lys Pro
            20                  25                  30

Gly Arg Lys Thr Asn Gln Leu Gln Tyr Met Gln Asn Val Val Val Lys
        35                  40                  45

Thr Leu Trp Lys His Gln Phe Ala Trp Pro Phe Tyr Gln Pro Val Asp
    50                  55                  60
```

```
Ala Ile Lys Leu Asn Leu Pro Asp Tyr His Lys Ile Ile Lys Asn Pro
65                  70                  75                  80

Met Asp Met Gly Thr Ile Lys Lys Arg Leu Glu Asn Asn Tyr Tyr Trp
                85                  90                  95

Ser Ala Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr Asn Cys
            100                 105                 110

Tyr Ile Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala Gln Ala
        115                 120                 125

Leu Glu Lys Ile Phe Leu Gln Lys Val Ala Gln Met Pro Gln Glu Glu
    130                 135                 140

Val Glu Leu Leu Pro Pro Ala Pro Lys Gly Lys Gly Arg Lys Pro Ala
145                 150                 155                 160

Ala Gly Ala Gln Ser Ala Gly Thr Gln Gln Val Ala Ala Val Ser Ser
                165                 170                 175

Val Ser Pro Ala Thr Pro Phe Gln Ser Val Pro Pro Thr Val Ser Gln
            180                 185                 190

Thr Pro Val Ile Ala Ala Thr Pro Val Pro Thr Ile Thr Ala Asn Val
        195                 200                 205

Thr Ser Val Pro Val Pro Pro Ala Ala Ala Pro Pro Pro Pro Ala Thr
    210                 215                 220

Pro Ile Val Pro Val Val Pro Pro Thr Pro Pro Val Val Lys Lys Lys
225                 230                 235                 240

Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Thr Ser Ala Ile
                245                 250                 255

Thr Ala Ser Arg Ser Glu Ser Pro Pro Pro Leu Ser Asp Pro Lys Gln
            260                 265                 270

Ala Lys Val Val Ala Arg Arg Glu Ser Gly Gly Arg Pro Ile Lys Pro
        275                 280                 285
```

```
Pro Lys Lys Asp Leu Glu Asp Gly Glu Val Pro Gln His Ala Gly Lys
    290                 295                 300

Lys Gly Lys Leu Ser Glu His Leu Arg Tyr Cys Asp Ser Ile Leu Arg
305                 310                 315                 320

Glu Met Leu Ser Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys
                325                 330                 335

Pro Val Asp Ala Glu Ala Leu Glu Leu His Asp Tyr His Asp Ile Ile
            340                 345                 350

Lys His Pro Met Asp Leu Ser Thr Val Lys Arg Lys Met Asp Gly Arg
        355                 360                 365

Glu Tyr Pro Asp Ala Gln Gly Phe Ala Ala Asp Val Arg Leu Met Phe
    370                 375                 380

Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp His Glu Val Val Ala Met
385                 390                 395                 400

Ala Arg Lys Leu Gln Asp Val Phe Glu Met Arg Phe Ala Lys Met Pro
                405                 410                 415

Asp Glu Pro Val Glu Ala Pro Ala Leu Pro Ala Pro Ala Ala Pro Met
            420                 425                 430

Val Ser Lys Gly Ala Glu Ser Ser Arg Ser Ser Glu Glu Ser Ser Ser
        435                 440                 445

Asp Ser Gly Ser Ser Asp Ser Glu Glu Glu Arg Ala Thr Arg Leu Ala
    450                 455                 460

Glu Leu Gln Glu Gln Leu Lys Ala Val His Glu Gln Leu Ala Ala Leu
465                 470                 475                 480

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

Lys Glu Lys Lys Lys Lys Asp Lys Glu Lys Glu Lys Glu Lys His Lys
            500                 505                 510

Val Lys Ala Glu Glu Glu Lys Lys Ala Lys Val Ala Pro Pro Ala Lys
```

```
        515                 520                 525

Gln Ala Gln Gln Lys Lys Ala Pro Ala Lys Lys Ala Asn Ser Thr Thr
    530                 535                 540

Thr Ala Gly Arg Gln Leu Lys Lys Gly Gly Lys Gln Ala Ser Ala Ser
545                 550                 555                 560

Tyr Asp Ser Glu Glu Glu Glu Glu Gly Leu Pro Met Ser Tyr Asp Glu
                565                 570                 575

Lys Arg Gln Leu Ser Leu Asp Ile Asn Arg Leu Pro Gly Glu Lys Leu
            580                 585                 590

Gly Arg Val Val His Ile Ile Gln Ser Arg Glu Pro Ser Leu Arg Asp
        595                 600                 605

Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys Pro Thr
    610                 615                 620

Thr Leu Arg Glu Leu Glu Arg Tyr Val Lys Ser Cys Leu Gln Lys Lys
625                 630                 635                 640

Gln Arg Lys Pro Phe Ser Ala Ser Gly Lys Lys Gln Ala Ala Lys Ser
                645                 650                 655

Lys Glu Glu Leu Ala Gln Glu Lys Lys Lys Glu Leu Glu Lys Arg Leu
            660                 665                 670

Gln Asp Val Ser Gly Gln Leu Ser Ser Ser Lys Lys Pro Ala Arg Lys
        675                 680                 685

Glu Lys Pro Gly Ser Ala Pro Ser Gly Gly Pro Ser Arg Leu Ser Ser
    690                 695                 700

Ser Ser Ser Ser Glu Ser Gly Ser Ser Ser Ser Ser Gly Ser Ser Ser
705                 710                 715                 720

Asp Ser Ser Asp Ser Glu
                725
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<210> 9834
<211> 556

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1982; "

<220>
<221> source
<223> /note="Gene Symbol: BRD3; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q15059; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360900"

<400> 9834

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Met Ser Thr Ala Thr Thr Val Ala Pro Ala Gly Ile Pro Ala Thr Pro
1               5                  10                  15


Gly Pro Val Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Ser Lys Pro
            20                  25                  30


Gly Arg Lys Thr Asn Gln Leu Gln Tyr Met Gln Asn Val Val Val Lys
        35                  40                  45


Thr Leu Trp Lys His Gln Phe Ala Trp Pro Phe Tyr Gln Pro Val Asp
    50                  55                  60


Ala Ile Lys Leu Asn Leu Pro Asp Tyr His Lys Ile Ile Lys Asn Pro
65                  70                  75                  80


Met Asp Met Gly Thr Ile Lys Lys Arg Leu Glu Asn Asn Tyr Tyr Trp
                85                  90                  95


Ser Ala Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr Asn Cys
            100                 105                 110


Tyr Ile Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala Gln Ala
        115                 120                 125
```

```
Leu Glu Lys Ile Phe Leu Gln Lys Val Ala Gln Met Pro Gln Glu Glu
    130                 135                 140

Val Glu Leu Leu Pro Pro Ala Pro Lys Gly Lys Gly Arg Lys Pro Ala
145                 150                 155                 160

Ala Gly Ala Gln Ser Ala Gly Thr Gln Gln Val Ala Ala Val Ser Ser
                165                 170                 175

Val Ser Pro Ala Thr Pro Phe Gln Ser Val Pro Pro Thr Val Ser Gln
            180                 185                 190

Thr Pro Val Ile Ala Ala Thr Pro Val Pro Thr Ile Thr Ala Asn Val
        195                 200                 205

Thr Ser Val Pro Val Pro Pro Ala Ala Ala Pro Pro Pro Pro Ala Thr
    210                 215                 220

Pro Ile Val Pro Val Val Pro Pro Thr Pro Pro Val Val Lys Lys Lys
225                 230                 235                 240

Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Thr Ser Ala Ile
                245                 250                 255

Thr Ala Ser Arg Ser Glu Ser Pro Pro Pro Leu Ser Asp Pro Lys Gln
            260                 265                 270

Ala Lys Val Val Ala Arg Arg Glu Ser Gly Gly Arg Pro Ile Lys Pro
        275                 280                 285

Pro Lys Lys Asp Leu Glu Asp Gly Glu Val Pro Gln His Ala Gly Lys
    290                 295                 300

Lys Gly Lys Leu Ser Glu His Leu Arg Tyr Cys Asp Ser Ile Leu Arg
305                 310                 315                 320

Glu Met Leu Ser Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys
                325                 330                 335

Pro Val Asp Ala Glu Ala Leu Glu Leu His Asp Tyr His Asp Ile Ile
            340                 345                 350

Lys His Pro Met Asp Leu Ser Thr Val Lys Arg Lys Met Asp Gly Arg
```

355 360 365

Glu Tyr Pro Asp Ala Gln Gly Phe Ala Ala Asp Val Arg Leu Met Phe
370 375 380

Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp His Glu Val Val Ala Met
385 390 395 400

Ala Arg Lys Leu Gln Asp Val Phe Glu Met Arg Phe Ala Lys Met Pro
405 410 415

Asp Glu Pro Val Glu Ala Pro Ala Leu Pro Ala Pro Ala Ala Pro Met
420 425 430

Val Ser Lys Gly Ala Glu Ser Ser Arg Ser Ser Glu Glu Ser Ser Ser
435 440 445

Asp Ser Gly Ser Ser Asp Ser Glu Glu Glu Arg Ala Thr Arg Leu Ala
450 455 460

Glu Leu Gln Glu Gln Leu Lys Ala Val His Glu Gln Leu Ala Ala Leu
465 470 475 480

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

Lys Glu Lys Lys Lys Lys Asp Lys Glu Lys Glu Lys Glu Lys His Lys
500 505 510

Val Lys Ala Glu Glu Glu Lys Lys Ala Lys Val Ala Pro Pro Ala Lys
515 520 525

Gln Ala Gln Gln Lys Lys Ala Pro Ala Lys Lys Ala Asn Ser Thr Thr
530 535 540

Thr Ala Gly Arg Asp His Phe Leu Thr Cys Gly Val
545 550 555

<210> 9835
<211> 74
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 1982; "

<220>
<221> source
<223> /note="Gene Symbol: BRD3; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360908"

<400> 9835
Met Ser Thr Ala Thr Thr Val Ala Pro Ala Gly Ile Pro Ala Thr Pro
1 5 10 15

Gly Pro Val Asn Pro Pro Pro Pro Glu Val Ser Asn Pro Ser Lys Pro
20 25 30

Gly Arg Lys Thr Asn Gln Leu Gln Tyr Met Gln Asn Val Val Val Lys
35 40 45

Thr Leu Trp Lys His Gln Phe Ala Trp Pro Phe Tyr Gln Pro Val Asp
50 55 60

Ala Ile Lys Leu Asn Leu Pro Asp Tyr His
65 70

<210> 9836
<211> 20
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1982; "

<220>
<221> source
<223> /note="Gene Symbol: BRD3; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
<221> source

<223> /note="ENSP ID: ENSP00000406749"

<400> 9836
Met Ser Thr Ala Thr Thr Val Ala Pro Ala Gly Ile Pro Ala Thr Pro
1   5   10   15

Gly Pro Val Asn
            20

<210> 9837
<211> 1362
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1983; "

<220>
<221> source
<223> /note="Gene Symbol: BRD4; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 4; "

<220>
<221> source
<223> /note="Uniprot ID: O60885; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263377"

<400> 9837
Met Ser Ala Glu Ser Gly Pro Gly Thr Arg Leu Arg Asn Leu Pro Val
1   5   10   15

Met Gly Asp Gly Leu Glu Thr Ser Gln Met Ser Thr Thr Gln Ala Gln
            20   25   30

Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser Thr Asn Pro Pro Pro Pro
        35   40   45

Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln
    50   55   60

Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala
65   70   75   80

```
Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp
                85                  90                  95

Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp Met Gly Thr Ile Lys Lys
            100                 105                 110

Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala Gln Glu Cys Ile Gln Asp
        115                 120                 125

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Gly Asp
    130                 135                 140

Asp Ile Val Leu Met Ala Glu Ala Leu Glu Lys Leu Phe Leu Gln Lys
145                 150                 155                 160

Ile Asn Glu Leu Pro Thr Glu Glu Thr Glu Ile Met Ile Val Gln Ala
                165                 170                 175

Lys Gly Arg Gly Arg Gly Arg Lys Glu Thr Gly Thr Ala Lys Pro Gly
            180                 185                 190

Val Ser Thr Val Pro Asn Thr Thr Gln Ala Ser Thr Pro Pro Gln Thr
        195                 200                 205

Gln Thr Pro Gln Pro Asn Pro Pro Pro Val Gln Ala Thr Pro His Pro
    210                 215                 220

Phe Pro Ala Val Thr Pro Asp Leu Ile Val Gln Thr Pro Val Met Thr
225                 230                 235                 240

Val Val Pro Pro Gln Pro Leu Gln Thr Pro Pro Pro Val Pro Pro Gln
                245                 250                 255

Pro Gln Pro Pro Pro Ala Pro Ala Pro Gln Pro Val Gln Ser His Pro
            260                 265                 270

Pro Ile Ile Ala Ala Thr Pro Gln Pro Val Lys Thr Lys Lys Gly Val
        275                 280                 285

Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Thr Ile Asp Pro Ile His
    290                 295                 300
```

```
Glu Pro Pro Ser Leu Pro Pro Glu Pro Lys Thr Thr Lys Leu Gly Gln
305                 310                 315                 320

Arg Arg Glu Ser Ser Arg Pro Val Lys Pro Pro Lys Lys Asp Val Pro
                325                 330                 335

Asp Ser Gln Gln His Pro Ala Pro Glu Lys Ser Ser Lys Val Ser Glu
            340                 345                 350

Gln Leu Lys Cys Cys Ser Gly Ile Leu Lys Glu Met Phe Ala Lys Lys
        355                 360                 365

His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Val Glu Ala
    370                 375                 380

Leu Gly Leu His Asp Tyr Cys Asp Ile Ile Lys His Pro Met Asp Met
385                 390                 395                 400

Ser Thr Ile Lys Ser Lys Leu Glu Ala Arg Glu Tyr Arg Asp Ala Gln
                405                 410                 415

Glu Phe Gly Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr
            420                 425                 430

Asn Pro Pro Asp His Glu Val Val Ala Met Ala Arg Lys Leu Gln Asp
        435                 440                 445

Val Phe Glu Met Arg Phe Ala Lys Met Pro Asp Glu Pro Glu Glu Pro
    450                 455                 460

Val Val Ala Val Ser Ser Pro Ala Val Pro Pro Pro Thr Lys Val Val
465                 470                 475                 480

Ala Pro Pro Ser Ser Ser Asp Ser Ser Ser Asp Ser Ser Ser Asp Ser
                485                 490                 495

Asp Ser Ser Thr Asp Asp Ser Glu Glu Glu Arg Ala Gln Arg Leu Ala
            500                 505                 510

Glu Leu Gln Glu Gln Leu Lys Ala Val His Glu Gln Leu Ala Ala Leu
        515                 520                 525

Ser Gln Pro Gln Gln Asn Lys Pro Lys Lys Lys Glu Lys Asp Lys Lys
```

530 535 540

Glu Lys Lys Lys Glu Lys His Lys Arg Lys Glu Glu Val Glu Glu Asn
545 550 555 560

Lys Lys Ser Lys Ala Lys Glu Pro Pro Pro Lys Lys Thr Lys Lys Asn
565 570 575

Asn Ser Ser Asn Ser Asn Val Ser Lys Lys Glu Pro Ala Pro Met Lys
580 585 590

Ser Lys Pro Pro Pro Thr Tyr Glu Ser Glu Glu Glu Asp Lys Cys Lys
595 600 605

Pro Met Ser Tyr Glu Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
610 615 620

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg
625 630 635 640

Glu Pro Ser Leu Lys Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe
645 650 655

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Thr
660 665 670

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

Ile Ala Gly Ser Ser Lys Met Lys Gly Phe Ser Ser Ser Glu Ser Glu
690 695 700

Ser Ser Ser Glu Ser Ser Ser Ser Asp Ser Glu Asp Ser Glu Thr Glu
705 710 715 720

Met Ala Pro Lys Ser Lys Lys Lys Gly His Pro Gly Arg Glu Gln Lys
725 730 735

Lys His His His His His His Gln Gln Met Gln Gln Ala Pro Ala Pro
740 745 750

Val Pro Gln Gln Pro Pro Pro Pro Pro Gln Gln Pro Pro Pro Pro Pro
755 760 765

```
Pro Pro Gln Gln Gln Gln Gln Pro Pro Pro Pro Pro Pro Pro Pro Ser
    770                 775                 780

Met Pro Gln Gln Ala Ala Pro Ala Met Lys Ser Ser Pro Pro Pro Phe
785                 790                 795                 800

Ile Ala Thr Gln Val Pro Val Leu Glu Pro Gln Leu Pro Gly Ser Val
                805                 810                 815

Phe Asp Pro Ile Gly His Phe Thr Gln Pro Ile Leu His Leu Pro Gln
            820                 825                 830

Pro Glu Leu Pro Pro His Leu Pro Gln Pro Pro Glu His Ser Thr Pro
        835                 840                 845

Pro His Leu Asn Gln His Ala Val Val Ser Pro Pro Ala Leu His Asn
    850                 855                 860

Ala Leu Pro Gln Gln Pro Ser Arg Pro Ser Asn Arg Ala Ala Ala Leu
865                 870                 875                 880

Pro Pro Lys Pro Ala Arg Pro Pro Ala Val Ser Pro Ala Leu Thr Gln
                885                 890                 895

Thr Pro Leu Leu Pro Gln Pro Pro Met Ala Gln Pro Pro Gln Val Leu
            900                 905                 910

Leu Glu Asp Glu Glu Pro Pro Ala Pro Pro Leu Thr Ser Met Gln Met
        915                 920                 925

Gln Leu Tyr Leu Gln Gln Leu Gln Lys Val Gln Pro Pro Thr Pro Leu
    930                 935                 940

Leu Pro Ser Val Lys Val Gln Ser Gln Pro Pro Pro Pro Leu Pro Pro
945                 950                 955                 960

Pro Pro His Pro Ser Val Gln Gln Gln Leu Gln Gln Gln Pro Pro Pro
                965                 970                 975

Pro Pro Pro Pro Gln Pro Gln Pro Pro Pro Gln Gln Gln His Gln Pro
            980                 985                 990
```

Pro Pro Arg Pro Val His Leu Gln Pro Met Gln Phe Ser Thr His Ile
995 1000 1005

Gln Gln Pro Pro Pro Pro Gln Gly Gln Gln Pro Pro His Pro Pro
1010 1015 1020

Pro Gly Gln Gln Pro Pro Pro Pro Gln Pro Ala Lys Pro Gln Gln
1025 1030 1035

Val Ile Gln His His His Ser Pro Arg His His Lys Ser Asp Pro
1040 1045 1050

Tyr Ser Thr Gly His Leu Arg Glu Ala Pro Ser Pro Leu Met Ile
1055 1060 1065

His Ser Pro Gln Met Ser Gln Phe Gln Ser Leu Thr His Gln Ser
1070 1075 1080

Pro Pro Gln Gln Asn Val Gln Pro Lys Lys Gln Glu Leu Arg Ala
1085 1090 1095

Ala Ser Val Val Gln Pro Gln Pro Leu Val Val Val Lys Glu Glu
1100 1105 1110

Lys Ile His Ser Pro Ile Ile Arg Ser Glu Pro Phe Ser Pro Ser
1115 1120 1125

Leu Arg Pro Glu Pro Pro Lys His Pro Glu Ser Ile Lys Ala Pro
1130 1135 1140

Val His Leu Pro Gln Arg Pro Glu Met Lys Pro Val Asp Val Gly
1145 1150 1155

Arg Pro Val Ile Arg Pro Pro Glu Gln Asn Ala Pro Pro Pro Gly
1160 1165 1170

Ala Pro Asp Lys Asp Lys Gln Lys Gln Glu Pro Lys Thr Pro Val
1175 1180 1185

Ala Pro Lys Lys Asp Leu Lys Ile Lys Asn Met Gly Ser Trp Ala
1190 1195 1200

```
Ser Leu  Val Gln Lys His Pro  Thr Thr Pro Ser Ser  Thr Ala Lys
    1205                 1210                 1215

Ser Ser  Ser Asp Ser Phe Glu  Gln Phe Arg Arg Ala  Ala Arg Glu
    1220                 1225                 1230

Lys Glu  Glu Arg Glu Lys Ala  Leu Lys Ala Gln Ala  Glu His Ala
    1235                 1240                 1245

Glu Lys  Glu Lys Glu Arg Leu  Arg Gln Glu Arg Met  Arg Ser Arg
    1250                 1255                 1260

Glu Asp  Glu Asp Ala Leu Glu  Gln Ala Arg Arg Ala  His Glu Glu
    1265                 1270                 1275

Ala Arg  Arg Arg Gln Glu Gln  Gln Gln Gln Gln Arg  Gln Glu Gln
    1280                 1285                 1290

Gln Gln  Gln Gln Gln Gln Gln  Ala Ala Ala Val Ala  Ala Ala Ala
    1295                 1300                 1305

Thr Pro  Gln Ala Gln Ser Ser  Gln Pro Gln Ser Met  Leu Asp Gln
    1310                 1315                 1320

Gln Arg  Glu Leu Ala Arg Lys  Arg Glu Gln Glu Arg  Arg Arg Arg
    1325                 1330                 1335

Glu Ala  Met Ala Ala Thr Ile  Asp Met Asn Phe Gln  Ser Asp Leu
    1340                 1345                 1350

Leu Ser  Ile Phe Glu Glu Asn  Leu Phe
    1355                 1360


<210> 9838
<211> 794
<212> PRT
<213> Homo sapiens

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<400> 9838
Met Ser Ala Glu Ser Gly Pro Gly Thr Arg Leu Arg Asn Leu Pro Val
1   5   10   15

Met Gly Asp Gly Leu Glu Thr Ser Gln Met Ser Thr Thr Gln Ala Gln
            20   25   30

Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser Thr Asn Pro Pro Pro Pro
        35   40   45

Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln
    50   55   60

Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala
65   70   75   80

Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp
                85   90   95

Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp Met Gly Thr Ile Lys Lys
            100   105   110

Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala Gln Glu Cys Ile Gln Asp
        115   120   125

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Gly Asp
    130   135   140

Asp Ile Val Leu Met Ala Glu Ala Leu Glu Lys Leu Phe Leu Gln Lys
145   150   155   160

Ile Asn Glu Leu Pro Thr Glu Glu Thr Glu Ile Met Ile Val Gln Ala
                165   170   175

```
Lys Gly Arg Gly Arg Gly Arg Lys Glu Thr Gly Thr Ala Lys Pro Gly
            180                 185                 190

Val Ser Thr Val Pro Asn Thr Thr Gln Ala Ser Thr Pro Pro Gln Thr
        195                 200                 205

Gln Thr Pro Gln Pro Asn Pro Pro Pro Val Gln Ala Thr Pro His Pro
    210                 215                 220

Phe Pro Ala Val Thr Pro Asp Leu Ile Val Gln Thr Pro Val Met Thr
225                 230                 235                 240

Val Val Pro Pro Gln Pro Leu Gln Thr Pro Pro Pro Val Pro Pro Gln
                245                 250                 255

Pro Gln Pro Pro Pro Ala Pro Ala Pro Gln Pro Val Gln Ser His Pro
            260                 265                 270

Pro Ile Ile Ala Ala Thr Pro Gln Pro Val Lys Thr Lys Lys Gly Val
        275                 280                 285

Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Thr Ile Asp Pro Ile His
    290                 295                 300

Glu Pro Pro Ser Leu Pro Pro Glu Pro Lys Thr Thr Lys Leu Gly Gln
305                 310                 315                 320

Arg Arg Glu Ser Ser Arg Pro Val Lys Pro Pro Lys Lys Asp Val Pro
                325                 330                 335

Asp Ser Gln Gln His Pro Ala Pro Glu Lys Ser Ser Lys Val Ser Glu
            340                 345                 350

Gln Leu Lys Cys Cys Ser Gly Ile Leu Lys Glu Met Phe Ala Lys Lys
        355                 360                 365

His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Val Glu Ala
    370                 375                 380

Leu Gly Leu His Asp Tyr Cys Asp Ile Ile Lys His Pro Met Asp Met
385                 390                 395                 400
```

```
Ser Thr Ile Lys Ser Lys Leu Glu Ala Arg Glu Tyr Arg Asp Ala Gln
                405                 410                 415

Glu Phe Gly Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr
            420                 425                 430

Asn Pro Pro Asp His Glu Val Val Ala Met Ala Arg Lys Leu Gln Asp
        435                 440                 445

Val Phe Glu Met Arg Phe Ala Lys Met Pro Asp Glu Pro Glu Glu Pro
    450                 455                 460

Val Val Ala Val Ser Ser Pro Ala Val Pro Pro Pro Thr Lys Val Val
465                 470                 475                 480

Ala Pro Pro Ser Ser Ser Asp Ser Ser Ser Asp Ser Ser Ser Asp Ser
                485                 490                 495

Asp Ser Ser Thr Asp Asp Ser Glu Glu Glu Arg Ala Gln Arg Leu Ala
            500                 505                 510

Glu Leu Gln Glu Gln Leu Lys Ala Val His Glu Gln Leu Ala Ala Leu
        515                 520                 525

Ser Gln Pro Gln Gln Asn Lys Pro Lys Lys Lys Glu Lys Asp Lys Lys
    530                 535                 540

Glu Lys Lys Lys Glu Lys His Lys Arg Lys Glu Glu Val Glu Glu Asn
545                 550                 555                 560

Lys Lys Ser Lys Ala Lys Glu Pro Pro Pro Lys Lys Thr Lys Lys Asn
                565                 570                 575

Asn Ser Ser Asn Ser Asn Val Ser Lys Lys Glu Pro Ala Pro Met Lys
            580                 585                 590

Ser Lys Pro Pro Pro Thr Tyr Glu Ser Glu Glu Glu Asp Lys Cys Lys
        595                 600                 605

Pro Met Ser Tyr Glu Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
    610                 615                 620
```

```
Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg
625                 630                 635                 640

Glu Pro Ser Leu Lys Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe
                645                 650                 655

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Thr
            660                 665                 670

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

Ile Ala Gly Ser Ser Lys Met Lys Gly Phe Ser Ser Ser Glu Ser Glu
    690                 695                 700

Ser Ser Ser Glu Ser Ser Ser Ser Asp Ser Glu Asp Ser Glu Thr Ala
705                 710                 715                 720

Phe Cys Thr Ser Gly Asp Phe Val Ser Pro Gly Pro Ser Pro Tyr His
                725                 730                 735

Ser His Val Gln Cys Gly Arg Phe Arg Glu Met Leu Arg Trp Phe Leu
            740                 745                 750

Val Asp Val Glu Gln Thr Ala Ala Gly Gln Pro His Arg Gln Ser Ala
        755                 760                 765

Ala Gly Pro Ala Ile Thr Trp Ala Pro Ala Ile Ala Tyr Pro Ser Pro
    770                 775                 780

Glu Cys Ala Arg Cys Cys Val Gly Cys Ser
785                 790


<210> 9839
<211> 722
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1983; "

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<223> /note="Gene Symbol: BRD4; "
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<220>
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<223> /note="Gene Name:
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<220>
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<220>
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<400> 9839
Met Ser Ala Glu Ser Gly Pro Gly Thr Arg Leu Arg Asn Leu Pro Val
1   5   10   15

Met Gly Asp Gly Leu Glu Thr Ser Gln Met Ser Thr Thr Gln Ala Gln
            20   25   30

Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser Thr Asn Pro Pro Pro Pro
        35   40   45

Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln
    50   55   60

Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala
65   70   75   80

Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp
                85   90   95

Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp Met Gly Thr Ile Lys Lys
            100   105   110

Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala Gln Glu Cys Ile Gln Asp
        115   120   125

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Gly Asp
    130   135   140

Asp Ile Val Leu Met Ala Glu Ala Leu Glu Lys Leu Phe Leu Gln Lys
145   150   155   160

Ile Asn Glu Leu Pro Thr Glu Glu Thr Glu Ile Met Ile Val Gln Ala
                165   170   175

```
Lys Gly Arg Gly Arg Gly Arg Lys Glu Thr Gly Thr Ala Lys Pro Gly
            180                 185                 190

Val Ser Thr Val Pro Asn Thr Thr Gln Ala Ser Thr Pro Pro Gln Thr
        195                 200                 205

Gln Thr Pro Gln Pro Asn Pro Pro Pro Val Gln Ala Thr Pro His Pro
    210                 215                 220

Phe Pro Ala Val Thr Pro Asp Leu Ile Val Gln Thr Pro Val Met Thr
225                 230                 235                 240

Val Val Pro Pro Gln Pro Leu Gln Thr Pro Pro Pro Val Pro Pro Gln
                245                 250                 255

Pro Gln Pro Pro Pro Ala Pro Ala Pro Gln Pro Val Gln Ser His Pro
            260                 265                 270

Pro Ile Ile Ala Ala Thr Pro Gln Pro Val Lys Thr Lys Lys Gly Val
        275                 280                 285

Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Thr Ile Asp Pro Ile His
    290                 295                 300

Glu Pro Pro Ser Leu Pro Pro Glu Pro Lys Thr Thr Lys Leu Gly Gln
305                 310                 315                 320

Arg Arg Glu Ser Ser Arg Pro Val Lys Pro Pro Lys Lys Asp Val Pro
                325                 330                 335

Asp Ser Gln Gln His Pro Ala Pro Glu Lys Ser Ser Lys Val Ser Glu
            340                 345                 350

Gln Leu Lys Cys Cys Ser Gly Ile Leu Lys Glu Met Phe Ala Lys Lys
        355                 360                 365

His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Val Glu Ala
    370                 375                 380

Leu Gly Leu His Asp Tyr Cys Asp Ile Ile Lys His Pro Met Asp Met
385                 390                 395                 400
```

```
Ser Thr Ile Lys Ser Lys Leu Glu Ala Arg Glu Tyr Arg Asp Ala Gln
                405                 410                 415

Glu Phe Gly Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr
            420                 425                 430

Asn Pro Pro Asp His Glu Val Val Ala Met Ala Arg Lys Leu Gln Asp
        435                 440                 445

Val Phe Glu Met Arg Phe Ala Lys Met Pro Asp Glu Pro Glu Glu Pro
    450                 455                 460

Val Val Ala Val Ser Ser Pro Ala Val Pro Pro Pro Thr Lys Val Val
465                 470                 475                 480

Ala Pro Pro Ser Ser Ser Asp Ser Ser Ser Asp Ser Ser Ser Asp Ser
                485                 490                 495

Asp Ser Ser Thr Asp Asp Ser Glu Glu Glu Arg Ala Gln Arg Leu Ala
            500                 505                 510

Glu Leu Gln Glu Gln Leu Lys Ala Val His Glu Gln Leu Ala Ala Leu
        515                 520                 525

Ser Gln Pro Gln Gln Asn Lys Pro Lys Lys Lys Glu Lys Asp Lys Lys
    530                 535                 540

Glu Lys Lys Lys Glu Lys His Lys Arg Lys Glu Glu Val Glu Glu Asn
545                 550                 555                 560

Lys Lys Ser Lys Ala Lys Glu Pro Pro Pro Lys Lys Thr Lys Lys Asn
                565                 570                 575

Asn Ser Ser Asn Ser Asn Val Ser Lys Lys Glu Pro Ala Pro Met Lys
            580                 585                 590

Ser Lys Pro Pro Pro Thr Tyr Glu Ser Glu Glu Glu Asp Lys Cys Lys
        595                 600                 605

Pro Met Ser Tyr Glu Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn Lys
    610                 615                 620

Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg
```

625 630 635 640

Glu Pro Ser Leu Lys Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe
645 650 655

Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Thr
660 665 670

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

Ile Ala Gly Ser Ser Lys Met Lys Gly Phe Ser Ser Ser Glu Ser Glu
690 695 700

Ser Ser Ser Glu Ser Ser Ser Ser Asp Ser Glu Asp Ser Glu Thr Gly
705 710 715 720

Pro Ala

<210> 9840
<211> 146
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1983; "

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<221> source
<223> /note="Gene Symbol: BRD4; "

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<223> /note="Gene Name:
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000470108"

<400> 9840
Met Ser Ala Glu Ser Gly Pro Gly Thr Arg Leu Arg Asn Leu Pro Val
1 5 10 15

Met Gly Asp Gly Leu Glu Thr Ser Gln Met Ser Thr Thr Gln Ala Gln
20 25 30

```
Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser Thr Asn Pro Pro Pro Pro
        35                  40                  45

Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln
    50                  55                  60

Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala
65                  70                  75                  80

Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp
                85                  90                  95

Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp Met Gly Thr Ile Lys Lys
            100                 105                 110

Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala Gln Glu Cys Ile Gln Asp
        115                 120                 125

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Phe Arg Pro
    130                 135                 140

Gln Met
145


<210> 9841
<211> 572
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000470481"

<400> 9841
Met Ser Ala Glu Ser Gly Pro Gly Thr Arg Leu Arg Asn Leu Pro Val
```

```
1               5                   10                  15

Met Gly Asp Gly Leu Glu Thr Ser Gln Met Ser Thr Thr Gln Ala Gln
            20                  25                  30

Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser Thr Asn Pro Pro Pro Pro
        35                  40                  45

Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln
    50                  55                  60

Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala
65                  70                  75                  80

Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp
                85                  90                  95

Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp Met Gly Thr Ile Lys Lys
            100                 105                 110

Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala Gln Glu Cys Ile Gln Asp
        115                 120                 125

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Gly Asp
    130                 135                 140

Asp Ile Val Leu Met Ala Glu Ala Leu Glu Lys Leu Phe Leu Gln Lys
145                 150                 155                 160

Ile Asn Glu Leu Pro Thr Glu Glu Thr Glu Ile Met Ile Val Gln Ala
                165                 170                 175

Lys Gly Arg Gly Arg Gly Arg Lys Glu Thr Gly Thr Ala Lys Pro Gly
            180                 185                 190

Val Ser Thr Val Pro Asn Thr Thr Gln Ala Ser Thr Pro Pro Gln Thr
        195                 200                 205

Gln Thr Pro Gln Pro Asn Pro Pro Pro Val Gln Ala Thr Pro His Pro
    210                 215                 220

Phe Pro Ala Val Thr Pro Asp Leu Ile Val Gln Thr Pro Val Met Thr
225                 230                 235                 240
```

Val Val Pro Pro Gln Pro Leu Gln Thr Pro Pro Pro Val Pro Pro Gln
245 250 255

Pro Gln Pro Pro Pro Ala Pro Ala Pro Gln Pro Val Gln Ser His Pro
260 265 270

Pro Ile Ile Ala Ala Thr Pro Gln Pro Val Lys Thr Lys Lys Gly Val
275 280 285

Lys Arg Lys Ala Asp Thr Thr Thr Pro Thr Thr Ile Asp Pro Ile His
290 295 300

Glu Pro Pro Ser Leu Pro Pro Glu Pro Lys Thr Thr Lys Leu Gly Gln
305 310 315 320

Arg Arg Glu Ser Ser Arg Pro Val Lys Pro Pro Lys Lys Asp Val Pro
325 330 335

Asp Ser Gln Gln His Pro Ala Pro Glu Lys Ser Ser Lys Val Ser Glu
340 345 350

Gln Leu Lys Cys Cys Ser Gly Ile Leu Lys Glu Met Phe Ala Lys Lys
355 360 365

His Ala Ala Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Val Glu Ala
370 375 380

Leu Gly Leu His Asp Tyr Cys Asp Ile Ile Lys His Pro Met Asp Met
385 390 395 400

Ser Thr Ile Lys Ser Lys Leu Glu Ala Arg Glu Tyr Arg Asp Ala Gln
405 410 415

Glu Phe Gly Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr
420 425 430

Asn Pro Pro Asp His Glu Val Val Ala Met Ala Arg Lys Leu Gln Asp
435 440 445

Val Phe Glu Met Arg Phe Ala Lys Met Pro Asp Glu Pro Glu Glu Pro
450 455 460

```
Val Val Ala Val Ser Ser Pro Ala Val Pro Pro Pro Thr Lys Val Val
465                 470                 475                 480


Ala Pro Pro Ser Ser Ser Asp Ser Ser Ser Asp Ser Ser Ser Asp Ser
                485                 490                 495


Asp Ser Ser Thr Asp Asp Ser Glu Glu Glu Arg Ala Gln Arg Leu Ala
            500                 505                 510


Glu Leu Gln Glu Gln Leu Lys Ala Val His Glu Gln Leu Ala Ala Leu
        515                 520                 525


Ser Gln Pro Gln Gln Asn Lys Pro Lys Lys Lys Glu Lys Asp Lys Lys
    530                 535                 540


Glu Lys Lys Lys Glu Lys His Lys Arg Lys Glu Glu Val Glu Glu Asn
545                 550                 555                 560


Lys Lys Ser Lys Ala Lys Glu Pro Pro Pro Lys Lys
                565                 570


<210> 9842
<211> 105
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1983; "

<220>
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<223> /note="Gene Symbol: BRD4; "

<220>
<221> source
<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000471240"

<400> 9842
Met Ser Ala Glu Ser Gly Pro Gly Thr Arg Leu Arg Asn Leu Pro Val
1               5                   10                  15


Met Gly Asp Gly Leu Glu Thr Ser Gln Met Ser Thr Thr Gln Ala Gln
```

```
            20                  25                  30

Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser Thr Asn Pro Pro Pro Pro
        35                  40                  45

Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln
    50                  55                  60

Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala
65                  70                  75                  80

Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp
                85                  90                  95

Tyr Tyr Lys Ile Ile Lys Thr Pro Met
            100                 105


<210> 9843
<211> 146
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1983; "

<220>
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<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="ENSP ID: ENSP00000486621"

<400> 9843
Met Ser Ala Glu Ser Gly Pro Gly Thr Arg Leu Arg Asn Leu Pro Val
1               5                   10                  15

Met Gly Asp Gly Leu Glu Thr Ser Gln Met Ser Thr Thr Gln Ala Gln
            20                  25                  30

Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser Thr Asn Pro Pro Pro Pro
        35                  40                  45
```

```
Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln
    50                  55                  60

Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala
65                  70                  75                  80

Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp
                85                  90                  95

Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp Met Gly Thr Ile Lys Lys
            100                 105                 110

Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala Gln Glu Cys Ile Gln Asp
        115                 120                 125

Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Phe Arg Pro
    130                 135                 140

Gln Met
145
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<210> 9844
<211> 651
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1984; "

<220>
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<223> /note="Gene Symbol: BRD7; "

<220>
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<223> /note="Gene Name:
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<220>
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<223> /note="Uniprot ID: Q9NPI1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378180"

<400> 9844

```
Met Gly Lys Lys His Lys Lys His Lys Ser Asp Lys His Leu Tyr Glu
```

```
1               5                   10                  15

Glu Tyr Val Glu Lys Pro Leu Lys Leu Val Leu Lys Val Gly Gly Asn
            20                  25                  30

Glu Val Thr Glu Leu Ser Thr Gly Ser Ser Gly His Asp Ser Ser Leu
        35                  40                  45

Phe Glu Asp Lys Asn Asp His Asp Lys His Lys Asp Arg Lys Arg Lys
    50                  55                  60

Lys Arg Lys Lys Gly Glu Lys Gln Ile Pro Gly Glu Glu Lys Gly Arg
65                  70                  75                  80

Lys Arg Arg Arg Val Lys Glu Asp Lys Lys Lys Arg Asp Arg Asp Arg
                85                  90                  95

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

Leu Asp Leu Pro Pro Glu Lys Pro Leu Thr Ser Ser Leu Ala Lys Gln
        115                 120                 125

Glu Glu Val Glu Gln Thr Pro Leu Gln Glu Ala Leu Asn Gln Leu Met
    130                 135                 140

Arg Gln Leu Gln Arg Lys Asp Pro Ser Ala Phe Phe Ser Phe Pro Val
145                 150                 155                 160

Thr Asp Phe Ile Ala Pro Gly Tyr Ser Met Ile Ile Lys His Pro Met
                165                 170                 175

Asp Phe Ser Thr Met Lys Glu Lys Ile Lys Asn Asn Asp Tyr Gln Ser
            180                 185                 190

Ile Glu Glu Leu Lys Asp Asn Phe Lys Leu Met Cys Thr Asn Ala Met
        195                 200                 205

Ile Tyr Asn Lys Pro Glu Thr Ile Tyr Tyr Lys Ala Ala Lys Lys Leu
    210                 215                 220

Leu His Ser Gly Met Lys Ile Leu Ser Gln Glu Arg Ile Gln Ser Leu
225                 230                 235                 240
```

Lys Gln Ser Ile Asp Phe Met Ala Asp Leu Gln Lys Thr Arg Lys Gln
245 250 255

Lys Asp Gly Thr Asp Thr Ser Gln Ser Gly Glu Asp Gly Gly Cys Trp
260 265 270

Gln Arg Glu Arg Glu Asp Ser Gly Asp Ala Glu Ala His Ala Phe Lys
275 280 285

Ser Pro Ser Lys Glu Asn Lys Lys Lys Asp Lys Asp Met Leu Glu Asp
290 295 300

Lys Phe Lys Ser Asn Asn Leu Glu Arg Glu Gln Glu Gln Leu Asp Arg
305 310 315 320

Ile Val Lys Glu Ser Gly Gly Lys Leu Thr Arg Arg Leu Val Asn Ser
325 330 335

Gln Cys Glu Phe Glu Arg Arg Lys Pro Asp Gly Thr Thr Thr Leu Gly
340 345 350

Leu Leu His Pro Val Asp Pro Ile Val Gly Glu Pro Gly Tyr Cys Pro
355 360 365

Val Arg Leu Gly Met Thr Thr Gly Arg Leu Gln Ser Gly Val Asn Thr
370 375 380

Leu Gln Gly Phe Lys Glu Asp Lys Arg Asn Lys Val Thr Pro Val Leu
385 390 395 400

Tyr Leu Asn Tyr Gly Pro Tyr Ser Ser Tyr Ala Pro His Tyr Asp Ser
405 410 415

Thr Phe Ala Asn Ile Ser Lys Asp Asp Ser Asp Leu Ile Tyr Ser Thr
420 425 430

Tyr Gly Glu Asp Ser Asp Leu Pro Ser Asp Phe Ser Ile His Glu Phe
435 440 445

Leu Ala Thr Cys Gln Asp Tyr Pro Tyr Val Met Ala Asp Ser Leu Leu
450 455 460

```
Asp Val Leu Thr Lys Gly Gly His Ser Arg Thr Leu Gln Glu Met Glu
465                 470                 475                 480

Met Ser Leu Pro Glu Asp Glu Gly His Thr Arg Thr Leu Asp Thr Ala
                485                 490                 495

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

Ser Thr Gln Asp Arg Leu Ile Ala Leu Lys Ala Val Thr Asn Phe Gly
        515                 520                 525

Val Pro Val Glu Val Phe Asp Ser Glu Glu Ala Glu Ile Phe Gln Lys
    530                 535                 540

Lys Leu Asp Glu Thr Thr Arg Leu Leu Arg Glu Leu Gln Glu Ala Gln
545                 550                 555                 560

Asn Glu Arg Leu Ser Thr Arg Pro Pro Pro Asn Met Ile Cys Leu Leu
                565                 570                 575

Gly Pro Ser Tyr Arg Glu Met His Leu Ala Glu Gln Val Thr Asn Asn
            580                 585                 590

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

Tyr Gly Val Arg Lys Ala Met Gly Ile Ser Ile Pro Ser Pro Val Met
    610                 615                 620

Glu Asn Asn Phe Val Asp Leu Thr Glu Asp Thr Glu Glu Pro Lys Lys
625                 630                 635                 640

Thr Asp Val Ala Glu Cys Gly Pro Gly Gly Ser
                645                 650
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<210> 9845
<211> 652
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
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<220>
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<220>
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<400> 9845
Met Gly Lys Lys His Lys Lys His Lys Ser Asp Lys His Leu Tyr Glu
1 5 10 15

Glu Tyr Val Glu Lys Pro Leu Lys Leu Val Leu Lys Val Gly Gly Asn
            20 25 30

Glu Val Thr Glu Leu Ser Thr Gly Ser Ser Gly His Asp Ser Ser Leu
        35 40 45

Phe Glu Asp Lys Asn Asp His Asp Lys His Lys Asp Arg Lys Arg Lys
    50 55 60

Lys Arg Lys Lys Gly Glu Lys Gln Ile Pro Gly Glu Glu Lys Gly Arg
65 70 75 80

Lys Arg Arg Arg Val Lys Glu Asp Lys Lys Lys Arg Asp Arg Asp Arg
                85 90 95

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

Leu Asp Leu Pro Pro Glu Lys Pro Leu Thr Ser Ser Leu Ala Lys Gln
        115 120 125

Glu Glu Val Glu Gln Thr Pro Leu Gln Glu Ala Leu Asn Gln Leu Met
    130 135 140

Arg Gln Leu Gln Arg Lys Asp Pro Ser Ala Phe Phe Ser Phe Pro Val
145 150 155 160

```
Thr Asp Phe Ile Ala Pro Gly Tyr Ser Met Ile Ile Lys His Pro Met
                165                 170                 175

Asp Phe Ser Thr Met Lys Glu Lys Ile Lys Asn Asn Asp Tyr Gln Ser
            180                 185                 190

Ile Glu Glu Leu Lys Asp Asn Phe Lys Leu Met Cys Thr Asn Ala Met
        195                 200                 205

Ile Tyr Asn Lys Pro Glu Thr Ile Tyr Tyr Lys Ala Ala Lys Lys Leu
    210                 215                 220

Leu His Ser Gly Met Lys Ile Leu Ser Gln Glu Arg Ile Gln Ser Leu
225                 230                 235                 240

Lys Gln Ser Ile Asp Phe Met Ala Asp Leu Gln Lys Thr Arg Lys Gln
                245                 250                 255

Lys Asp Gly Thr Asp Thr Ser Gln Ser Gly Glu Asp Gly Gly Cys Trp
            260                 265                 270

Gln Arg Glu Arg Glu Asp Ser Gly Asp Ala Glu Ala His Ala Phe Lys
        275                 280                 285

Ser Pro Ser Lys Glu Asn Lys Lys Lys Asp Lys Asp Met Leu Glu Asp
    290                 295                 300

Lys Phe Lys Ser Asn Asn Leu Glu Arg Glu Gln Glu Gln Leu Asp Arg
305                 310                 315                 320

Ile Val Lys Glu Ser Gly Gly Lys Leu Thr Arg Arg Leu Val Asn Ser
                325                 330                 335

Gln Cys Glu Phe Glu Arg Arg Lys Pro Asp Gly Thr Thr Thr Leu Gly
            340                 345                 350

Leu Leu His Pro Val Asp Pro Ile Val Gly Glu Pro Gly Tyr Cys Pro
        355                 360                 365

Val Arg Leu Gly Met Thr Thr Gly Arg Leu Gln Ser Gly Val Asn Thr
    370                 375                 380
```

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

Tyr Leu Asn Tyr Gly Pro Tyr Ser Ser Tyr Ala Pro His Tyr Asp Ser
                405                 410                 415

Thr Phe Ala Asn Ile Ser Lys Asp Asp Ser Asp Leu Ile Tyr Ser Thr
            420                 425                 430

Tyr Gly Glu Asp Ser Asp Leu Pro Ser Asp Phe Ser Ile His Glu Phe
        435                 440                 445

Leu Ala Thr Cys Gln Asp Tyr Pro Tyr Val Met Ala Asp Ser Leu Leu
    450                 455                 460

Asp Val Leu Thr Lys Gly Gly His Ser Arg Thr Leu Gln Glu Met Glu
465                 470                 475                 480

Met Ser Leu Pro Glu Asp Glu Gly His Thr Arg Thr Leu Asp Thr Ala
                485                 490                 495

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

Ser Ser Thr Gln Asp Arg Leu Ile Ala Leu Lys Ala Val Thr Asn Phe
        515                 520                 525

Gly Val Pro Val Glu Val Phe Asp Ser Glu Glu Ala Glu Ile Phe Gln
    530                 535                 540

Lys Lys Leu Asp Glu Thr Thr Arg Leu Leu Arg Glu Leu Gln Glu Ala
545                 550                 555                 560

Gln Asn Glu Arg Leu Ser Thr Arg Pro Pro Pro Asn Met Ile Cys Leu
                565                 570                 575

Leu Gly Pro Ser Tyr Arg Glu Met His Leu Ala Glu Gln Val Thr Asn
            580                 585                 590

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

```
Thr Tyr Gly Val Arg Lys Ala Met Gly Ile Ser Ile Pro Ser Pro Val
    610                 615                 620

Met Glu Asn Asn Phe Val Asp Leu Thr Glu Asp Thr Glu Glu Pro Lys
625                 630                 635                 640

Lys Thr Asp Val Ala Glu Cys Gly Pro Gly Gly Ser
                645                 650
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<210> 9846
<211> 32
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<213> Homo sapiens

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<400> 9846

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Pro Ser Pro Val Met Glu Asn Asn Phe Val Asp Leu Thr Glu Asp Thr
1               5                   10                  15

Glu Glu Pro Lys Lys Thr Asp Val Ala Glu Cys Gly Pro Gly Gly Ser
            20                  25                  30
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<210> 9847
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<400> 9847
Gln Lys Lys Leu Asp Glu Thr Thr Arg Leu Leu Arg Glu Leu Gln Glu
1 5 10 15

Ala Gln Asn Glu Arg Leu Ser Thr Arg Pro Pro Pro Asn Met Ile Cys
20 25 30

Leu Leu Gly Pro Ser Tyr Arg Glu Met His Leu Ala Glu Gln Val Thr
35 40 45

Asn Asn Leu Lys Glu Leu Ala Gln Gln Val Thr Pro Gly Asp Ile Val
50 55 60

Ser Thr Tyr Gly Val Arg Lys Ala Met Gly Ile Ser Ile Pro Ser Pro
65 70 75 80

Val Met Glu Asn Asn Phe Val Asp Leu Thr Glu Asp Thr Glu Glu Pro
85 90 95

Lys Lys Thr Asp Val Ala Glu Cys Gly Pro Gly Gly Ser
100 105

<210> 9848
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<223> /note="Uniprot ID: Q9H0E9; "

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<400> 9848

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Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1               5                  10                  15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
            20                  25                  30

Arg Ser Gly Asp Gln Asn Trp Val Ser Val Ser Arg Ala Ile Lys Pro
        35                  40                  45

Phe Ala Glu Pro Gly Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys
    50                  55                  60

Ala Ser Gln Tyr Ser Glu Leu Leu Glu Thr Thr Glu Thr Pro Lys Arg
65                  70                  75                  80

Lys Arg Gly Glu Lys Gly Glu Val Val Glu Thr Val Glu Asp Val Ile
                85                  90                  95

Val Arg Lys Leu Thr Ala Glu Arg Val Glu Glu Leu Lys Lys Val Ile
            100                 105                 110

Lys Glu Thr Gln Glu Arg Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu
        115                 120                 125

Ile Gln Ala Gly His Met Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp
    130                 135                 140

Ile Ala Thr Lys Lys Lys Leu Glu Glu Glu Glu Ala Glu Val Lys Arg
145                 150                 155                 160

Lys Ala Thr Asp Ala Ala Tyr Gln Ala Arg Gln Ala Val Lys Thr Pro
                165                 170                 175

Pro Arg Arg Leu Pro Thr Val Met Val Arg Ser Pro Ile Asp Ser Ala
            180                 185                 190

Ser Pro Gly Gly Asp Tyr Pro Leu Gly Asp Leu Thr Pro Thr Thr Met
        195                 200                 205
```

```
Glu Glu Ala Thr Ser Gly Val Thr Pro Gly Thr Leu Pro Ser Thr Pro
    210                 215                 220

Val Thr Ser Phe Pro Gly Ile Pro Asp Thr Leu Pro Pro Gly Ser Ala
225                 230                 235                 240

Pro Leu Glu Ala Pro Met Thr Pro Val Thr Asp Asp Ser Pro Gln Lys
                245                 250                 255

Lys Met Leu Gly Gln Lys Ala Thr Pro Pro Pro Ser Pro Leu Leu Ser
            260                 265                 270

Glu Leu Leu Lys Lys Gly Ser Leu Leu Pro Thr Ser Pro Arg Leu Val
        275                 280                 285

Asn Glu Ser Glu Met Ala Val Ala Ser Gly His Leu Asn Ser Thr Gly
    290                 295                 300

Val Leu Leu Glu Val Gly Gly Val Leu Pro Met Ile His Gly Gly Glu
305                 310                 315                 320

Ile Gln Gln Thr Pro Asn Thr Val Ala Ala Ser Pro Ala Ala Ser Gly
                325                 330                 335

Ala Pro Thr Leu Ser Arg Leu Leu Glu Ala Gly Pro Thr Gln Phe Thr
            340                 345                 350

Thr Pro Leu Ala Ser Phe Thr Thr Val Ala Ser Glu Pro Pro Val Lys
        355                 360                 365

Leu Val Pro Pro Pro Val Glu Ser Val Ser Gln Ala Thr Ile Val Met
    370                 375                 380

Met Pro Ala Leu Pro Ala Pro Ser Ser Ala Pro Ala Val Ser Thr Thr
385                 390                 395                 400

Glu Ser Val Ala Pro Val Ser Gln Pro Asp Asn Cys Val Pro Met Glu
                405                 410                 415

Ala Val Gly Asp Pro His Thr Val Thr Val Ser Met Asp Ser Ser Glu
            420                 425                 430
```

Ile Ser Met Ile Ile Asn Ser Ile Lys Glu Glu Cys Phe Arg Ser Gly
435 440 445

Val Ala Glu Ala Pro Val Gly Ser Lys Ala Pro Ser Ile Asp Gly Lys
450 455 460

Glu Glu Leu Asp Leu Ala Glu Lys Met Asp Ile Ala Val Ser Tyr Thr
465 470 475 480

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

Glu Asp Lys Val Asp Asp His Pro Glu Val Leu Asp Val Ala Ala Val
500 505 510

Glu Ala Ala Leu Ser Phe Cys Glu Glu Asn Asp Asp Pro Gln Ser Leu
515 520 525

Pro Gly Pro Trp Glu His Pro Ile Gln Gln Glu Arg Asp Lys Pro Val
530 535 540

Pro Leu Pro Ala Pro Glu Met Thr Val Lys Gln Glu Arg Leu Asp Phe
545 550 555 560

Glu Glu Thr Glu Asn Lys Gly Ile His Glu Leu Val Asp Ile Arg Glu
565 570 575

Pro Ser Ala Glu Ile Lys Val Glu Pro Ala Glu Pro Glu Pro Val Ile
580 585 590

Ser Gly Ala Glu Ile Val Ala Gly Val Val Pro Ala Thr Ser Met Glu
595 600 605

Pro Pro Glu Leu Arg Ser Gln Asp Leu Asp Glu Glu Leu Gly Ser Thr
610 615 620

Ala Ala Gly Glu Ile Val Glu Ala Asp Val Ala Ile Gly Lys Gly Asp
625 630 635 640

Glu Thr Pro Leu Thr Asn Val Lys Thr Glu Ala Ser Pro Glu Ser Met
645 650 655

```
Leu Ser Pro Ser His Gly Ser Asn Pro Ile Glu Asp Pro Leu Glu Ala
            660                 665                 670

Glu Thr Gln His Lys Phe Glu Met Ser Asp Ser Leu Lys Glu Glu Ser
        675                 680                 685

Gly Thr Ile Phe Gly Ser Gln Ile Lys Asp Ala Pro Gly Glu Asp Glu
    690                 695                 700

Glu Glu Asp Gly Val Ser Glu Ala Ala Ser Leu Glu Glu Pro Lys Glu
705                 710                 715                 720

Glu Asp Gln Gly Glu Gly Tyr Leu Ser Glu Met Asp Asn Glu Pro Pro
                725                 730                 735

Val Ser Glu Ser Asp Asp Gly Phe Ser Ile His Asn Ala Thr Leu Gln
            740                 745                 750

Ser His Thr Leu Ala Asp Ser Ile Pro Ser Ser Pro Ala Ser Ser Gln
        755                 760                 765

Phe Ser Val Cys Ser Glu Asp Gln Glu Ala Ile Gln Ala Gln Lys Ile
    770                 775                 780

Trp Lys Lys Ala Ile Met Leu Val Trp Arg Ala Ala Ala Asn His Arg
785                 790                 795                 800

Tyr Ala Asn Val Phe Leu Gln Pro Val Thr Asp Asp Ile Ala Pro Gly
                805                 810                 815

Tyr His Ser Ile Val Gln Arg Pro Met Asp Leu Ser Thr Ile Lys Lys
            820                 825                 830

Asn Ile Glu Asn Gly Leu Ile Arg Ser Thr Ala Glu Phe Gln Arg Asp
        835                 840                 845

Ile Met Leu Met Phe Gln Asn Ala Val Met Tyr Asn Ser Ser Asp His
    850                 855                 860

Asp Val Tyr His Met Ala Val Glu Met Gln Arg Asp Val Leu Glu Gln
865                 870                 875                 880

Ile Gln Gln Phe Leu Ala Thr Gln Leu Ile Met Gln Thr Ser Glu Ser
```

885 890 895

Gly Ile Ser Ala Lys Ser Leu Arg Gly Arg Asp Ser Thr Arg Lys Gln
900 905 910

Asp Ala Ser Glu Lys Asp Ser Val Pro Met Gly Ser Pro Ala Phe Leu
915 920 925

Leu Ser Leu Phe Asp Gly Gly Thr Arg Gly Arg Arg Cys Ala Ile Glu
930 935 940

Ala Asp Met Lys Met Lys Lys
945 950

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<211> 1235
<212> PRT
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<400> 9849
Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1 5 10 15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
20 25 30

Arg Ser Gly Asp Gln Asn Trp Val Ser Val Ser Arg Ala Ile Lys Pro
35 40 45

```
Phe Ala Glu Pro Gly Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys
    50                  55                  60

Ala Ser Gln Tyr Ser Glu Leu Leu Glu Thr Thr Glu Thr Pro Lys Arg
65                  70                  75                  80

Lys Arg Gly Glu Lys Gly Glu Val Val Glu Thr Val Glu Asp Val Ile
                85                  90                  95

Val Arg Lys Leu Thr Ala Glu Arg Val Glu Glu Leu Lys Lys Val Ile
            100                 105                 110

Lys Glu Thr Gln Glu Arg Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu
        115                 120                 125

Ile Gln Ala Gly His Met Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp
    130                 135                 140

Ile Ala Thr Lys Lys Lys Leu Glu Glu Glu Glu Ala Glu Val Lys Arg
145                 150                 155                 160

Lys Ala Thr Asp Ala Ala Tyr Gln Ala Arg Gln Ala Val Lys Thr Pro
                165                 170                 175

Pro Arg Arg Leu Pro Thr Val Met Val Arg Ser Pro Ile Asp Ser Ala
            180                 185                 190

Ser Pro Gly Gly Asp Tyr Pro Leu Gly Asp Leu Thr Pro Thr Thr Met
        195                 200                 205

Glu Glu Ala Thr Ser Gly Val Asn Glu Ser Glu Met Ala Val Ala Ser
    210                 215                 220

Gly His Leu Asn Ser Thr Gly Val Leu Leu Glu Val Gly Gly Val Leu
225                 230                 235                 240

Pro Met Ile His Gly Gly Glu Ile Gln Gln Thr Pro Asn Thr Val Ala
                245                 250                 255

Ala Ser Pro Ala Ala Ser Gly Ala Pro Thr Leu Ser Arg Leu Leu Glu
            260                 265                 270
```

```
Ala Gly Pro Thr Gln Phe Thr Thr Pro Leu Ala Ser Phe Thr Thr Val
        275                 280                 285

Ala Ser Glu Pro Pro Val Lys Leu Val Pro Pro Pro Val Glu Ser Val
    290                 295                 300

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

Ala Pro Ala Val Ser Thr Thr Glu Ser Val Ala Pro Val Ser Gln Pro
                325                 330                 335

Asp Asn Cys Val Pro Met Glu Ala Val Gly Asp Pro His Thr Val Thr
            340                 345                 350

Val Ser Met Asp Ser Ser Glu Ile Ser Met Ile Ile Asn Ser Ile Lys
        355                 360                 365

Glu Glu Cys Phe Arg Ser Gly Val Ala Glu Ala Pro Val Gly Ser Lys
    370                 375                 380

Ala Pro Ser Ile Asp Gly Lys Glu Glu Leu Asp Leu Ala Glu Lys Met
385                 390                 395                 400

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

Gly Asp Ile Ile Ala Ile Ile Glu Asp Lys Val Asp Asp His Pro Glu
            420                 425                 430

Val Leu Asp Val Ala Ala Val Glu Ala Ala Leu Ser Phe Cys Glu Glu
        435                 440                 445

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

Gln Glu Arg Asp Lys Pro Val Pro Leu Pro Ala Pro Glu Met Thr Val
465                 470                 475                 480

Lys Gln Glu Arg Leu Asp Phe Glu Glu Thr Glu Asn Lys Gly Ile His
                485                 490                 495

Glu Leu Val Asp Ile Arg Glu Pro Ser Ala Glu Ile Lys Val Glu Pro
```

```
            500                 505                 510

Ala Glu Pro Glu Pro Val Ile Ser Gly Ala Glu Ile Val Ala Gly Val
        515                 520                 525

Val Pro Ala Thr Ser Met Glu Pro Pro Glu Leu Arg Ser Gln Asp Leu
    530                 535                 540

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

Val Ala Ile Gly Lys Gly Asp Glu Thr Pro Leu Thr Asn Val Lys Thr
                565                 570                 575

Glu Ala Ser Pro Glu Ser Met Leu Ser Pro Ser His Gly Ser Asn Pro
            580                 585                 590

Ile Glu Asp Pro Leu Glu Ala Glu Thr Gln His Lys Phe Glu Met Ser
        595                 600                 605

Asp Ser Leu Lys Glu Glu Ser Gly Thr Ile Phe Gly Ser Gln Ile Lys
    610                 615                 620

Asp Ala Pro Gly Glu Asp Glu Glu Glu Asp Gly Val Ser Glu Ala Ala
625                 630                 635                 640

Ser Leu Glu Glu Pro Lys Glu Glu Asp Gln Gly Glu Gly Tyr Leu Ser
                645                 650                 655

Glu Met Asp Asn Glu Pro Pro Val Ser Glu Ser Asp Asp Gly Phe Ser
            660                 665                 670

Ile His Asn Ala Thr Leu Gln Ser His Thr Leu Ala Asp Ser Ile Pro
        675                 680                 685

Ser Ser Pro Ala Ser Ser Gln Phe Ser Val Cys Ser Glu Asp Gln Glu
    690                 695                 700

Ala Ile Gln Ala Gln Lys Ile Trp Lys Lys Ala Ile Met Leu Val Trp
705                 710                 715                 720

Arg Ala Ala Ala Asn His Arg Tyr Ala Asn Val Phe Leu Gln Pro Val
                725                 730                 735
```

```
Thr Asp Asp Ile Ala Pro Gly Tyr His Ser Ile Val Gln Arg Pro Met
            740                 745                 750

Asp Leu Ser Thr Ile Lys Lys Asn Ile Glu Asn Gly Leu Ile Arg Ser
        755                 760                 765

Thr Ala Glu Phe Gln Arg Asp Ile Met Leu Met Phe Gln Asn Ala Val
    770                 775                 780

Met Tyr Asn Ser Ser Asp His Asp Val Tyr His Met Ala Val Glu Met
785                 790                 795                 800

Gln Arg Asp Val Leu Glu Gln Ile Gln Gln Phe Leu Ala Thr Gln Leu
                805                 810                 815

Ile Met Gln Thr Ser Glu Ser Gly Ile Ser Ala Lys Ser Leu Arg Gly
            820                 825                 830

Arg Asp Ser Thr Arg Lys Gln Asp Ala Ser Glu Lys Asp Ser Val Pro
        835                 840                 845

Met Gly Ser Pro Ala Phe Leu Leu Ser Leu Phe Met Gly His Glu Trp
    850                 855                 860

Val Trp Leu Asp Ser Glu Gln Asp His Pro Asn Asp Ser Glu Leu Ser
865                 870                 875                 880

Asn Asp Cys Arg Ser Leu Phe Ser Ser Trp Asp Ser Ser Leu Asp Leu
                885                 890                 895

Asp Val Gly Asn Trp Arg Glu Thr Glu Asp Pro Glu Ala Glu Glu Leu
            900                 905                 910

Glu Glu Ser Ser Pro Glu Arg Glu Pro Ser Glu Leu Leu Val Gly Asp
        915                 920                 925

Gly Gly Ser Glu Glu Ser Gln Glu Ala Ala Arg Lys Ala Ser His Gln
    930                 935                 940

Asn Leu Leu His Phe Leu Ser Glu Val Ala Tyr Leu Met Glu Pro Leu
945                 950                 955                 960
```

Cys Ile Ser Ser Asn Glu Ser Ser Glu Gly Cys Cys Pro Pro Ser Gly
965 970 975

Thr Arg Gln Glu Gly Arg Glu Ile Lys Ala Ser Glu Gly Glu Arg Glu
980 985 990

Leu Cys Arg Glu Thr Glu Glu Leu Ser Ala Lys Gly Asp Pro Leu
Val
995 1000 1005

Ala Glu Lys Pro Leu Gly Glu Asn Gly Lys Pro Glu Val Ala Ser
1010 1015 1020

Ala Pro Ser Val Ile Cys Thr Val Gln Gly Leu Leu Thr Glu Ser
1025 1030 1035

Glu Glu Gly Glu Ala Gln Gln Glu Ser Lys Gly Glu Asp Gln Gly
1040 1045 1050

Glu Val Tyr Val Ser Glu Met Glu Asp Gln Pro Pro Ser Gly Glu
1055 1060 1065

Cys Asp Asp Ala Phe Asn Ile Lys Glu Thr Pro Leu Val Asp Thr
1070 1075 1080

Leu Phe Ser His Ala Thr Ser Ser Lys Leu Thr Asp Leu Ser Gln
1085 1090 1095

Asp Asp Pro Val Gln Asp His Leu Leu Phe Lys Lys Thr Leu Leu
1100 1105 1110

Pro Val Trp Lys Met Ile Ala Ser His Arg Phe Ser Ser Pro Phe
1115 1120 1125

Leu Lys Pro Val Ser Glu Arg Gln Ala Pro Gly Tyr Lys Asp Val
1130 1135 1140

Val Lys Arg Pro Met Asp Leu Thr Ser Leu Lys Arg Asn Leu Ser
1145 1150 1155

Lys Gly Arg Ile Arg Thr Met Ala Gln Phe Leu Arg Asp Leu Met
1160 1165 1170

```
Leu Met  Phe Gln Asn Ala Val  Met Tyr Asn Asp Ser  Asp His His
    1175                1180                1185


Val Tyr  His Met Ala Val Glu  Met Arg Gln Glu Val  Leu Glu Gln
    1190                1195                1200


Ile Gln  Val Leu Asn Ile Trp  Leu Asp Lys Arg Lys  Gly Ser Ser
    1205                1210                1215


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


Val Phe
    1235


<210> 9850
<211> 878
<212> PRT
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Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1               5                  10                  15


Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
            20                  25                  30


Arg Ser Gly Asp Gln Asn Trp Val Ser Val Ser Arg Ala Ile Lys Pro
        35                  40                  45


Phe Ala Glu Pro Gly Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys
```

```
    50                  55                  60

Ala Ser Gln Tyr Ser Glu Leu Leu Glu Thr Thr Glu Thr Pro Lys Arg
65                  70                  75                  80

Lys Arg Gly Glu Lys Gly Glu Val Val Glu Thr Val Glu Asp Val Ile
                85                  90                  95

Val Arg Lys Leu Thr Ala Glu Arg Val Glu Glu Leu Lys Lys Val Ile
            100                 105                 110

Lys Glu Thr Gln Glu Arg Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu
        115                 120                 125

Ile Gln Ala Gly His Met Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp
    130                 135                 140

Ile Ala Thr Lys Lys Lys Leu Glu Glu Glu Glu Ala Glu Val Lys Arg
145                 150                 155                 160

Lys Ala Thr Asp Ala Ala Tyr Gln Ala Arg Gln Ala Val Lys Thr Pro
                165                 170                 175

Pro Arg Arg Leu Pro Thr Val Met Val Arg Ser Pro Ile Asp Ser Ala
            180                 185                 190

Ser Pro Gly Gly Asp Tyr Pro Leu Gly Asp Leu Thr Pro Thr Thr Met
        195                 200                 205

Glu Glu Ala Thr Ser Gly Val Asn Glu Ser Glu Met Ala Val Ala Ser
    210                 215                 220

Gly His Leu Asn Ser Thr Gly Val Leu Leu Glu Val Gly Gly Val Leu
225                 230                 235                 240

Pro Met Ile His Gly Gly Glu Ile Gln Gln Thr Pro Asn Thr Val Ala
                245                 250                 255

Ala Ser Pro Ala Ala Ser Gly Ala Pro Thr Leu Ser Arg Leu Leu Glu
            260                 265                 270

Ala Gly Pro Thr Gln Phe Thr Thr Pro Leu Ala Ser Phe Thr Thr Val
        275                 280                 285
```

```
Ala Ser Glu Pro Pro Val Lys Leu Val Pro Pro Pro Val Glu Ser Val
    290                 295                 300

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

Ala Pro Ala Val Ser Thr Thr Glu Ser Val Ala Pro Val Ser Gln Pro
                325                 330                 335

Asp Asn Cys Val Pro Met Glu Ala Val Gly Asp Pro His Thr Val Thr
            340                 345                 350

Val Ser Met Asp Ser Ser Glu Ile Ser Met Ile Ile Asn Ser Ile Lys
        355                 360                 365

Glu Glu Cys Phe Arg Ser Gly Val Ala Glu Ala Pro Val Gly Ser Lys
    370                 375                 380

Ala Pro Ser Ile Asp Gly Lys Glu Glu Leu Asp Leu Ala Glu Lys Met
385                 390                 395                 400

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

Gly Asp Ile Ile Ala Ile Ile Glu Asp Lys Val Asp Asp His Pro Glu
            420                 425                 430

Val Leu Asp Val Ala Ala Val Glu Ala Ala Leu Ser Phe Cys Glu Glu
        435                 440                 445

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

Gln Glu Arg Asp Lys Pro Val Pro Leu Pro Ala Pro Glu Met Thr Val
465                 470                 475                 480

Lys Gln Glu Arg Leu Asp Phe Glu Glu Thr Glu Asn Lys Gly Ile His
                485                 490                 495

Glu Leu Val Asp Ile Arg Glu Pro Ser Ala Glu Ile Lys Val Glu Pro
            500                 505                 510
```

```
Ala Glu Pro Glu Pro Val Ile Ser Gly Ala Glu Ile Val Ala Gly Val
        515                 520                 525

Val Pro Ala Thr Ser Met Glu Pro Pro Glu Leu Arg Ser Gln Asp Leu
    530                 535                 540

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

Val Ala Ile Gly Lys Gly Asp Glu Thr Pro Leu Thr Asn Val Lys Thr
                565                 570                 575

Glu Ala Ser Pro Glu Ser Met Leu Ser Pro Ser His Gly Ser Asn Pro
            580                 585                 590

Ile Glu Asp Pro Leu Glu Ala Glu Thr Gln His Lys Phe Glu Met Ser
        595                 600                 605

Asp Ser Leu Lys Glu Glu Ser Gly Thr Ile Phe Gly Ser Gln Ile Lys
    610                 615                 620

Asp Ala Pro Gly Glu Asp Glu Glu Glu Asp Gly Val Ser Glu Ala Ala
625                 630                 635                 640

Ser Leu Glu Glu Pro Lys Glu Glu Asp Gln Gly Glu Gly Tyr Leu Ser
                645                 650                 655

Glu Met Asp Asn Glu Pro Pro Val Ser Glu Ser Asp Asp Gly Phe Ser
            660                 665                 670

Ile His Asn Ala Thr Leu Gln Ser His Thr Leu Ala Asp Ser Ile Pro
        675                 680                 685

Ser Ser Pro Ala Ser Ser Gln Phe Ser Val Cys Ser Glu Asp Gln Glu
    690                 695                 700

Ala Ile Gln Ala Gln Lys Ile Trp Lys Lys Ala Ile Met Leu Val Trp
705                 710                 715                 720

Arg Ala Ala Ala Asn His Arg Tyr Ala Asn Val Phe Leu Gln Pro Val
                725                 730                 735
```

```
Thr Asp Asp Ile Ala Pro Gly Tyr His Ser Ile Val Gln Arg Pro Met
            740                 745                 750

Asp Leu Ser Thr Ile Lys Lys Asn Ile Glu Asn Gly Leu Ile Arg Ser
        755                 760                 765

Thr Ala Glu Phe Gln Arg Asp Ile Met Leu Met Phe Gln Asn Ala Val
    770                 775                 780

Met Tyr Asn Ser Ser Asp His Asp Val Tyr His Met Ala Val Glu Met
785                 790                 795                 800

Gln Arg Asp Val Leu Glu Gln Ile Gln Gln Phe Leu Ala Thr Gln Leu
                805                 810                 815

Ile Met Gln Thr Ser Glu Ser Gly Ile Ser Ala Lys Ser Leu Arg Gly
            820                 825                 830

Arg Asp Ser Thr Arg Lys Gln Asp Ala Ser Glu Lys Asp Ser Val Pro
        835                 840                 845

Met Gly Ser Pro Ala Phe Leu Leu Ser Leu Phe Asp Gly Gly Thr Arg
    850                 855                 860

Gly Arg Arg Cys Ala Ile Glu Ala Asp Met Lys Met Lys Lys
865                 870                 875


<210> 9851
<211> 336
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
      bromodomain containing 8; "

<220>
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<400> 9851
Asp Leu Asp Val Gly Asn Trp Arg Glu Thr Glu Asp Pro Glu Ala Glu
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Glu Leu Glu Glu Ser Ser Pro Glu Arg Glu Pro Ser Glu Leu Leu Val
20 25 30

Gly Asp Gly Gly Ser Glu Glu Ser Gln Glu Ala Ala Arg Lys Ala Ser
35 40 45

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

Pro Leu Cys Ile Ser Ser Asn Glu Ser Ser Glu Gly Cys Cys Pro Pro
65 70 75 80

Ser Gly Thr Arg Gln Glu Gly Arg Glu Ile Lys Ala Ser Glu Gly Glu
85 90 95

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

Leu Val Ala Glu Lys Pro Leu Gly Glu Asn Gly Lys Pro Glu Val Ala
115 120 125

Ser Ala Pro Ser Val Ile Cys Thr Val Gln Gly Leu Leu Thr Glu Ser
130 135 140

Glu Glu Gly Glu Ala Gln Gln Glu Ser Lys Gly Glu Asp Gln Gly Glu
145 150 155 160

Val Tyr Val Ser Glu Met Glu Asp Gln Pro Pro Ser Gly Glu Cys Asp
165 170 175

Asp Ala Phe Asn Ile Lys Glu Thr Pro Leu Val Asp Thr Leu Phe Ser
180 185 190

His Ala Thr Ser Ser Lys Leu Thr Asp Leu Ser Gln Asp Asp Pro Val
195 200 205

Gln Asp His Leu Leu Phe Lys Lys Thr Leu Leu Pro Val Trp Lys Met
210 215 220

```
Ile Ala Ser His Arg Phe Ser Ser Pro Phe Leu Lys Pro Val Ser Glu
225                 230                 235                 240

Arg Gln Ala Pro Gly Tyr Lys Asp Val Val Lys Arg Pro Met Asp Leu
                245                 250                 255

Thr Ser Leu Lys Arg Asn Leu Ser Lys Gly Arg Ile Arg Thr Met Ala
            260                 265                 270

Gln Phe Leu Arg Asp Leu Met Leu Met Phe Gln Asn Ala Val Met Tyr
        275                 280                 285

Asn Asp Ser Asp His His Val Tyr His Met Ala Val Glu Met Arg Gln
    290                 295                 300

Glu Val Leu Glu Gln Ile Gln Val Leu Tyr Ala Asp Thr Cys Ser Leu
305                 310                 315                 320

Trp Asn Leu Asp Phe Arg Thr Pro Met Arg Ile Lys Val Ile Ser Arg
                325                 330                 335


<210> 9852
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<220>
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<223> /note="ENSP ID: ENSP00000394330"

<400> 9852
Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
```

```
1               5                   10                  15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
            20                  25                  30

Arg Ser Gly Asp Gln Asn Trp Val Ser Val Ser Arg Ala Ile Lys Pro
        35                  40                  45

Phe Ala Glu Pro Gly Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys
    50                  55                  60

Ala Ser Gln Tyr Ser Glu Leu Leu Glu Thr Thr Glu Thr Pro Lys Arg
65                  70                  75                  80

Lys Arg Gly Glu Lys Gly Glu Val Val Glu Thr Val Glu Asp Val Ile
                85                  90                  95

Val Arg Lys Leu Thr Ala Glu Arg Val Glu Glu Leu Lys Lys Val Ile
            100                 105                 110

Lys Glu Thr Gln Glu Arg Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu
        115                 120                 125

Ile Gln Ala Gly His Met Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp
    130                 135                 140

Ile Ala Thr Lys Lys Lys Leu Glu Glu Glu Glu Ala Glu Val Lys Arg
145                 150                 155                 160

Lys Ala Thr Asp Ala Ala Tyr Gln Ala Arg Gln Ala Val Lys Thr Pro
                165                 170                 175

Pro Arg Arg Leu Pro Thr Val Met Val Arg Ser Pro Ile Asp Ser Ala
            180                 185                 190

Ser Pro Gly Gly Asp Tyr Pro Leu Gly Asp Leu Thr Pro Thr Thr Met
        195                 200                 205

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

Val Thr Ser Phe Pro Gly Ile Pro Asp Thr Leu Pro Pro Gly Ser Ala
225                 230                 235                 240
```

```
Pro Leu Glu Ala Pro Met Thr Pro Val Thr Asp Asp Ser Pro Gln Lys
                245                 250                 255

Lys Met Leu Gly Gln Lys Ala Thr Pro Pro Pro Ser Pro Leu Leu Ser
            260                 265                 270

Glu Leu Leu Lys Lys Gly Ser Leu Leu Pro Thr Ser Pro Arg Leu Val
        275                 280                 285

Asn Glu Ser Glu Met Ala Val Ala Ser Gly His Leu Asn Ser Thr Gly
    290                 295                 300

Val Leu Leu Glu Val Gly Gly Val Leu Pro Met Ile His Gly Gly Glu
305                 310                 315                 320

Ile Gln Gln Thr Pro Asn Thr Val Ala Ala Ser Pro Ala Ala Ser Val
                325                 330                 335

Ser Gln Pro Asp Asn Cys Val Pro Met Glu Ala Val Gly Asp Pro His
            340                 345                 350

Thr Val Thr Val Ser Met Asp Ser Ser Glu Ile Ser Met Ile Ile Asn
        355                 360                 365

Ser Ile Lys Glu Glu Cys Phe Arg Ser Gly Val Ala Glu Ala Pro Val
    370                 375                 380

Gly Ser Lys Ala Pro Ser Ile Asp Gly Lys Glu Glu Leu Asp Leu Ala
385                 390                 395                 400

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

Glu Thr Val Gly Asp Ile Ile Ala Ile Ile Glu Asp Lys Val Asp Asp
            420                 425                 430

His Pro Glu Val Leu Asp Val Ala Ala Val Glu Ala Ala Leu Ser Phe
        435                 440                 445

Cys Glu Glu Asn Asp Asp Pro Gln Ser Leu Pro Gly Pro Trp Glu His
    450                 455                 460
```

```
Pro Ile Gln Gln Glu Arg Asp Lys Pro Val Pro Leu Pro Ala Pro Glu
465                 470                 475                 480

Met Thr Val Lys Gln Glu Arg Leu Asp Phe Glu Glu Thr Glu Asn Lys
                485                 490                 495

Gly Ile His Glu Leu Val Asp Ile Arg Glu Pro Ser Ala Glu Ile Lys
            500                 505                 510

Val Glu Pro Ala Glu Pro Glu Pro Val Ile Ser Gly Ala Glu Ile Val
        515                 520                 525

Ala Gly Val Val Pro Ala Thr Ser Met Glu Pro Pro Glu Leu Arg Ser
    530                 535                 540

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

Glu Ala Asp Val Ala Ile Gly Lys Gly Asp Glu Thr Pro Leu Thr Asn
                565                 570                 575

Val Lys Thr Glu Ala Ser Pro Glu Ser Met Leu Ser Pro Ser His Gly
            580                 585                 590

Ser Asn Pro Ile Glu Asp Pro Leu Glu Ala Glu Thr Gln His Lys Phe
        595                 600                 605

Glu Met Ser Asp Ser Leu Lys Glu Glu Ser Gly Thr Ile Phe Gly Ser
    610                 615                 620

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

Glu Ala Ala Ser Leu Glu Glu Pro Lys Glu Glu Asp Gln Gly Glu Gly
                645                 650                 655

Tyr Leu Ser Glu Met Asp Asn Glu Pro Pro Val Ser Glu Ser Asp Asp
            660                 665                 670

Gly Phe Ser Ile His Asn Ala Thr Leu Gln Ser His Thr Leu Ala Asp
        675                 680                 685
```

```
Ser Ile Pro Ser Ser Pro Ala Ser Ser Gln Phe Ser Val Cys Ser Glu
    690                 695                 700

Asp Gln Glu Ala Ile Gln Ala Gln Lys Ile Trp Lys Lys Ala Ile Met
705                 710                 715                 720

Leu Val Trp Arg Ala Ala Ala Asn His Arg Tyr Ala Asn Val Phe Leu
                725                 730                 735

Gln Pro Val Thr Asp Asp Ile Ala Pro Gly Tyr His Ser Ile Val Gln
            740                 745                 750

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

Ile Arg Ser Thr Ala Glu Phe Gln Arg Asp Ile Met Leu Met Phe Gln
    770                 775                 780

Asn Ala Val Met Tyr Asn Ser Ser Asp His Asp Val Tyr His Met Ala
785                 790                 795                 800

Val Glu Met Gln Arg Asp Val Leu Glu Gln Ile Gln Gln Phe Leu Ala
                805                 810                 815

Thr Gln Leu Ile Met Gln Thr Ser Glu Ser Gly Ile Ser Ala Lys Ser
            820                 825                 830

Leu Arg Gly Arg Asp Ser Thr Arg Lys Gln Asp Ala Ser Glu Lys Asp
        835                 840                 845

Gly Gly Thr Arg Gly Arg Arg Cys Ala Ile Glu Ala Asp Met Lys Met
    850                 855                 860

Lys Lys
865
```

<210> 9853
<211> 67
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396487"

<400> 9853
Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1 5 10 15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
20 25 30

Arg Ser Gly Asp Gln Asn Trp Leu Glu Cys Ser Gly Ala Ile Trp Ala
35 40 45

His Cys Ser Leu Leu Thr Ser Trp Ala Gln Gly Ile Leu Leu Pro Gln
50 55 60

Leu Pro Lys
65

<210> 9854
<211> 892
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398067"

<400> 9854

```
Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr Glu Pro Trp Ser Ile
1               5                  10                  15

Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met Arg Ser Gly Asp Gln
            20                  25                  30

Asn Trp Val Ser Val Ser Arg Ala Ile Lys Pro Phe Ala Glu Pro Gly
        35                  40                  45

Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys Ala Ser Gln Tyr Ser
    50                  55                  60

Glu Leu Leu Glu Thr Thr Glu Thr Pro Lys Arg Lys Arg Gly Glu Lys
65                  70                  75                  80

Gly Glu Val Val Glu Thr Val Glu Asp Val Ile Val Arg Lys Leu Thr
                85                  90                  95

Ala Glu Arg Val Glu Glu Leu Lys Lys Val Ile Lys Glu Thr Gln Glu
            100                 105                 110

Arg Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu Ile Gln Ala Gly His
        115                 120                 125

Met Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp Ile Ala Thr Lys Lys
    130                 135                 140

Lys Leu Glu Glu Glu Glu Ala Glu Val Lys Arg Lys Ala Thr Asp Ala
145                 150                 155                 160

Ala Tyr Gln Ala Arg Gln Ala Val Lys Thr Pro Pro Arg Arg Leu Pro
                165                 170                 175

Thr Val Met Val Arg Ser Pro Ile Asp Ser Ala Ser Pro Gly Gly Asp
            180                 185                 190

Tyr Pro Leu Gly Asp Leu Thr Pro Thr Thr Met Glu Glu Ala Thr Ser
        195                 200                 205

Gly Val Thr Pro Gly Thr Leu Pro Ser Thr Pro Val Thr Ser Phe Pro
    210                 215                 220

Gly Ile Pro Asp Thr Leu Pro Pro Gly Ser Ala Pro Leu Glu Ala Pro
```

225 230 235 240

Met Thr Pro Val Thr Asp Asp Ser Pro Gln Lys Lys Met Leu Gly Gln
245 250 255

Lys Ala Thr Pro Pro Pro Ser Pro Leu Leu Ser Glu Leu Leu Lys Lys
260 265 270

Gly Ser Leu Leu Pro Thr Ser Pro Arg Leu Val Asn Glu Ser Glu Met
275 280 285

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

Gly Gly Val Leu Pro Met Ile His Gly Gly Glu Ile Gln Gln Thr Pro
305 310 315 320

Asn Thr Val Ala Ala Ser Pro Ala Ala Ser Glu Ser Val Ser Gln Ala
325 330 335

Thr Ile Val Met Met Pro Ala Leu Pro Ala Pro Ser Ser Ala Pro Ala
340 345 350

Val Ser Thr Thr Glu Ser Val Ala Pro Val Ser Gln Pro Asp Asn Cys
355 360 365

Val Pro Met Glu Ala Val Gly Asp Pro His Thr Val Thr Val Ser Met
370 375 380

Asp Ser Ser Glu Ile Ser Met Ile Ile Asn Ser Ile Lys Glu Glu Cys
385 390 395 400

Phe Arg Ser Gly Val Ala Glu Ala Pro Val Gly Ser Lys Ala Pro Ser
405 410 415

Ile Asp Gly Lys Glu Glu Leu Asp Leu Ala Glu Lys Met Asp Ile Ala
420 425 430

Val Ser Tyr Thr Gly Glu Glu Leu Asp Phe Glu Thr Val Gly Asp Ile
435 440 445

Ile Ala Ile Ile Glu Asp Lys Val Asp Asp His Pro Glu Val Leu Asp
450 455 460

Val Ala Ala Val Glu Ala Ala Leu Ser Phe Cys Glu Glu Asn Asp Asp
465 470 475 480

Pro Gln Ser Leu Pro Gly Pro Trp Glu His Pro Ile Gln Gln Glu Arg
485 490 495

Asp Lys Pro Val Pro Leu Pro Ala Pro Glu Met Thr Val Lys Gln Glu
500 505 510

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

Asp Ile Arg Glu Pro Ser Ala Glu Ile Lys Val Glu Pro Ala Glu Pro
530 535 540

Glu Pro Val Ile Ser Gly Ala Glu Ile Val Ala Gly Val Val Pro Ala
545 550 555 560

Thr Ser Met Glu Pro Pro Glu Leu Arg Ser Gln Asp Leu Asp Glu Glu
565 570 575

Leu Gly Ser Thr Ala Ala Gly Glu Ile Val Glu Ala Asp Val Ala Ile
580 585 590

Gly Lys Gly Asp Glu Thr Pro Leu Thr Asn Val Lys Thr Glu Ala Ser
595 600 605

Pro Glu Ser Met Leu Ser Pro Ser His Gly Ser Asn Pro Ile Glu Asp
610 615 620

Pro Leu Glu Ala Glu Thr Gln His Lys Phe Glu Met Ser Asp Ser Leu
625 630 635 640

Lys Glu Glu Ser Gly Thr Ile Phe Gly Ser Gln Ile Lys Asp Ala Pro
645 650 655

Gly Glu Asp Glu Glu Glu Asp Gly Val Ser Glu Ala Ala Ser Leu Glu
660 665 670

Glu Pro Lys Glu Glu Asp Gln Gly Glu Gly Tyr Leu Ser Glu Met Asp
675 680 685

```
Asn Glu Pro Pro Val Ser Glu Ser Asp Asp Gly Phe Ser Ile His Asn
    690                 695                 700

Ala Thr Leu Gln Ser His Thr Leu Ala Asp Ser Ile Pro Ser Ser Pro
705                 710                 715                 720

Ala Ser Ser Gln Phe Ser Val Cys Ser Glu Asp Gln Glu Ala Ile Gln
                725                 730                 735

Ala Gln Lys Ile Trp Lys Lys Ala Ile Met Leu Val Trp Arg Ala Ala
            740                 745                 750

Ala Asn His Arg Tyr Ala Asn Val Phe Leu Gln Pro Val Thr Asp Asp
        755                 760                 765

Ile Ala Pro Gly Tyr His Ser Ile Val Gln Arg Pro Met Asp Leu Ser
    770                 775                 780

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

Phe Gln Arg Asp Ile Met Leu Met Phe Gln Asn Ala Val Met Tyr Asn
                805                 810                 815

Ser Ser Asp His Asp Val Tyr His Met Ala Val Glu Met Gln Arg Asp
            820                 825                 830

Val Leu Glu Gln Ile Gln Gln Phe Leu Ala Thr Gln Leu Ile Met Gln
        835                 840                 845

Thr Ser Glu Ser Gly Ile Ser Ala Lys Ser Leu Arg Gly Arg Asp Ser
    850                 855                 860

Thr Arg Lys Gln Asp Ala Ser Glu Lys Asp Gly Gly Thr Arg Gly Arg
865                 870                 875                 880

Arg Cys Ala Ile Glu Ala Asp Met Lys Met Lys Lys
                885                 890
```

<210> 9855
<211> 857
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398084"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9855
Xaa His Lys Leu Leu Ser Thr Gly Pro Thr Glu Pro Trp Ser Ile Arg
1 5 10 15

Glu Lys Leu Cys Leu Ala Ser Ser Val Met Arg Ser Gly Asp Gln Asn
20 25 30

Trp Val Ser Val Ser Arg Ala Ile Lys Pro Phe Ala Glu Pro Gly Arg
35 40 45

Pro Pro Asp Trp Phe Ser Gln Lys His Cys Ala Ser Gln Tyr Ser Glu
50 55 60

Leu Leu Glu Thr Thr Glu Thr Pro Lys Arg Lys Arg Gly Glu Lys Gly
65 70 75 80

Glu Val Val Glu Thr Val Glu Asp Val Ile Val Arg Lys Leu Thr Ala
85 90 95

Glu Arg Val Glu Glu Leu Lys Lys Val Ile Lys Glu Thr Gln Glu Arg
100 105 110

Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu Ile Gln Ala Gly His Met
115 120 125

```
Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp Ile Ala Thr Lys Lys Lys
    130                 135                 140

Leu Glu Glu Glu Glu Ala Glu Val Lys Arg Lys Ala Thr Asp Ala Ala
145                 150                 155                 160

Tyr Gln Ala Val Lys Thr Pro Pro Arg Arg Leu Pro Thr Val Met Val
                165                 170                 175

Arg Ser Pro Ile Asp Ser Ala Ser Pro Gly Gly Asp Tyr Pro Leu Gly
            180                 185                 190

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

Gly Thr Leu Pro Ser Thr Pro Val Thr Ser Phe Pro Gly Ile Pro Asp
    210                 215                 220

Thr Leu Pro Pro Gly Ser Ala Pro Leu Glu Ala Pro Met Thr Pro Val
225                 230                 235                 240

Thr Asp Asp Ser Pro Gln Lys Lys Met Leu Gly Gln Lys Ala Thr Pro
                245                 250                 255

Pro Pro Ser Pro Leu Leu Ser Glu Leu Leu Lys Lys Gly Ser Leu Leu
            260                 265                 270

Pro Thr Ser Pro Arg Leu Val Asn Glu Ser Glu Met Ala Val Ala Ser
        275                 280                 285

Gly His Leu Asn Ser Thr Gly Val Leu Leu Glu Val Gly Gly Val Leu
    290                 295                 300

Pro Met Ile His Gly Gly Glu Ile Gln Gln Thr Pro Asn Thr Val Ala
305                 310                 315                 320

Ala Ser Pro Ala Ala Ser Val Ser Gln Pro Asp Asn Cys Val Pro Met
                325                 330                 335

Glu Ala Val Gly Asp Pro His Thr Val Thr Val Ser Met Asp Ser Ser
            340                 345                 350

Glu Ile Ser Met Ile Ile Asn Ser Ile Lys Glu Glu Cys Phe Arg Ser
```

355 360 365

Gly Val Ala Glu Ala Pro Val Gly Ser Lys Ala Pro Ser Ile Asp Gly
370 375 380

Lys Glu Glu Leu Asp Leu Ala Glu Lys Met Asp Ile Ala Val Ser Tyr
385 390 395 400

Thr Gly Glu Glu Leu Asp Phe Glu Thr Val Gly Asp Ile Ile Ala Ile
405 410 415

Ile Glu Asp Lys Val Asp Asp His Pro Glu Val Leu Asp Val Ala Ala
420 425 430

Val Glu Ala Ala Leu Ser Phe Cys Glu Glu Asn Asp Asp Pro Gln Ser
435 440 445

Leu Pro Gly Pro Trp Glu His Pro Ile Gln Gln Glu Arg Asp Lys Pro
450 455 460

Val Pro Leu Pro Ala Pro Glu Met Thr Val Lys Gln Glu Arg Leu Asp
465 470 475 480

Phe Glu Glu Thr Glu Asn Lys Gly Ile His Glu Leu Val Asp Ile Arg
485 490 495

Glu Pro Ser Ala Glu Ile Lys Val Glu Pro Ala Glu Pro Glu Pro Val
500 505 510

Ile Ser Gly Ala Glu Ile Val Ala Gly Val Val Pro Ala Thr Ser Met
515 520 525

Glu Pro Pro Glu Leu Arg Ser Gln Asp Leu Asp Glu Glu Leu Gly Ser
530 535 540

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

Asp Glu Thr Pro Leu Thr Asn Val Lys Thr Glu Ala Ser Pro Glu Ser
565 570 575

Met Leu Ser Pro Ser His Gly Ser Asn Pro Ile Glu Asp Pro Leu Glu
580 585 590

```
Ala Glu Thr Gln His Lys Phe Glu Met Ser Asp Ser Leu Lys Glu Glu
        595                 600                 605

Ser Gly Thr Ile Phe Gly Ser Gln Ile Lys Asp Ala Pro Gly Glu Asp
    610                 615                 620

Glu Glu Glu Asp Gly Val Ser Glu Ala Ala Ser Leu Glu Glu Pro Lys
625                 630                 635                 640

Glu Glu Asp Gln Gly Glu Gly Tyr Leu Ser Glu Met Asp Asn Glu Pro
                645                 650                 655

Pro Val Ser Glu Ser Asp Asp Gly Phe Ser Ile His Asn Ala Thr Leu
            660                 665                 670

Gln Ser His Thr Leu Ala Asp Ser Ile Pro Ser Ser Pro Ala Ser Ser
        675                 680                 685

Gln Phe Ser Val Cys Ser Glu Asp Gln Glu Ala Ile Gln Ala Gln Lys
    690                 695                 700

Ile Trp Lys Lys Ala Ile Met Leu Val Trp Arg Ala Ala Ala Asn His
705                 710                 715                 720

Arg Tyr Ala Asn Val Phe Leu Gln Pro Val Thr Asp Asp Ile Ala Pro
                725                 730                 735

Gly Tyr His Ser Ile Val Gln Arg Pro Met Asp Leu Ser Thr Ile Lys
            740                 745                 750

Lys Asn Ile Glu Asn Gly Leu Ile Arg Ser Thr Ala Glu Phe Gln Arg
        755                 760                 765

Asp Ile Met Leu Met Phe Gln Asn Ala Val Met Tyr Asn Ser Ser Asp
    770                 775                 780

His Asp Val Tyr His Met Ala Val Glu Met Gln Arg Asp Val Leu Glu
785                 790                 795                 800

Gln Ile Gln Gln Phe Leu Ala Thr Gln Leu Ile Met Gln Thr Ser Glu
                805                 810                 815
```

Ser Gly Ile Ser Ala Lys Ser Leu Arg Gly Arg Asp Ser Thr Arg Lys
820 825 830

Gln Asp Ala Ser Glu Lys Asp Gly Gly Thr Arg Gly Arg Arg Cys Ala
835 840 845

Ile Glu Ala Asp Met Lys Met Lys Lys
850 855

<210> 9856
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398676"

<400> 9856
Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1 5 10 15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
20 25 30

Arg Ser Gly Asp Gln Asn Trp Val Ser Val Ser Arg Ala Ile Lys Pro
35 40 45

Phe Ala Glu Pro Gly Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys
50 55 60

Ala Ser Gln Tyr Ser Glu Leu Leu Glu Thr Thr Glu Thr Pro Lys
65 70 75

<210> 9857

<211> 861
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398873"

<400> 9857

```
Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr Glu Pro Trp Ser Ile
1               5                   10                  15


Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met Arg Ser Gly Asp Gln
            20                  25                  30


Asn Trp Val Ser Val Ser Arg Ala Ile Lys Pro Phe Ala Glu Pro Gly
        35                  40                  45


Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys Ala Ser Gln Tyr Ser
    50                  55                  60


Glu Leu Leu Glu Thr Thr Glu Thr Pro Lys Arg Lys Arg Gly Glu Lys
65                  70                  75                  80


Gly Glu Val Val Glu Thr Val Glu Asp Val Ile Val Arg Lys Leu Thr
                85                  90                  95


Ala Glu Arg Val Glu Glu Leu Lys Lys Val Ile Lys Glu Thr Gln Glu
            100                 105                 110


Arg Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu Ile Gln Ala Gly His
        115                 120                 125


Met Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp Ile Ala Thr Lys Lys
    130                 135                 140
```

Lys Leu Glu Glu Glu Glu Ala Glu Val Lys Arg Lys Ala Thr Asp Ala
145 150 155 160

Ala Tyr Gln Ala Arg Gln Ala Val Lys Thr Pro Pro Arg Arg Leu Pro
165 170 175

Thr Val Met Val Arg Ser Pro Ile Asp Ser Ala Ser Pro Gly Gly Asp
180 185 190

Tyr Pro Leu Gly Asp Leu Thr Pro Thr Thr Met Glu Glu Ala Thr Ser
195 200 205

Gly Val Thr Pro Gly Thr Leu Pro Ser Thr Pro Val Thr Ser Phe Pro
210 215 220

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

Met Thr Pro Val Thr Asp Asp Ser Pro Gln Lys Lys Met Leu Gly Gln
245 250 255

Lys Ala Thr Pro Pro Pro Ser Pro Leu Leu Ser Glu Leu Leu Lys Lys
260 265 270

Gly Ser Leu Leu Pro Thr Ser Pro Arg Leu Val Asn Glu Ser Glu Met
275 280 285

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

Gly Gly Val Leu Pro Met Ile His Gly Gly Glu Ile Gln Gln Thr Pro
305 310 315 320

Asn Thr Val Ala Ala Ser Pro Ala Ala Ser Val Ser Gln Pro Asp Asn
325 330 335

Cys Val Pro Met Glu Ala Val Gly Asp Pro His Thr Val Thr Val Ser
340 345 350

Met Asp Ser Ser Glu Ile Ser Met Ile Ile Asn Ser Ile Lys Glu Glu
355 360 365

```
Cys Phe Arg Ser Gly Val Ala Glu Ala Pro Val Gly Ser Lys Ala Pro
    370                 375                 380

Ser Ile Asp Gly Lys Glu Glu Leu Asp Leu Ala Glu Lys Met Asp Ile
385                 390                 395                 400

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

Ile Ile Ala Ile Ile Glu Asp Lys Val Asp Asp His Pro Glu Val Leu
            420                 425                 430

Asp Val Ala Ala Val Glu Ala Ala Leu Ser Phe Cys Glu Glu Asn Asp
        435                 440                 445

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

Arg Asp Lys Pro Val Pro Leu Pro Ala Pro Glu Met Thr Val Lys Gln
465                 470                 475                 480

Glu Arg Leu Asp Phe Glu Glu Thr Glu Asn Lys Gly Ile His Glu Leu
                485                 490                 495

Val Asp Ile Arg Glu Pro Ser Ala Glu Ile Lys Val Glu Pro Ala Glu
            500                 505                 510

Pro Glu Pro Val Ile Ser Gly Ala Glu Ile Val Ala Gly Val Val Pro
        515                 520                 525

Ala Thr Ser Met Glu Pro Pro Glu Leu Arg Ser Gln Asp Leu Asp Glu
    530                 535                 540

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

Ile Gly Lys Gly Asp Glu Thr Pro Leu Thr Asn Val Lys Thr Glu Ala
                565                 570                 575

Ser Pro Glu Ser Met Leu Ser Pro Ser His Gly Ser Asn Pro Ile Glu
            580                 585                 590

Asp Pro Leu Glu Ala Glu Thr Gln His Lys Phe Glu Met Ser Asp Ser
```

595 600 605

Leu Lys Glu Glu Ser Gly Thr Ile Phe Gly Ser Gln Ile Lys Asp Ala
610 615 620

Pro Gly Glu Asp Glu Glu Glu Asp Gly Val Ser Glu Ala Ala Ser Leu
625 630 635 640

Glu Glu Pro Lys Glu Glu Asp Gln Gly Glu Gly Tyr Leu Ser Glu Met
645 650 655

Asp Asn Glu Pro Pro Val Ser Glu Ser Asp Asp Gly Phe Ser Ile His
660 665 670

Asn Ala Thr Leu Gln Ser His Thr Leu Ala Asp Ser Ile Pro Ser Ser
675 680 685

Pro Ala Ser Ser Gln Phe Ser Val Cys Ser Glu Asp Gln Glu Ala Ile
690 695 700

Gln Ala Gln Lys Ile Trp Lys Lys Ala Ile Met Leu Val Trp Arg Ala
705 710 715 720

Ala Ala Asn His Arg Tyr Ala Asn Val Phe Leu Gln Pro Val Thr Asp
725 730 735

Asp Ile Ala Pro Gly Tyr His Ser Ile Val Gln Arg Pro Met Asp Leu
740 745 750

Ser Thr Ile Lys Lys Asn Ile Glu Asn Gly Leu Ile Arg Ser Thr Ala
755 760 765

Glu Phe Gln Arg Asp Ile Met Leu Met Phe Gln Asn Ala Val Met Tyr
770 775 780

Asn Ser Ser Asp His Asp Val Tyr His Met Ala Val Glu Met Gln Arg
785 790 795 800

Asp Val Leu Glu Gln Ile Gln Gln Phe Leu Ala Thr Gln Leu Ile Met
805 810 815

Gln Thr Ser Glu Ser Gly Ile Ser Ala Lys Ser Leu Arg Gly Arg Asp
820 825 830

Ser Thr Arg Lys Gln Asp Ala Ser Glu Lys Asp Gly Gly Thr Arg Gly
835 840 845

Arg Arg Cys Ala Ile Glu Ala Asp Met Lys Met Lys Lys
850 855 860

<210> 9858
<211> 187
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407129"

<400> 9858
Lys Glu Thr Gln Glu Arg Tyr Arg Arg Leu Lys Arg Asp Ala Glu Leu
1 5 10 15

Ile Gln Ala Gly His Met Asp Ser Arg Leu Asp Glu Leu Cys Asn Asp
20 25 30

Ile Ala Thr Lys Lys Lys Leu Glu Glu Glu Glu Ala Glu Val Lys Arg
35 40 45

Lys Ala Thr Asp Ala Ala Tyr Gln Ala Arg Gln Ala Val Lys Thr Pro
50 55 60

Pro Arg Arg Leu Pro Thr Val Met Val Arg Ser Pro Ile Asp Ser Ala
65 70 75 80

Ser Pro Gly Gly Asp Tyr Pro Leu Gly Asp Leu Thr Pro Thr Thr Met
85 90 95

```
Glu Glu Ala Thr Ser Gly Val Asn Glu Ser Glu Met Ala Val Ala Ser
            100                 105                 110

Gly His Leu Asn Ser Thr Gly Val Leu Leu Glu Val Gly Gly Val Leu
        115                 120                 125

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

Ala Ser Pro Ala Ala Ser Val Ser Gln Pro Asp Asn Cys Val Pro Met
145                 150                 155                 160

Glu Ala Val Gly Asp Pro His Thr Val Thr Val Ser Met Asp Ser Ser
                165                 170                 175

Glu Ile Ser Met Ile Ile Asn Ser Ile Lys Glu
            180                 185


<210> 9859
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407414"

<400> 9859
Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1               5                   10                  15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
            20                  25                  30

Arg Ser Gly Asp Gln Asn Trp Gly Trp Ser Tyr Ser Val Thr Gln Ala
        35                  40                  45
```

```
Gly Val Gln Trp Arg Asp Leu Gly Ser Leu Gln Pro Leu Asp Phe Leu
    50                  55                  60

Gly Ser Arg Asp Pro Pro Thr Ser Ala Ala Gln Val Ala Gly Thr Thr
65                  70                  75                  80

Gly Arg Arg Val Ser Val Ser Arg Ala Ile Lys Pro Phe Ala Glu Pro
                85                  90                  95

Gly Arg Pro Pro Asp Trp Phe Ser Gln Lys His Cys Ala Ser Gln Tyr
            100                 105                 110

Ser Glu Leu Leu Glu Thr Thr Glu Thr Pro
        115                 120


<210> 9860
<211> 39
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414625"

<400> 9860
Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1               5                   10                  15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
            20                  25                  30

Arg Ser Gly Asp Gln Asn Trp
        35
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<210> 9861
<211> 36
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
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<223> /note="Gene Symbol: BRD8; "

<220>
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<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420884"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9861
Xaa Ile Ser Ala Lys Ser Leu Arg Gly Arg Asp Ser Thr Arg Lys Gln
1 5 10 15

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

Leu Ser Leu Phe
35

<210> 9862
<211> 195
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
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<220>
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<223> /note="Gene Name:

bromodomain containing 8; "

<220>
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<223> /note="ENSP ID: ENSP00000426385"

<400> 9862

```
Gly Ser Lys Ala Pro Ser Ile Asp Gly Lys Glu Glu Leu Asp Leu Ala
1               5                  10                  15

Glu Lys Met Asp Ile Ala Val Ser Tyr Thr Gly Glu Glu Leu Asp Phe
            20                  25                  30

Glu Thr Val Gly Asp Ile Ile Ala Ile Ile Glu Asp Lys Ala Ser Pro
        35                  40                  45

Glu Ser Met Leu Ser Pro Ser His Gly Ser Asn Pro Ile Glu Asp Pro
    50                  55                  60

Leu Glu Ala Glu Thr Gln His Lys Phe Glu Met Ser Asp Ser Leu Lys
65                  70                  75                  80

Glu Glu Ser Gly Thr Ile Phe Gly Ser Gln Ile Lys Asp Ala Pro Gly
                85                  90                  95

Glu Asp Glu Glu Glu Asp Gly Val Ser Glu Ala Ala Ser Leu Glu Glu
            100                 105                 110

Pro Lys Glu Glu Asp Gln Gly Glu Gly Tyr Leu Ser Glu Met Asp Asn
        115                 120                 125

Glu Pro Pro Val Ser Glu Ser Asp Asp Gly Phe Ser Ile His Asn Ala
    130                 135                 140

Thr Leu Gln Ser His Thr Leu Ala Asp Ser Ile Pro Ser Ser Pro Ala
145                 150                 155                 160

Ser Ser Gln Phe Ser Val Cys Ser Glu Asp Gln Glu Ala Ile Gln Ala
                165                 170                 175

Gln Lys Ile Trp Lys Lys Ala Ile Met Leu Val Trp Arg Ala Ala Ala
            180                 185                 190

Asn His Arg
        195
```

<210> 9863
<211> 292
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
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<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427126"

<400> 9863

```
His Thr Val Thr Val Ser Met Asp Ser Ser Glu Ile Ser Met Ile Ile
1               5                  10                  15

Asn Ser Ile Lys Glu Glu Cys Phe Arg Ser Gly Val Ala Glu Ala Pro
            20                  25                  30

Val Gly Ser Lys Ala Pro Ser Ile Asp Gly Lys Glu Glu Leu Asp Leu
        35                  40                  45

Ala Glu Lys Met Asp Ile Ala Val Ser Tyr Thr Gly Glu Glu Leu Asp
    50                  55                  60

Phe Glu Thr Val Gly Asp Ile Ile Ala Ile Ile Glu Asp Lys Val Asp
65                  70                  75                  80

Asp His Pro Glu Val Leu Asp Val Ala Ala Val Glu Ala Ala Leu Ser
                85                  90                  95

Phe Cys Glu Glu Asn Asp Asp Pro Gln Ser Leu Pro Gly Pro Trp Glu
            100                 105                 110

His Pro Ile Gln Gln Glu Arg Asp Lys Pro Val Pro Leu Pro Ala Pro
        115                 120                 125
```

```
Glu Met Thr Val Lys Gln Glu Arg Leu Asp Phe Glu Glu Thr Glu Asn
    130                 135                 140

Lys Gly Ile His Glu Leu Val Asp Ile Arg Glu Pro Ser Ala Glu Ile
145                 150                 155                 160

Lys Val Glu Pro Ala Glu Pro Glu Pro Val Ile Ser Gly Ala Glu Ile
                165                 170                 175

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

Ser Gln Asp Leu Asp Glu Glu Leu Gly Ser Thr Ala Ala Gly Glu Ile
        195                 200                 205

Val Glu Ala Asp Val Ala Ile Gly Lys Gly Asp Glu Thr Pro Leu Thr
    210                 215                 220

Asn Val Lys Thr Glu Ala Ser Pro Glu Ser Met Leu Ser Pro Ser His
225                 230                 235                 240

Gly Ser Asn Pro Ile Glu Asp Pro Leu Glu Ala Glu Thr Gln His Lys
                245                 250                 255

Phe Glu Met Ser Asp Ser Leu Lys Glu Glu Ser Gly Thr Ile Phe Gly
            260                 265                 270

Ser Gln Ile Lys Gly Gln Ser Tyr Ser Arg Ala Arg Gly Lys Lys Glu
        275                 280                 285

Arg Leu Leu Ala
    290
```

<210> 9864
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1985; "

<220>
<221> source
<223> /note="Gene Symbol: BRD8; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427475"

<400> 9864
Met Ala Thr Gly Thr Gly Lys His Lys Leu Leu Ser Thr Gly Pro Thr
1 5 10 15

Glu Pro Trp Ser Ile Arg Glu Lys Leu Cys Leu Ala Ser Ser Val Met
20 25 30

Arg Ser Gly Asp Gln Asn Cys Ile Val Leu Pro Ser Thr Arg Ser Phe
35 40 45

<210> 9865
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417431"

<400> 9865
Met Met Thr Gly Gln Thr Met Ser Glu Arg Gly Thr Lys Lys Arg Lys
1 5 10 15

Arg Arg Arg Arg Arg Ser Pro Arg Arg Arg Ser Ile Trp Thr Met Arg
20 25 30

Lys Glu Gly Ser Glu Arg Lys Arg Arg Ser Gly Ser Glu Arg Gly Ser
35 40 45

Thr Val Thr Arg Arg Glu Arg Leu Thr Thr Leu Ile Leu Gly Arg Arg
50 55 60

Trp Arg Trp Ser Arg Pro Gln Ile Gly Gln Ser Glu Arg Ala Gly His
65 70 75 80

Ser Gln Phe Ser Val Glu Leu Lys Met Leu
85 90

<210> 9866
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419752"

<400> 9866
Met Met Thr Gly Gln Thr Met Ser Glu Arg Gly Thr Lys Lys Arg Lys
1 5 10 15

Arg Arg Arg Arg Arg Ser Pro Arg Arg Arg Ser Ile Trp Thr Met Arg
20 25 30

Lys Glu Gly Ser Glu Arg Lys Arg Arg Ser Gly Ser Glu Arg Gly Ser
35 40 45

Thr Val Thr Arg Arg Glu Arg Leu Thr Thr Leu Ile Leu Gly Arg Arg
50 55 60

Trp Arg Trp Ser Arg Pro Gln Ile Gly Gln Ser Glu Arg Ala Gly His
65 70 75 80

Ser Gln Phe Ser Val Glu Leu Lys Met Leu
85 90

<210> 9867
<211> 597
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H8M2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419765"

<400> 9867
Met Gly Lys Lys His Lys Lys His Lys Ala Glu Trp Arg Ser Ser Tyr
1   5   10   15

Glu Asp Tyr Ala Asp Lys Pro Leu Glu Lys Pro Leu Lys Leu Val Leu
            20   25   30

Lys Val Gly Gly Ser Glu Val Thr Glu Leu Ser Gly Ser Gly His Asp
        35   40   45

Ser Ser Tyr Tyr Asp Asp Arg Ser Asp His Glu Arg Glu Arg His Lys
    50   55   60

Glu Lys Lys Lys Lys Lys Lys Lys Lys Ser Glu Lys Glu Lys His Leu
65   70   75   80

Asp Asp Glu Glu Arg Arg Lys Arg Lys Glu Glu Lys Lys Arg Lys Arg
                85   90   95

Glu Arg Glu His Cys Asp Thr Glu Gly Glu Ala Asp Asp Phe Asp Pro
            100   105   110

```
Gly Lys Lys Val Glu Val Glu Pro Pro Pro Asp Arg Pro Val Arg Ala
        115                 120                 125

Cys Arg Thr Gln Pro Ala Glu Asn Glu Ser Thr Pro Ile Gln Gln Leu
    130                 135                 140

Leu Glu His Phe Leu Arg Gln Leu Gln Arg Lys Asp Pro His Gly Phe
145                 150                 155                 160

Phe Ala Phe Pro Val Thr Asp Ala Ile Ala Pro Gly Tyr Ser Met Ile
                165                 170                 175

Ile Lys His Pro Met Asp Phe Gly Thr Met Lys Asp Lys Ile Val Ala
            180                 185                 190

Asn Glu Tyr Lys Ser Val Thr Glu Phe Lys Ala Asp Phe Lys Leu Met
        195                 200                 205

Cys Asp Asn Ala Met Thr Tyr Asn Arg Pro Asp Thr Val Tyr Tyr Lys
    210                 215                 220

Leu Ala Lys Lys Ile Leu His Ala Gly Phe Lys Met Met Ser Lys Gln
225                 230                 235                 240

Ala Ala Leu Leu Gly Asn Glu Asp Thr Ala Val Glu Glu Pro Val Pro
                245                 250                 255

Glu Val Val Pro Val Gln Val Glu Thr Ala Lys Lys Ser Lys Lys Pro
            260                 265                 270

Ser Arg Glu Val Ile Ser Cys Met Phe Glu Pro Glu Gly Asn Ala Cys
        275                 280                 285

Ser Leu Thr Asp Ser Thr Ala Glu Glu His Val Leu Ala Leu Val Glu
    290                 295                 300

His Ala Ala Asp Glu Ala Arg Asp Arg Ile Asn Arg Phe Leu Pro Gly
305                 310                 315                 320

Gly Lys Met Gly Tyr Leu Lys Arg Asn Gly Asp Gly Ser Leu Leu Tyr
                325                 330                 335

Ser Val Val Asn Thr Ala Glu Pro Asp Ala Asp Glu Glu Glu Thr His
```

```
            340                 345                 350

Pro Val Asp Leu Ser Ser Leu Ser Ser Lys Leu Leu Pro Gly Phe Thr
        355                 360                 365

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

Ser Ala Thr Thr Ala Leu Ser Met Gln Asn Asn Ser Val Phe Gly Asp
385                 390                 395                 400

Leu Lys Ser Asp Glu Met Glu Leu Leu Tyr Ser Ala Tyr Gly Asp Glu
                405                 410                 415

Thr Gly Val Gln Cys Ala Leu Ser Leu Gln Glu Phe Val Lys Asp Ala
            420                 425                 430

Gly Ser Tyr Ser Lys Lys Val Val Asp Asp Leu Leu Asp Gln Ile Thr
        435                 440                 445

Gly Gly Asp His Ser Arg Thr Leu Phe Gln Leu Lys Gln Arg Arg Asn
    450                 455                 460

Val Pro Met Lys Pro Pro Asp Glu Ala Lys Val Gly Asp Thr Leu Gly
465                 470                 475                 480

Asp Ser Ser Ser Ser Val Leu Glu Phe Met Ser Met Lys Ser Tyr Pro
                485                 490                 495

Asp Val Ser Val Asp Ile Ser Met Leu Ser Ser Leu Gly Lys Val Lys
            500                 505                 510

Lys Glu Leu Asp Pro Asp Asp Ser His Leu Asn Leu Asp Glu Thr Thr
        515                 520                 525

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

Arg Pro Ser Ser Asn Leu Ser Ser Leu Ser Asn Ala Ser Glu Arg Asp
545                 550                 555                 560

Gln His His Leu Gly Ser Pro Ser Arg Leu Ser Val Gly Glu Gln Pro
                565                 570                 575
```

```
Asp Val Thr His Asp Pro Tyr Glu Phe Leu Gln Ser Pro Glu Pro Ala
            580                 585                 590

Ala Ser Ala Lys Thr
        595
```

<210> 9868
<211> 544
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H8M2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419845"

<400> 9868

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Met Met Thr Gly Gln Thr Met Ser Glu Arg Gly Thr Lys Lys Arg Lys
1               5                  10                  15

Arg Arg Arg Arg Arg Ser Pro Arg Arg Arg Ser Ile Trp Thr Met Arg
            20                  25                  30

Lys Glu Gly Ser Glu Arg Lys Arg Arg Ser Gly Ser Glu Arg Gly Ser
        35                  40                  45

Thr Val Thr Arg Arg Glu Arg Leu Thr Thr Leu Ile Leu Gly Arg Arg
    50                  55                  60

Trp Arg Trp Ser Arg Pro Gln Ile Gly Gln Ser Glu Arg Ala Gly His
65                  70                  75                  80
```

```
Ser Gln Pro Lys Met Arg Ala His Leu Phe Ser Asn Ser Trp Asn Thr
                85                  90                  95

Ser Ser Ala Ser Phe Arg Asp Pro His Gly Phe Phe Ala Phe Pro Val
            100                 105                 110

Thr Asp Ala Ile Ala Pro Gly Tyr Ser Met Ile Ile Lys His Pro Met
        115                 120                 125

Asp Phe Gly Thr Met Lys Asp Lys Ile Val Ala Asn Glu Tyr Lys Ser
    130                 135                 140

Val Thr Glu Phe Lys Ala Asp Phe Lys Leu Met Cys Asp Asn Ala Met
145                 150                 155                 160

Thr Tyr Asn Arg Pro Asp Thr Val Tyr Tyr Lys Leu Ala Lys Lys Ile
                165                 170                 175

Leu His Ala Gly Phe Lys Met Met Ser Lys Gln Ala Ala Leu Leu Gly
            180                 185                 190

Asn Glu Asp Thr Ala Val Glu Glu Pro Val Pro Glu Val Val Pro Val
        195                 200                 205

Gln Val Glu Thr Ala Lys Lys Ser Lys Lys Pro Ser Arg Glu Val Ile
    210                 215                 220

Ser Cys Met Phe Glu Pro Glu Gly Asn Ala Cys Ser Leu Thr Asp Ser
225                 230                 235                 240

Thr Ala Glu Glu His Val Leu Ala Leu Val Glu His Ala Ala Asp Glu
                245                 250                 255

Ala Arg Asp Arg Ile Asn Arg Phe Leu Pro Gly Gly Lys Met Gly Tyr
            260                 265                 270

Leu Lys Arg Asn Gly Asp Gly Ser Leu Leu Tyr Ser Val Val Asn Thr
        275                 280                 285

Ala Glu Pro Asp Ala Asp Glu Glu Glu Thr His Pro Val Asp Leu Ser
    290                 295                 300

Ser Leu Ser Ser Lys Leu Leu Pro Gly Phe Thr Thr Leu Gly Phe Lys
```

```
305                 310                 315                 320

Asp Glu Arg Arg Asn Lys Val Thr Phe Leu Ser Ser Ala Thr Thr Ala
                325                 330                 335

Leu Ser Met Gln Asn Asn Ser Val Phe Gly Asp Leu Lys Ser Asp Glu
            340                 345                 350

Met Glu Leu Leu Tyr Ser Ala Tyr Gly Asp Glu Thr Gly Val Gln Cys
        355                 360                 365

Ala Leu Ser Leu Gln Glu Phe Val Lys Asp Ala Gly Ser Tyr Ser Lys
    370                 375                 380

Lys Val Val Asp Asp Leu Leu Asp Gln Ile Thr Gly Gly Asp His Ser
385                 390                 395                 400

Arg Thr Leu Phe Gln Leu Lys Gln Arg Arg Asn Val Pro Met Lys Pro
                405                 410                 415

Pro Asp Glu Ala Lys Val Gly Asp Thr Leu Gly Asp Ser Ser Ser Ser
            420                 425                 430

Val Leu Glu Phe Met Ser Met Lys Ser Tyr Pro Asp Val Ser Val Asp
        435                 440                 445

Ile Ser Met Leu Ser Ser Leu Gly Lys Val Lys Lys Glu Leu Asp Pro
    450                 455                 460

Asp Asp Ser His Leu Asn Leu Asp Glu Thr Thr Lys Leu Leu Gln Asp
465                 470                 475                 480

Leu His Glu Ala Gln Ala Glu Arg Gly Gly Ser Arg Pro Ser Ser Asn
                485                 490                 495

Leu Ser Ser Leu Ser Asn Ala Ser Glu Arg Asp Gln His His Leu Gly
            500                 505                 510

Ser Pro Ser Arg Leu Ser Val Gly Glu Gln Pro Asp Val Thr His Asp
        515                 520                 525

Pro Tyr Glu Phe Leu Gln Ser Pro Glu Pro Ala Ala Ser Ala Lys Thr
    530                 535                 540
```

<210> 9869
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420080"

<400> 9869
Met Met Thr Gly Gln Thr Met Ser Glu Arg Gly Thr Lys Lys Arg Lys
1 5 10 15

Arg Arg Arg Arg Arg Ser Pro Arg Arg Arg Ser Ile Trp Thr Met Arg
20 25 30

Lys Glu Gly Ser Glu Arg Lys Arg Arg Ser Gly Ser Glu Arg Gly Ser
35 40 45

Thr Val Thr Arg Arg Glu Arg Leu Thr Thr Leu Ile Leu Gly Arg Arg
50 55 60

Trp Arg Trp Ser Arg Pro Gln Ile Gly Gln Ser Glu Arg Ala Gly His
65 70 75 80

Ser Gln Phe Ser Val Glu Leu Lys Met Leu
85 90

<210> 9870
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420397"

<400> 9870
Met Met Thr Gly Gln Thr Met Ser Glu Arg Gly Thr Lys Lys Arg Lys
1 5 10 15

Arg Arg Arg Arg Arg Ser Pro Arg Arg Arg Ser Ile Trp Thr Met Arg
20 25 30

Lys Glu Gly Ser Glu Arg Lys Arg Arg Ser Gly Ser Glu Arg Gly Ser
35 40 45

Thr Val Thr Arg Arg Glu Arg Leu Thr Thr Leu Ile Leu Gly Arg Arg
50 55 60

Trp Arg Trp Ser Arg Pro Gln Ile Gly Gln Ser Glu Arg Ala Gly His
65 70 75 80

Ser Gln Phe Ser Val Glu Leu Lys Met Leu
85 90

<210> 9871
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420492"

<400> 9871
Met Met Thr Gly Gln Thr Met Ser Glu Arg Gly Thr Lys Lys Arg Lys
1   5   10   15

Arg Arg Arg Arg Arg Ser Pro Arg Arg Arg Ser Ile Trp Thr Met Arg
            20   25   30

Lys Glu Gly Ser Glu Arg Lys Arg Arg Ser Gly Ser Glu Arg Gly Ser
        35   40   45

Thr Val Thr Arg Arg Glu Arg Leu Thr Thr Leu Ile Leu Gly Arg Arg
    50   55   60

Trp Arg Trp Ser Arg Pro Gln Ile Gly Gln Ser Glu Arg Ala Gly His
65   70   75   80

Ser Gln Phe Ser Val Glu Leu Lys Met Leu
                85   90

<210> 9872
<211> 225
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420722"

<400> 9872
Met Lys Gly Tyr Gln Ser Leu Val Phe Asn Phe Phe Phe Leu Lys Leu
1   5   10   15

Ser Ala Glu Asn Glu Ser Thr Pro Ile Gln Gln Leu Leu Glu His Phe

20 25 30

Leu Arg Gln Leu Gln Arg Lys Asp Pro His Gly Phe Phe Ala Phe Pro
35 40 45

Val Thr Asp Ala Ile Ala Pro Gly Tyr Ser Met Ile Ile Lys His Pro
50 55 60

Met Asp Phe Gly Thr Met Lys Asp Lys Ile Val Ala Asn Glu Tyr Lys
65 70 75 80

Ser Val Thr Glu Phe Lys Ala Asp Phe Lys Leu Met Cys Asp Asn Ala
85 90 95

Met Thr Tyr Asn Arg Pro Asp Thr Val Tyr Tyr Lys Leu Ala Lys Lys
100 105 110

Ile Leu His Ala Gly Phe Lys Met Met Ser Lys Glu Arg Leu Leu Ala
115 120 125

Leu Lys Arg Ser Met Ser Phe Met Gln Asp Met Asp Phe Ser Gln Gln
130 135 140

Ala Ala Leu Leu Gly Asn Glu Asp Thr Ala Val Glu Glu Pro Val Pro
145 150 155 160

Glu Val Val Pro Val Gln Val Glu Thr Ala Lys Lys Ser Lys Lys Pro
165 170 175

Ser Arg Glu Val Ile Ser Cys Met Phe Glu Pro Glu Gly Asn Ala Cys
180 185 190

Ser Leu Thr Asp Ser Thr Ala Glu Glu His Val Leu Ala Leu Val Glu
195 200 205

His Ala Ala Asp Glu Ala Arg Asp Arg Ile Asn Arg Phe Leu Pro Gly
210 215 220

Gly
225

<210> 9873
<211> 123

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428194"

<400> 9873
Ser Val Phe Gly Asp Leu Lys Ser Asp Glu Met Glu Leu Leu Tyr Ser
1 5 10 15

Ala Tyr Gly Asp Glu Thr Gly Val Gln Cys Ala Leu Ser Leu Gln Glu
20 25 30

Phe Val Lys Asp Ala Gly Ser Tyr Ser Lys Lys Val Val Asp Asp Leu
35 40 45

Leu Asp Gln Ile Thr Gly Gly Asp His Ser Arg Thr Leu Phe Gln Leu
50 55 60

Lys Gln Arg Arg Asn Val Pro Met Lys Pro Pro Asp Glu Ala Lys Val
65 70 75 80

Gly Asp Thr Leu Gly Asp Ser Ser Ser Ser Val Leu Glu Phe Met Ser
85 90 95

Met Lys Ser Tyr Pro Asp Val Ser Val Asp Ile Ser Met Leu Ser Ser
100 105 110

Leu Gly Pro Ala Ile Tyr His Val Met Leu Tyr
115 120

<210> 9874
<211> 174
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429353"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9874
Xaa Thr Phe Leu Ser Ser Ala Thr Thr Ala Leu Ser Met Gln Asn Asn
1 5 10 15

Ser Val Phe Gly Asp Leu Lys Ser Asp Glu Met Glu Leu Leu Tyr Ser
20 25 30

Ala Tyr Gly Asp Glu Thr Gly Val Gln Cys Ala Leu Ser Leu Gln Glu
35 40 45

Phe Val Lys Asp Ala Gly Ser Tyr Ser Lys Lys Val Val Asp Asp Leu
50 55 60

Leu Asp Gln Ile Thr Gly Gly Asp His Ser Arg Thr Leu Phe Gln Leu
65 70 75 80

Lys Gln Arg Arg Asn Val Pro Met Lys Pro Pro Asp Glu Ala Lys Val
85 90 95

Gly Asp Thr Leu Gly Asp Ser Ser Ser Ser Val Leu Glu Phe Met Ser
100 105 110

Met Lys Ser Tyr Pro Asp Val Ser Val Asp Ile Ser Met Leu Ser Ser
115 120 125

```
Leu Val Ser Phe Arg Ala Cys His Leu Ser Arg Asp Ala Val Leu Lys
    130                 135                 140

Ser Asp Arg Asn Leu Val Ser Tyr Tyr His Gly Val Cys Phe Val Asn
145                 150                 155                 160

Leu Gln Ile Ser Val Leu Lys Leu Met Leu Val Ser Cys Ala
                165                 170


<210> 9875
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430170"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9875
Xaa Phe Val Lys Asp Ala Gly Ser Tyr Ser Lys Lys Val Val Asp Asp
1               5                   10                  15

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

Leu Lys Gln Arg Arg Asn Val Pro Met Lys Pro Pro Asp Glu Ala Lys
        35                  40                  45

Val Gly Asp Thr Leu Gly Asp Ser Ser Ser Ser Val Leu Glu Phe Met
    50                  55                  60
```

```
Ser Met Lys Ser Tyr Pro Asp Val Ser Val Asp Ile Ser Met Leu Ser
65                  70                  75                  80


Ser Leu Gly Pro Ala Ile Tyr His Val Met Leu Tyr
                85                  90


<210> 9876
<211> 72
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1986; "

<220>
<221> source
<223> /note="Gene Symbol: BRD9; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430510"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9876
Xaa Ser Ser Ser Val Leu Glu Phe Met Ser Met Lys Ser Tyr Pro Asp
1               5                   10                  15


Val Ser Val Asp Ile Ser Met Leu Ser Ser Leu Val Ser Phe Arg Ala
            20                  25                  30


Cys His Leu Ser Arg Asp Ala Val Leu Lys Ser Asp Arg Asn Leu Val
        35                  40                  45


Ser Tyr Tyr His Gly Val Cys Phe Val Asn Leu Gln Ile Ser Val Leu
    50                  55                  60


Lys Leu Met Leu Val Ser Cys Ala
65                  70
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<210> 9877
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<213> Homo sapiens

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<400> 9877
Met Arg Gly Arg Arg Gly Arg Pro Pro Lys Gln Pro Ala Ala Pro Ala
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Ala Glu Arg Cys Ala Pro Ala Pro Pro Pro Pro Pro Pro Pro Pro Thr
            20   25   30

Ser Gly Pro Ile Gly Gly Leu Arg Ser Arg His Arg Gly Ser Ser Arg
        35   40   45

Gly Arg Trp Ala Ala Ala Gln Ala Glu Val Ala Pro Lys Thr Arg Leu
    50   55   60

Ser Ser Pro Arg Gly Gly Ser Ser Ser Arg Arg Lys Pro Pro Pro Pro
65   70   75   80

Pro Pro Ala Pro Pro Ser Thr Ser Ala Pro Gly Arg Gly Gly Arg Gly
                85   90   95

Gly Gly Gly Gly Arg Thr Gly Gly Gly Gly Gly Gly Gly His Leu Ala
            100   105   110

Arg Thr Thr Ala Ala Arg Arg Ala Val Asn Lys Val Val Tyr Asp Asp

```
        115                 120                 125

His Glu Ser Glu Glu Glu Glu Glu Glu Glu Asp Met Val Ser Glu Glu
    130                 135                 140

Glu Glu Glu Glu Asp Gly Asp Ala Glu Glu Thr Gln Asp Ser Glu Asp
145                 150                 155                 160

Asp Glu Glu Asp Glu Met Glu Glu Asp Asp Asp Asp Ser Asp Tyr Pro
                165                 170                 175

Glu Glu Met Glu Asp Asp Asp Asp Asp Ala Ser Tyr Cys Thr Glu Ser
            180                 185                 190

Ser Phe Arg Ser His Ser Thr Tyr Ser Ser Thr Pro Gly Arg Arg Lys
        195                 200                 205

Pro Arg Val His Arg Pro Arg Ser Pro Ile Leu Glu Glu Lys Asp Ile
    210                 215                 220

Pro Pro Leu Glu Phe Pro Lys Ser Ser Glu Asp Leu Met Val Pro Asn
225                 230                 235                 240

Glu His Ile Met Asn Val Ile Ala Ile Tyr Glu Val Leu Arg Asn Phe
                245                 250                 255

Gly Thr Val Leu Arg Leu Ser Pro Phe Arg Phe Glu Asp Phe Cys Ala
            260                 265                 270

Ala Leu Val Ser Gln Glu Gln Cys Thr Leu Met Ala Glu Met His Val
        275                 280                 285

Val Leu Leu Lys Ala Val Leu Arg Glu Glu Asp Thr Ser Asn Thr Thr
    290                 295                 300

Phe Gly Pro Ala Asp Leu Lys Asp Ser Val Asn Ser Thr Leu Tyr Phe
305                 310                 315                 320

Ile Asp Gly Met Thr Trp Pro Glu Val Leu Arg Val Tyr Cys Glu Ser
                325                 330                 335

Asp Lys Glu Tyr His His Val Leu Pro Tyr Gln Glu Ala Glu Asp Tyr
            340                 345                 350
```

```
Pro Tyr Gly Pro Val Glu Asn Lys Ile Lys Val Leu Gln Phe Leu Val
        355                 360                 365

Asp Gln Phe Leu Thr Thr Asn Ile Ala Arg Glu Glu Leu Met Ser Glu
    370                 375                 380

Gly Val Ile Gln Tyr Asp Asp His Cys Arg Val Cys His Lys Leu Gly
385                 390                 395                 400

Asp Leu Leu Cys Cys Glu Thr Cys Ser Ala Val Tyr His Leu Glu Cys
                405                 410                 415

Val Lys Pro Pro Leu Glu Glu Val Pro Glu Asp Glu Trp Gln Cys Glu
            420                 425                 430

Val Cys Val Ala His Lys Val Pro Gly Val Thr Asp Cys Val Ala Glu
        435                 440                 445

Ile Gln Lys Asn Lys Pro Tyr Ile Arg His Glu Pro Ile Gly Tyr Asp
    450                 455                 460

Arg Ser Arg Arg Lys Tyr Trp Phe Leu Asn Arg Arg Leu Ile Ile Glu
465                 470                 475                 480

Glu Asp Thr Glu Asn Glu Asn Glu Lys Lys Ile Trp Tyr Tyr Ser Thr
                485                 490                 495

Lys Val Gln Leu Ala Glu Leu Ile Asp Cys Leu Asp Lys Asp Tyr Trp
            500                 505                 510

Glu Ala Glu Leu Cys Lys Ile Leu Glu Glu Met Arg Glu Glu Ile His
        515                 520                 525

Arg His Met Asp Ile Thr Glu Asp Leu Thr Asn Lys Ala Arg Gly Ser
    530                 535                 540

Asn Lys Ser Phe Leu Ala Ala Ala Asn Glu Glu Ile Leu Glu Ser Ile
545                 550                 555                 560

Arg Ala Lys Lys Gly Asp Ile Asp Asn Val Lys Ser Pro Glu Glu Thr
                565                 570                 575
```

```
Glu Lys Asp Lys Asn Glu Thr Glu Asn Asp Ser Lys Asp Ala Glu Lys
            580                 585                 590

Asn Arg Glu Glu Phe Glu Asp Gln Ser Leu Glu Lys Asp Ser Asp Asp
        595                 600                 605

Lys Thr Pro Asp Asp Asp Pro Glu Gln Gly Lys Ser Glu Val Gly Asp
    610                 615                 620

Phe Lys Ser Glu Lys Ser Asn Gly Glu Leu Ser Glu Ser Pro Gly Ala
625                 630                 635                 640

Gly Lys Gly Ala Ser Gly Ser Thr Arg Ile Ile Thr Arg Leu Arg Asn
                645                 650                 655

Pro Asp Ser Lys Leu Ser Gln Leu Lys Ser Gln Gln Val Ala Ala Ala
            660                 665                 670

Ala His Glu Ala Asn Lys Leu Phe Lys Glu Gly Lys Glu Val Leu Val
        675                 680                 685

Val Asn Ser Gln Gly Glu Ile Ser Arg Leu Ser Thr Lys Lys Glu Val
    690                 695                 700

Ile Met Lys Gly Asn Ile Asn Asn Tyr Phe Lys Leu Gly Gln Glu Gly
705                 710                 715                 720

Lys Tyr Arg Val Tyr His Asn Gln Tyr Ser Thr Asn Ser Phe Ala Leu
                725                 730                 735

Asn Lys His Gln His Arg Glu Asp His Asp Lys Arg Arg His Leu Ala
            740                 745                 750

His Lys Phe Cys Leu Thr Pro Ala Gly Glu Phe Lys Trp Asn Gly Ser
        755                 760                 765

Val His Gly Ser Lys Val Leu Thr Ile Ser Thr Leu Arg Leu Thr Ile
    770                 775                 780

Thr Gln Leu Glu Asn Asn Ile Pro Ser Ser Phe Leu His Pro Asn Trp
785                 790                 795                 800
```

```
Ala Ser His Arg Ala Asn Trp Ile Lys Ala Val Gln Met Cys Ser Lys
                805                 810                 815

Pro Arg Glu Phe Ala Leu Ala Leu Ala Ile Leu Glu Cys Ala Val Lys
            820                 825                 830

Pro Val Val Met Leu Pro Ile Trp Arg Glu Ser Leu Gly His Thr Arg
        835                 840                 845

Leu His Arg Met Thr Ser Ile Glu Arg Glu Glu Lys Glu Lys Val Lys
    850                 855                 860

Lys Lys Glu Lys Lys Gln Glu Glu Glu Glu Thr Met Gln Gln Ala Thr
865                 870                 875                 880

Trp Val Lys Tyr Thr Phe Pro Val Lys His Gln Val Trp Lys Gln Lys
                885                 890                 895

Gly Glu Glu Tyr Arg Val Thr Gly Tyr Gly Gly Trp Ser Trp Ile Ser
            900                 905                 910

Lys Thr His Val Tyr Arg Phe Val Pro Lys Leu Pro Gly Asn Thr Asn
        915                 920                 925

Val Asn Tyr Arg Lys Ser Leu Glu Gly Thr Lys Asn Asn Met Asp Glu
    930                 935                 940

Asn Met Asp Glu Ser Asp Lys Arg Lys Cys Ser Arg Ser Pro Lys Lys
945                 950                 955                 960

Ile Lys Ile Glu Pro Asp Ser Glu Lys Asp Glu Val Lys Gly Ser Asp
                965                 970                 975

Ala Ala Lys Gly Ala Asp Gln Asn Glu Met Asp Ile Ser Lys Ile Thr
            980                 985                 990

Glu Lys Lys Asp Gln Asp Val Lys  Glu Leu Leu Asp Ser  Asp Ser
Asp
        995                 1000                1005

Lys Pro  Cys Lys Glu Glu Pro  Met Glu Val Asp Asp  Asp Met Lys
    1010                1015                1020
```

```
Thr Glu  Ser His Val Asn Cys  Gln Glu Ser Ser Gln  Val Asp Val
    1025                1030                1035

Val Asn  Val Ser Glu Gly Phe  His Leu Arg Thr Ser  Tyr Lys Lys
    1040                1045                1050

Lys Thr  Lys Ser Ser Lys Leu  Asp Gly Leu Leu Glu  Arg Arg Ile
    1055                1060                1065

Lys Gln  Phe Thr Leu Glu Glu  Lys Gln Arg Leu Glu  Lys Ile Lys
    1070                1075                1080

Leu Glu  Gly Gly Ile Lys Gly  Ile Gly Lys Thr Ser  Thr Asn Ser
    1085                1090                1095

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

Gly Cys  Gln Ser Asp Ser Met  Arg Gln Glu Gln Ser  Pro Asn Ala
    1115                1120                1125

Asn Asn  Asp Gln Pro Glu Asp  Leu Ile Gln Gly Cys  Ser Glu Ser
    1130                1135                1140

Asp Ser  Ser Val Leu Arg Met  Ser Asp Pro Ser His  Thr Thr Asn
    1145                1150                1155

Lys Leu  Tyr Pro Lys Asp Arg  Val Leu Asp Asp Val  Ser Ile Arg
    1160                1165                1170

Ser Pro  Glu Thr Lys Cys Pro  Lys Gln Asn Ser Ile  Glu Asn Asp
    1175                1180                1185

Ile Glu  Glu Lys Val Ser Asp  Leu Ala Ser Arg Gly  Gln Glu Pro
    1190                1195                1200

Ser Lys  Ser Lys Thr Lys Gly  Asn Asp Phe Phe Ile  Asp Asp Ser
    1205                1210                1215

Lys Leu  Ala Ser Ala Asp Asp  Ile Gly Thr Leu Ile  Cys Lys Asn
    1220                1225                1230

Lys Lys  Pro Leu Ile Gln Glu  Glu Ser Asp Thr Ile  Val Ser Ser
```

1235 1240 1245

Ser Lys Ser Ala Leu His Ser Ser Val Pro Lys Ser Thr Asn Asp
1250 1255 1260

Arg Asp Ala Thr Pro Leu Ser Arg Ala Met Asp Phe Glu Gly Lys
1265 1270 1275

Leu Gly Cys Asp Ser Glu Ser Asn Ser Thr Leu Glu Asn Ser Ser
1280 1285 1290

Asp Thr Val Ser Ile Gln Asp Ser Ser Glu Glu Asp Met Ile Val
1295 1300 1305

Gln Asn Ser Asn Glu Ser Ile Ser Glu Gln Phe Arg Thr Arg Glu
1310 1315 1320

Gln Asp Val Glu Val Leu Glu Pro Leu Lys Cys Glu Leu Val Ser
1325 1330 1335

Gly Glu Ser Thr Gly Asn Cys Glu Asp Arg Leu Pro Val Lys Gly
1340 1345 1350

Thr Glu Ala Asn Gly Lys Lys Pro Ser Gln Gln Lys Lys Leu Glu
1355 1360 1365

Glu Arg Pro Val Asn Lys Cys Ser Asp Gln Ile Lys Leu Lys Asn
1370 1375 1380

Thr Thr Asp Lys Lys Asn Asn Glu Asn Arg Glu Ser Glu Lys Lys
1385 1390 1395

Gly Gln Arg Thr Ser Thr Phe Gln Ile Asn Gly Lys Asp Asn Lys
1400 1405 1410

Pro Lys Ile Tyr Leu Lys Gly Glu Cys Leu Lys Glu Ile Ser Glu
1415 1420 1425

Ser Arg Val Val Ser Gly Asn Val Glu Pro Lys Val Asn Asn Ile
1430 1435 1440

Asn Lys Ile Ile Pro Glu Asn Asp Ile Lys Ser Leu Thr Val Lys
1445 1450 1455

```
Glu Ser  Ala Ile Arg Pro Phe  Ile Asn Gly Asp Val  Ile Met Glu
    1460                1465                1470

Asp Phe  Asn Glu Arg Asn Ser  Ser Glu Thr Lys Ser  His Leu Leu
    1475                1480                1485

Ser Ser  Ser Asp Ala Glu Gly  Asn Tyr Arg Asp Ser  Leu Glu Thr
    1490                1495                1500

Leu Pro  Ser Thr Lys Glu Ser  Asp Ser Thr Gln Thr  Thr Thr Pro
    1505                1510                1515

Ser Ala  Ser Cys Pro Glu Ser  Asn Ser Val Asn Gln  Val Glu Asp
    1520                1525                1530

Met Glu  Ile Glu Thr Ser Glu  Val Lys Lys Val Thr  Ser Ser Pro
    1535                1540                1545

Ile Thr  Ser Glu Glu Glu Ser  Asn Leu Ser Asn Asp  Phe Ile Asp
    1550                1555                1560

Glu Asn  Gly Leu Pro Ile Asn  Lys Asn Glu Asn Val  Asn Gly Glu
    1565                1570                1575

Ser Lys  Arg Lys Thr Val Ile  Thr Glu Val Thr Thr  Met Thr Ser
    1580                1585                1590

Thr Val  Ala Thr Glu Ser Lys  Thr Val Ile Lys Val  Glu Lys Gly
    1595                1600                1605

Asp Lys  Gln Thr Val Val Ser  Ser Thr Glu Asn Cys  Ala Lys Ser
    1610                1615                1620

Thr Val  Thr Thr Thr Thr Thr  Thr Val Thr Lys Leu  Ser Thr Pro
    1625                1630                1635

Ser Thr  Gly Gly Ser Val Asp  Ile Ile Ser Val Lys  Glu Gln Ser
    1640                1645                1650

Lys Thr  Val Val Thr Thr Thr  Val Thr Asp Ser Leu  Thr Thr Thr
    1655                1660                1665
```

Gly Gly Thr Leu Val Thr Ser Met Thr Val Ser Lys Glu Tyr Ser
1670 1675 1680

Thr Arg Asp Lys Val Lys Leu Met Lys Phe Ser Arg Pro Lys Lys
1685 1690 1695

Thr Arg Ser Gly Thr Ala Leu Pro Ser Tyr Arg Lys Phe Val Thr
1700 1705 1710

Lys Ser Ser Lys Lys Ser Ile Phe Val Leu Pro Asn Asp Asp Leu
1715 1720 1725

Lys Lys Leu Ala Arg Lys Gly Gly Ile Arg Glu Val Pro Tyr Phe
1730 1735 1740

Asn Tyr Asn Ala Lys Pro Ala Leu Asp Ile Trp Pro Tyr Pro Ser
1745 1750 1755

Pro Arg Pro Thr Phe Gly Ile Thr Trp Arg Tyr Arg Leu Gln Thr
1760 1765 1770

Val Lys Ser Leu Ala Gly Val Ser Leu Met Leu Arg Leu Leu Trp
1775 1780 1785

Ala Ser Leu Arg Trp Asp Asp Met Ala Ala Lys Ala Pro Pro Gly
1790 1795 1800

Gly Gly Thr Thr Arg Thr Glu Thr Ser Glu Thr Glu Ile Thr Thr
1805 1810 1815

Thr Glu Ile Ile Lys Arg Arg Asp Val Gly Pro Tyr Gly Ile Arg
1820 1825 1830

Ser Glu Tyr Cys Ile Arg Lys Ile Ile Cys Pro Ile Gly Val Pro
1835 1840 1845

Glu Thr Pro Lys Glu Thr Pro Thr Pro Gln Arg Lys Gly Leu Arg
1850 1855 1860

Ser Ser Ala Leu Arg Pro Lys Arg Pro Glu Thr Pro Lys Gln Thr
1865 1870 1875

Gly Pro Val Ile Ile Glu Thr Trp Val Ala Glu Glu Glu Leu Glu
1880 1885 1890

Leu Trp Glu Ile Arg Ala Phe Ala Glu Arg Val Glu Lys Glu Lys
1895 1900 1905

Ala Gln Ala Val Glu Gln Gln Ala Lys Lys Arg Leu Glu Gln Gln
1910 1915 1920

Lys Pro Thr Val Ile Ala Thr Ser Thr Thr Ser Pro Thr Ser Ser
1925 1930 1935

Thr Thr Ser Thr Ile Ser Pro Ala Gln Lys Val Met Val Ala Pro
1940 1945 1950

Ile Ser Gly Ser Val Thr Thr Gly Thr Lys Met Val Leu Thr Thr
1955 1960 1965

Lys Val Gly Ser Pro Ala Thr Val Thr Phe Gln Gln Asn Lys Asn
1970 1975 1980

Phe His Gln Thr Phe Ala Thr Trp Val Lys Gln Gly Gln Ser Asn
1985 1990 1995

Ser Gly Val Val Gln Val Gln Gln Lys Val Leu Gly Ile Ile Pro
2000 2005 2010

Ser Ser Thr Gly Thr Ser Gln Gln Thr Phe Thr Ser Phe Gln Pro
2015 2020 2025

Arg Thr Ala Thr Val Thr Ile Arg Pro Asn Thr Ser Gly Ser Gly
2030 2035 2040

Gly Thr Thr Ser Asn Ser Gln Val Ile Thr Gly Pro Gln Ile Arg
2045 2050 2055

Pro Gly Met Thr Val Ile Arg Thr Pro Leu Gln Gln Ser Thr Leu
2060 2065 2070

Gly Lys Ala Ile Ile Arg Thr Pro Val Met Val Gln Pro Gly Ala
2075 2080 2085

Pro Gln Gln Val Met Thr Gln Ile Ile Arg Gly Gln Pro Val Ser

2090 2095 2100

Thr Ala Val Ser Ala Pro Asn Thr Val Ser Ser Thr Pro Gly Gln
2105 2110 2115

Lys Ser Leu Thr Ser Ala Thr Ser Thr Ser Asn Ile Gln Ser Ser
2120 2125 2130

Ala Ser Gln Pro Pro Arg Pro Gln Gln Gly Gln Val Lys Leu Thr
2135 2140 2145

Met Ala Gln Leu Thr Gln Leu Thr Gln Gly His Gly Gly Asn Gln
2150 2155 2160

Gly Leu Thr Val Val Ile Gln Gly Gln Gly Gln Thr Thr Gly Gln
2165 2170 2175

Leu Gln Leu Ile Pro Gln Gly Val Thr Val Leu Pro Gly Pro Gly
2180 2185 2190

Gln Gln Leu Met Gln Ala Ala Met Pro Asn Gly Thr Val Gln Arg
2195 2200 2205

Phe Leu Phe Thr Pro Leu Ala Thr Thr Ala Thr Thr Ala Ser Thr
2210 2215 2220

Thr Thr Thr Thr Val Ser Thr Thr Ala Ala Gly Thr Gly Glu Gln
2225 2230 2235

Arg Gln Ser Lys Leu Ser Pro Gln Met Gln Val His Gln Asp Lys
2240 2245 2250

Thr Leu Pro Pro Ala Gln Ser Ser Ser Val Gly Pro Ala Glu Ala
2255 2260 2265

Gln Pro Gln Thr Ala Gln Pro Ser Ala Gln Pro Gln Pro Gln Thr
2270 2275 2280

Gln Pro Gln Ser Pro Ala Gln Pro Glu Val Gln Thr Gln Pro Glu
2285 2290 2295

Val Gln Thr Gln Thr Thr Val Ser Ser His Val Pro Ser Glu Ala
2300 2305 2310

```
Gln Pro  Thr His Ala Gln Ser  Ser Lys Pro Gln Val  Ala Ala Gln
    2315                2320                2325

Ser Gln  Pro Gln Ser Asn Val  Gln Gly Gln Ser Pro  Val Arg Val
    2330                2335                2340

Gln Ser  Pro Ser Gln Thr Arg  Ile Arg Pro Ser Thr  Pro Ser Gln
    2345                2350                2355

Leu Ser  Pro Gly Gln Gln Ser  Gln Val Gln Thr Thr  Thr Ser Gln
    2360                2365                2370

Pro Ile  Pro Ile Gln Pro His  Thr Ser Leu Gln Ile  Pro Ser Gln
    2375                2380                2385

Gly Gln  Pro Gln Ser Gln Pro  Gln Val Gln Ser Ser  Thr Gln Thr
    2390                2395                2400

Leu Ser  Ser Gly Gln Thr Leu  Asn Gln Val Thr Val  Ser Ser Pro
    2405                2410                2415

Ser Arg  Pro Gln Leu Gln Ile  Gln Gln Pro Gln Pro  Gln Val Ile
    2420                2425                2430

Ala Val  Pro Gln Leu Gln Gln  Gln Val Gln Val Leu  Ser Gln Ile
    2435                2440                2445

Gln Ser  Gln Val Val Ala Gln  Ile Gln Ala Gln Gln  Ser Gly Val
    2450                2455                2460

Pro Gln  Gln Ile Lys Leu Gln  Leu Pro Ile Gln Ile  Gln Gln Ser
    2465                2470                2475

Ser Ala  Val Gln Thr His Gln  Ile Gln Asn Val Val  Thr Val Gln
    2480                2485                2490

Ala Ala  Ser Val Gln Glu Gln  Leu Gln Arg Val Gln  Gln Leu Arg
    2495                2500                2505

Asp Gln  Gln Gln Lys Lys Lys  Gln Gln Gln Ile Glu  Ile Lys Arg
    2510                2515                2520
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Glu His Thr Leu Gln Ala Ser Asn Gln Ser Glu Ile Ile Gln Lys
2525 2530 2535

Gln Val Val Met Lys His Asn Ala Val Ile Glu His Leu Lys Gln
2540 2545 2550

Lys Lys Ser Met Thr Pro Ala Glu Arg Glu Glu Asn Gln Arg Met
2555 2560 2565

Ile Val Cys Asn Gln Val Met Lys Tyr Ile Leu Asp Lys Ile Asp
2570 2575 2580

Lys Glu Glu Lys Gln Ala Ala Lys Lys Arg Lys Arg Glu Glu Ser
2585 2590 2595

Val Glu Gln Lys Arg Ser Lys Gln Asn Ala Thr Lys Leu Ser Ala
2600 2605 2610

Leu Leu Phe Lys His Lys Glu Gln Leu Arg Ala Glu Ile Leu Lys
2615 2620 2625

Lys Arg Ala Leu Leu Asp Lys Asp Leu Gln Ile Glu Val Gln Glu
2630 2635 2640

Glu Leu Lys Arg Asp Leu Lys Ile Lys Lys Glu Lys Asp Leu Met
2645 2650 2655

Gln Leu Ala Gln Ala Thr Ala Val Ala Ala Pro Cys Pro Pro Val
2660 2665 2670

Thr Pro Ala Pro Pro Ala Pro Pro Ala Pro Pro Pro Ser Pro Pro
2675 2680 2685

Pro Pro Pro Ala Val Gln His Thr Gly Leu Leu Ser Thr Pro Thr
2690 2695 2700

Leu Pro Ala Ala Ser Gln Lys Arg Lys Arg Glu Glu Glu Lys Asp
2705 2710 2715

Ser Ser Ser Lys Ser Lys Lys Lys Lys Met Ile Ser Thr Thr Ser
2720 2725 2730

```
Lys Glu  Thr Lys Lys Asp Thr  Lys Leu Tyr Cys Ile  Cys Lys Thr
    2735                2740                2745

Pro Tyr  Asp Glu Ser Lys Phe  Tyr Ile Gly Cys Asp  Arg Cys Gln
    2750                2755                2760

Asn Trp  Tyr His Gly Arg Cys  Val Gly Ile Leu Gln  Ser Glu Ala
    2765                2770                2775

Glu Leu  Ile Asp Glu Tyr Val  Cys Pro Gln Cys Gln  Ser Thr Glu
    2780                2785                2790

Asp Ala  Met Thr Val Leu Thr  Pro Leu Thr Glu Lys  Asp Tyr Glu
    2795                2800                2805

Gly Leu  Lys Arg Val Leu Arg  Ser Leu Gln Ala His  Lys Met Ala
    2810                2815                2820

Trp Pro  Phe Leu Glu Pro Val  Asp Pro Asn Asp Ala  Pro Asp Tyr
    2825                2830                2835

Tyr Gly  Val Ile Lys Glu Pro  Met Asp Leu Ala Thr  Met Glu Glu
    2840                2845                2850

Arg Val  Gln Arg Arg Tyr Tyr  Glu Lys Leu Thr Glu  Phe Val Ala
    2855                2860                2865

Asp Met  Thr Lys Ile Phe Asp  Asn Cys Arg Tyr Tyr  Asn Pro Ser
    2870                2875                2880

Asp Ser  Pro Phe Tyr Gln Cys  Ala Glu Val Leu Glu  Ser Phe Phe
    2885                2890                2895

Val Gln  Lys Leu Lys Gly Phe  Lys Ala Ser Arg Ser  His Asn Asn
    2900                2905                2910

Lys Leu  Gln Ser Thr Ala Ser
    2915                2920
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<210> 9878
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<213> Homo sapiens

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Met Arg Gly Arg Arg Gly Arg Pro Pro Lys Gln Pro Ala Ala Pro Ala
1   5   10   15

Ala Glu Arg Cys Ala Pro Ala Pro Pro Pro Pro Pro Pro Pro Pro Thr
            20   25   30

Ser Gly Pro Ile Gly Gly Leu Arg Ser Arg His Arg Gly Ser Ser Arg
        35   40   45

Gly Arg Trp Ala Ala Ala Gln Ala Glu Val Ala Pro Lys Thr Arg Leu
    50   55   60

Ser Ser Pro Arg Gly Gly Ser Ser Ser Arg Arg Lys Pro Pro Pro Pro
65   70   75   80

Pro Pro Ala Pro Pro Ser Thr Ser Ala Pro Gly Arg Gly Gly Arg Gly
                85   90   95

Gly Gly Gly Gly Arg Thr Gly Gly Gly Gly Gly Gly Gly His Leu Ala
            100   105   110

Arg Thr Thr Ala Ala Arg Arg Ala Val Asn Lys Val Val Tyr Asp Asp
        115   120   125

His Glu Ser Glu Glu Glu Glu Glu Glu Glu Asp Met Val Ser Glu Glu
    130   135   140

```
Glu Glu Glu Glu Asp Gly Asp Ala Glu Glu Thr Gln Asp Ser Glu Asp
145                 150                 155                 160

Asp Glu Glu Asp Glu Met Glu Glu Asp Asp Asp Asp Ser Asp Tyr Pro
                165                 170                 175

Glu Glu Met Glu Asp Asp Asp Asp Asp Ala Ser Tyr Cys Thr Glu Ser
            180                 185                 190

Ser Phe Arg Ser His Ser Thr Tyr Ser Ser Thr Pro Gly Arg Arg Lys
        195                 200                 205

Pro Arg Val His Arg Pro Arg Ser Pro Ile Leu Glu Glu Lys Asp Ile
    210                 215                 220

Pro Pro Leu Glu Phe Pro Lys Ser Ser Glu Asp Leu Met Val Pro Asn
225                 230                 235                 240

Glu His Ile Met Asn Val Ile Ala Ile Tyr Glu Val Leu Arg Asn Phe
                245                 250                 255

Gly Thr Val Leu Arg Leu Ser Pro Phe Arg Phe Glu Asp Phe Cys Ala
            260                 265                 270

Ala Leu Val Ser Gln Glu Gln Cys Thr Leu Met Ala Glu Met His Val
        275                 280                 285

Val Leu Leu Lys Ala Val Leu Arg Glu Glu Asp Thr Ser Asn Thr Thr
    290                 295                 300

Phe Gly Pro Ala Asp Leu Lys Asp Ser Val Asn Ser Thr Leu Tyr Phe
305                 310                 315                 320

Ile Asp Gly Met Thr Trp Pro Glu Val Leu Arg Val Tyr Cys Glu Ser
                325                 330                 335

Asp Lys Glu Tyr His His Val Leu Pro Tyr Gln Glu Ala Glu Asp Tyr
            340                 345                 350

Pro Tyr Gly Pro Val Glu Asn Lys Ile Lys Val Leu Gln Phe Leu Val
        355                 360                 365
```

```
Asp Gln Phe Leu Thr Thr Asn Ile Ala Arg Glu Glu Leu Met Ser Glu
    370                 375                 380

Gly Val Ile Gln Tyr Asp Asp His Cys Arg Val Cys His Lys Leu Gly
385                 390                 395                 400

Asp Leu Leu Cys Cys Glu Thr Cys Ser Ala Val Tyr His Leu Glu Cys
                405                 410                 415

Val Lys Pro Pro Leu Glu Glu Val Pro Glu Asp Glu Trp Gln Cys Glu
            420                 425                 430

Val Cys Val Ala His Lys Val Pro Gly Val Thr Asp Cys Val Ala Glu
        435                 440                 445

Ile Gln Lys Asn Lys Pro Tyr Ile Arg His Glu Pro Ile Gly Tyr Asp
    450                 455                 460

Arg Ser Arg Arg Lys Tyr Trp Phe Leu Asn Arg Arg Leu Ile Ile Glu
465                 470                 475                 480

Glu Asp Thr Glu Asn Glu Asn Glu Lys Lys Ile Trp Tyr Tyr Ser Thr
                485                 490                 495

Lys Val Gln Leu Ala Glu Leu Ile Asp Cys Leu Asp Lys Asp Tyr Trp
            500                 505                 510

Glu Ala Glu Leu Cys Lys Ile Leu Glu Glu Met Arg Glu Glu Ile His
        515                 520                 525

Arg His Met Asp Ile Thr Glu Asp Leu Thr Asn Lys Ala Arg Gly Ser
    530                 535                 540

Asn Lys Ser Phe Leu Ala Ala Ala Asn Glu Glu Ile Leu Glu Ser Ile
545                 550                 555                 560

Arg Ala Lys Lys Gly Asp Ile Asp Asn Val Lys Ser Pro Glu Glu Thr
                565                 570                 575

Glu Lys Asp Lys Asn Glu Thr Glu Asn Asp Ser Lys Asp Ala Glu Lys
            580                 585                 590
```

```
Asn Arg Glu Glu Phe Glu Asp Gln Ser Leu Glu Lys Asp Ser Asp Asp
        595                 600                 605

Lys Thr Pro Asp Asp Asp Pro Glu Gln Gly Lys Ser Glu Glu Pro Thr
    610                 615                 620

Glu Val Gly Asp Lys Gly Asn Ser Val Ser Ala Asn Leu Gly Asp Asn
625                 630                 635                 640

Thr Thr Asn Ala Thr Ser Glu Glu Thr Ser Pro Ser Glu Gly Arg Ser
                645                 650                 655

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

Lys Lys Val Ala Ser Glu Leu Pro Gln Asp Val Pro Glu Glu Pro Asn
        675                 680                 685

Lys Thr Cys Glu Ser Ser Asn Thr Ser Ala Thr Thr Thr Ser Ile Gln
    690                 695                 700

Pro Asn Leu Glu Asn Ser Asn Ser Ser Ser Glu Leu Asn Ser Ser Gln
705                 710                 715                 720

Ser Glu Ser Ala Lys Ala Ala Asp Asp Pro Glu Asn Gly Glu Arg Glu
                725                 730                 735

Ser His Thr Pro Val Ser Ile Gln Glu Glu Ile Val Gly Asp Phe Lys
            740                 745                 750

Ser Glu Lys Ser Asn Gly Glu Leu Ser Glu Ser Pro Gly Ala Gly Lys
        755                 760                 765

Gly Ala Ser Gly Ser Thr Arg Ile Ile Thr Arg Leu Arg Asn Pro Asp
    770                 775                 780

Ser Lys Leu Ser Gln Leu Lys Ser Gln Gln Val Ala Ala Ala Ala His
785                 790                 795                 800

Glu Ala Asn Lys Leu Phe Lys Glu Gly Lys Glu Val Leu Val Val Asn
                805                 810                 815

Ser Gln Gly Glu Ile Ser Arg Leu Ser Thr Lys Lys Glu Val Ile Met
```

```
            820                 825                 830

Lys Gly Asn Ile Asn Asn Tyr Phe Lys Leu Gly Gln Glu Gly Lys Tyr
        835                 840                 845

Arg Val Tyr His Asn Gln Tyr Ser Thr Asn Ser Phe Ala Leu Asn Lys
    850                 855                 860

His Gln His Arg Glu Asp His Asp Lys Arg Arg His Leu Ala His Lys
865                 870                 875                 880

Phe Cys Leu Thr Pro Ala Gly Glu Phe Lys Trp Asn Gly Ser Val His
                885                 890                 895

Gly Ser Lys Val Leu Thr Ile Ser Thr Leu Arg Leu Thr Ile Thr Gln
            900                 905                 910

Leu Glu Asn Asn Ile Pro Ser Ser Phe Leu His Pro Asn Trp Ala Ser
        915                 920                 925

His Arg Ala Asn Trp Ile Lys Ala Val Gln Met Cys Ser Lys Pro Arg
    930                 935                 940

Glu Phe Ala Leu Ala Leu Ala Ile Leu Glu Cys Ala Val Lys Pro Val
945                 950                 955                 960

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

Arg Met Thr Ser Ile Glu Arg Glu Glu Lys Glu Lys Val Lys Lys Lys
            980                 985                 990

Glu Lys Lys Gln Glu Glu Glu Glu  Thr Met Gln Gln Ala  Thr Trp
Val
        995                 1000                1005

Lys Tyr  Thr Phe Pro Val Lys  His Gln Val Trp Lys  Gln Lys Gly
    1010                1015                1020

Glu Glu  Tyr Arg Val Thr Gly  Tyr Gly Gly Trp Ser  Trp Ile Ser
    1025                1030                1035

Lys Thr  His Val Tyr Arg Phe  Val Pro Lys Leu Pro  Gly Asn Thr
```

1040 1045 1050

Asn Val Asn Tyr Arg Lys Ser Leu Glu Gly Thr Lys Asn Asn Met
1055 1060 1065

Asp Glu Asn Met Asp Glu Ser Asp Lys Arg Lys Cys Ser Arg Ser
1070 1075 1080

Pro Lys Lys Ile Lys Ile Glu Pro Asp Ser Glu Lys Asp Glu Val
1085 1090 1095

Lys Gly Ser Asp Ala Ala Lys Gly Ala Asp Gln Asn Glu Met Asp
1100 1105 1110

Ile Ser Lys Ile Thr Glu Lys Lys Asp Gln Asp Val Lys Glu Leu
1115 1120 1125

Leu Asp Ser Asp Ser Asp Lys Pro Cys Lys Glu Glu Pro Met Glu
1130 1135 1140

Val Asp Asp Asp Met Lys Thr Glu Ser His Val Asn Cys Gln Glu
1145 1150 1155

Ser Ser Gln Val Asp Val Val Asn Val Ser Glu Gly Phe His Leu
1160 1165 1170

Arg Thr Ser Tyr Lys Lys Lys Thr Lys Ser Ser Lys Leu Asp Gly
1175 1180 1185

Leu Leu Glu Arg Arg Ile Lys Gln Phe Thr Leu Glu Glu Lys Gln
1190 1195 1200

Arg Leu Glu Lys Ile Lys Leu Glu Gly Gly Ile Lys Gly Ile Gly
1205 1210 1215

Lys Thr Ser Thr Asn Ser Ser Lys Asn Leu Ser Glu Ser Pro Val
1220 1225 1230

Ile Thr Lys Ala Lys Glu Gly Cys Gln Ser Asp Ser Met Arg Gln
1235 1240 1245

Glu Gln Ser Pro Asn Ala Asn Asn Asp Gln Pro Glu Asp Leu Ile
1250 1255 1260

```
Gln Gly  Cys Ser Glu Ser Asp  Ser Ser Val Leu Arg  Met Ser Asp
    1265                1270                1275

Pro Ser  His Thr Thr Asn Lys  Leu Tyr Pro Lys Asp  Arg Val Leu
    1280                1285                1290

Asp Asp  Val Ser Ile Arg Ser  Pro Glu Thr Lys Cys  Pro Lys Gln
    1295                1300                1305

Asn Ser  Ile Glu Asn Asp Ile  Glu Glu Lys Val Ser  Asp Leu Ala
    1310                1315                1320

Ser Arg  Gly Gln Glu Pro Ser  Lys Ser Lys Thr Lys  Gly Asn Asp
    1325                1330                1335

Phe Phe  Ile Asp Asp Ser Lys  Leu Ala Ser Ala Asp  Asp Ile Gly
    1340                1345                1350

Thr Leu  Ile Cys Lys Asn Lys  Lys Pro Leu Ile Gln  Glu Glu Ser
    1355                1360                1365

Asp Thr  Ile Val Ser Ser Ser  Lys Ser Ala Leu His  Ser Ser Val
    1370                1375                1380

Pro Lys  Ser Thr Asn Asp Arg  Asp Ala Thr Pro Leu  Ser Arg Ala
    1385                1390                1395

Met Asp  Phe Glu Gly Lys Leu  Gly Cys Asp Ser Glu  Ser Asn Ser
    1400                1405                1410

Thr Leu  Glu Asn Ser Ser Asp  Thr Val Ser Ile Gln  Asp Ser Ser
    1415                1420                1425

Glu Glu  Asp Met Ile Val Gln  Asn Ser Asn Glu Ser  Ile Ser Glu
    1430                1435                1440

Gln Phe  Arg Thr Arg Glu Gln  Asp Val Glu Val Leu  Glu Pro Leu
    1445                1450                1455

Lys Cys  Glu Leu Val Ser Gly  Glu Ser Thr Gly Asn  Cys Glu Asp
    1460                1465                1470
```

```
Arg Leu  Pro Val Lys Gly Thr  Glu Ala Asn Gly Lys  Lys Pro Ser
    1475                1480                1485

Gln Gln  Lys Lys Leu Glu Glu  Arg Pro Val Asn Lys  Cys Ser Asp
    1490                1495                1500

Gln Ile  Lys Leu Lys Asn Thr  Thr Asp Lys Lys Asn  Asn Glu Asn
    1505                1510                1515

Arg Glu  Ser Glu Lys Lys Gly  Gln Arg Thr Ser Thr  Phe Gln Ile
    1520                1525                1530

Asn Gly  Lys Asp Asn Lys Pro  Lys Ile Tyr Leu Lys  Gly Glu Cys
    1535                1540                1545

Leu Lys  Glu Ile Ser Glu Ser  Arg Val Val Ser Gly  Asn Val Glu
    1550                1555                1560

Pro Lys  Val Asn Asn Ile Asn  Lys Ile Ile Pro Glu  Asn Asp Ile
    1565                1570                1575

Lys Ser  Leu Thr Val Lys Glu  Ser Ala Ile Arg Pro  Phe Ile Asn
    1580                1585                1590

Gly Asp  Val Ile Met Glu Asp  Phe Asn Glu Arg Asn  Ser Ser Glu
    1595                1600                1605

Thr Lys  Ser His Leu Leu Ser  Ser Ser Asp Ala Glu  Gly Asn Tyr
    1610                1615                1620

Arg Asp  Ser Leu Glu Thr Leu  Pro Ser Thr Lys Glu  Ser Asp Ser
    1625                1630                1635

Thr Gln  Thr Thr Thr Pro Ser  Ala Ser Cys Pro Glu  Ser Asn Ser
    1640                1645                1650

Val Asn  Gln Val Glu Asp Met  Glu Ile Glu Thr Ser  Glu Val Lys
    1655                1660                1665

Lys Val  Thr Ser Ser Pro Ile  Thr Ser Glu Glu Glu  Ser Asn Leu
    1670                1675                1680
```

```
Ser Asn  Asp Phe Ile Asp Glu  Asn Gly Leu Pro Ile  Asn Lys Asn
    1685                1690                1695

Glu Asn  Val Asn Gly Glu Ser  Lys Arg Lys Thr Val  Ile Thr Glu
    1700                1705                1710

Val Thr  Thr Met Thr Ser Thr  Val Ala Thr Glu Ser  Lys Thr Val
    1715                1720                1725

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

Glu Asn  Cys Ala Lys Ser Thr  Val Thr Thr Thr Thr  Thr Thr Val
    1745                1750                1755

Thr Lys  Leu Ser Thr Pro Ser  Thr Gly Gly Ser Val  Asp Ile Ile
    1760                1765                1770

Ser Val  Lys Glu Gln Ser Lys  Thr Val Val Thr Thr  Thr Val Thr
    1775                1780                1785

Asp Ser  Leu Thr Thr Thr Gly  Gly Thr Leu Val Thr  Ser Met Thr
    1790                1795                1800

Val Ser  Lys Glu Tyr Ser Thr  Arg Asp Lys Val Lys  Leu Met Lys
    1805                1810                1815

Phe Ser  Arg Pro Lys Lys Thr  Arg Ser Gly Thr Ala  Leu Pro Ser
    1820                1825                1830

Tyr Arg  Lys Phe Val Thr Lys  Ser Ser Lys Lys Ser  Ile Phe Val
    1835                1840                1845

Leu Pro  Asn Asp Asp Leu Lys  Lys Leu Ala Arg Lys  Gly Gly Ile
    1850                1855                1860

Arg Glu  Val Pro Tyr Phe Asn  Tyr Asn Ala Lys Pro  Ala Leu Asp
    1865                1870                1875

Ile Trp  Pro Tyr Pro Ser Pro  Arg Pro Thr Phe Gly  Ile Thr Trp
    1880                1885                1890

Arg Tyr  Arg Leu Gln Thr Val  Lys Ser Leu Ala Gly  Val Ser Leu
```

1895 1900 1905

Met Leu Arg Leu Leu Trp Ala Ser Leu Arg Trp Asp Asp Met Ala
1910 1915 1920

Ala Lys Ala Pro Pro Gly Gly Gly Thr Thr Arg Thr Glu Thr Ser
1925 1930 1935

Glu Thr Glu Ile Thr Thr Thr Glu Ile Ile Lys Arg Arg Asp Val
1940 1945 1950

Gly Pro Tyr Gly Ile Arg Ser Glu Tyr Cys Ile Arg Lys Ile Ile
1955 1960 1965

Cys Pro Ile Gly Val Pro Glu Thr Pro Lys Glu Thr Pro Thr Pro
1970 1975 1980

Gln Arg Lys Gly Leu Arg Ser Ser Ala Leu Arg Pro Lys Arg Pro
1985 1990 1995

Glu Thr Pro Lys Gln Thr Gly Pro Val Ile Ile Glu Thr Trp Val
2000 2005 2010

Ala Glu Glu Glu Leu Glu Leu Trp Glu Ile Arg Ala Phe Ala Glu
2015 2020 2025

Arg Val Glu Lys Glu Lys Ala Gln Ala Val Glu Gln Gln Ala Lys
2030 2035 2040

Lys Arg Leu Glu Gln Gln Lys Pro Thr Val Ile Ala Thr Ser Thr
2045 2050 2055

Thr Ser Pro Thr Ser Ser Thr Thr Ser Thr Ile Ser Pro Ala Gln
2060 2065 2070

Lys Val Met Val Ala Pro Ile Ser Gly Ser Val Thr Thr Gly Thr
2075 2080 2085

Lys Met Val Leu Thr Thr Lys Val Gly Ser Pro Ala Thr Val Thr
2090 2095 2100

Phe Gln Gln Asn Lys Asn Phe His Gln Thr Phe Ala Thr Trp Val
2105 2110 2115

```
Lys Gln  Gly Gln Ser Asn Ser  Gly Val Val Gln Val  Gln Gln Lys
    2120                2125                2130

Val Leu  Gly Ile Ile Pro Ser  Ser Thr Gly Thr Ser  Gln Gln Thr
    2135                2140                2145

Phe Thr  Ser Phe Gln Pro Arg  Thr Ala Thr Val Thr  Ile Arg Pro
    2150                2155                2160

Asn Thr  Ser Gly Ser Gly Gly  Thr Thr Ser Asn Ser  Gln Val Ile
    2165                2170                2175

Thr Gly  Pro Gln Ile Arg Pro  Gly Met Thr Val Ile  Arg Thr Pro
    2180                2185                2190

Leu Gln  Gln Ser Thr Leu Gly  Lys Ala Ile Ile Arg  Thr Pro Val
    2195                2200                2205

Met Val  Gln Pro Gly Ala Pro  Gln Gln Val Met Thr  Gln Ile Ile
    2210                2215                2220

Arg Gly  Gln Pro Val Ser Thr  Ala Val Ser Ala Pro  Asn Thr Val
    2225                2230                2235

Ser Ser  Thr Pro Gly Gln Lys  Ser Leu Thr Ser Ala  Thr Ser Thr
    2240                2245                2250

Ser Asn  Ile Gln Ser Ser Ala  Ser Gln Pro Pro Arg  Pro Gln Gln
    2255                2260                2265

Gly Gln  Val Lys Leu Thr Met  Ala Gln Leu Thr Gln  Leu Thr Gln
    2270                2275                2280

Gly His  Gly Gly Asn Gln Gly  Leu Thr Val Val Ile  Gln Gly Gln
    2285                2290                2295

Gly Gln  Thr Thr Gly Gln Leu  Gln Leu Ile Pro Gln  Gly Val Thr
    2300                2305                2310

Val Leu  Pro Gly Pro Gly Gln  Gln Leu Met Gln Ala  Ala Met Pro
    2315                2320                2325
```

```
Asn Gly  Thr Val Gln Arg Phe  Leu Phe Thr Pro Leu  Ala Thr Thr
    2330                2335                2340

Ala Thr  Thr Ala Ser Thr Thr  Thr Thr Thr Val Ser  Thr Thr Ala
    2345                2350                2355

Ala Gly  Thr Gly Glu Gln Arg  Gln Ser Lys Leu Ser  Pro Gln Met
    2360                2365                2370

Gln Val  His Gln Asp Lys Thr  Leu Pro Pro Ala Gln  Ser Ser Ser
    2375                2380                2385

Val Gly  Pro Ala Glu Ala Gln  Pro Gln Thr Ala Gln  Pro Ser Ala
    2390                2395                2400

Gln Pro  Gln Pro Gln Thr Gln  Pro Gln Ser Pro Ala  Gln Pro Glu
    2405                2410                2415

Val Gln  Thr Gln Pro Glu Val  Gln Thr Gln Thr Thr  Val Ser Ser
    2420                2425                2430

His Val  Pro Ser Glu Ala Gln  Pro Thr His Ala Gln  Ser Ser Lys
    2435                2440                2445

Pro Gln  Val Ala Ala Gln Ser  Gln Pro Gln Ser Asn  Val Gln Gly
    2450                2455                2460

Gln Ser  Pro Val Arg Val Gln  Ser Pro Ser Gln Thr  Arg Ile Arg
    2465                2470                2475

Pro Ser  Thr Pro Ser Gln Leu  Ser Pro Gly Gln Gln  Ser Gln Val
    2480                2485                2490

Gln Thr  Thr Thr Ser Gln Pro  Ile Pro Ile Gln Pro  His Thr Ser
    2495                2500                2505

Leu Gln  Ile Pro Ser Gln Gly  Gln Pro Gln Ser Gln  Pro Gln Val
    2510                2515                2520

Gln Ser  Ser Thr Gln Thr Leu  Ser Ser Gly Gln Thr  Leu Asn Gln
    2525                2530                2535
```

```
Val Thr  Val Ser Ser Pro Ser  Arg Pro Gln Leu Gln  Ile Gln Gln
    2540                2545                2550

Pro Gln  Pro Gln Val Ile Ala  Val Pro Gln Leu Gln  Gln Gln Val
    2555                2560                2565

Gln Val  Leu Ser Gln Ile Gln  Ser Gln Val Val Ala  Gln Ile Gln
    2570                2575                2580

Ala Gln  Gln Ser Gly Val Pro  Gln Gln Ile Lys Leu  Gln Leu Pro
    2585                2590                2595

Ile Gln  Ile Gln Gln Ser Ser  Ala Val Gln Thr His  Gln Ile Gln
    2600                2605                2610

Asn Val  Val Thr Val Gln Ala  Ala Ser Val Gln Glu  Gln Leu Gln
    2615                2620                2625

Arg Val  Gln Gln Leu Arg Asp  Gln Gln Gln Lys Lys  Lys Gln Gln
    2630                2635                2640

Gln Ile  Glu Ile Lys Arg Glu  His Thr Leu Gln Ala  Ser Asn Gln
    2645                2650                2655

Ser Glu  Ile Ile Gln Lys Gln  Val Val Met Lys His  Asn Ala Val
    2660                2665                2670

Ile Glu  His Leu Lys Gln Lys  Lys Ser Met Thr Pro  Ala Glu Arg
    2675                2680                2685

Glu Glu  Asn Gln Arg Met Ile  Val Cys Asn Gln Val  Met Lys Tyr
    2690                2695                2700

Ile Leu  Asp Lys Ile Asp Lys  Glu Glu Lys Gln Ala  Ala Lys Lys
    2705                2710                2715

Arg Lys  Arg Glu Glu Ser Val  Glu Gln Lys Arg Ser  Lys Gln Asn
    2720                2725                2730

Ala Thr  Lys Leu Ser Ala Leu  Leu Phe Lys His Lys  Glu Gln Leu
    2735                2740                2745

Arg Ala  Glu Ile Leu Lys Lys  Arg Ala Leu Leu Asp  Lys Asp Leu
```

2750 2755 2760

Gln Ile Glu Val Gln Glu Glu Leu Lys Arg Asp Leu Lys Ile Lys
2765 2770 2775

Lys Glu Lys Asp Leu Met Gln Leu Ala Gln Ala Thr Ala Val Ala
2780 2785 2790

Ala Pro Cys Pro Pro Val Thr Pro Ala Pro Pro Ala Pro Pro Ala
2795 2800 2805

Pro Pro Pro Ser Pro Pro Pro Pro Pro Ala Val Gln His Thr Gly
2810 2815 2820

Leu Leu Ser Thr Pro Thr Leu Pro Ala Ala Ser Gln Lys Arg Lys
2825 2830 2835

Arg Glu Glu Glu Lys Asp Ser Ser Ser Lys Ser Lys Lys Lys Lys
2840 2845 2850

Met Ile Ser Thr Thr Ser Lys Glu Thr Lys Lys Asp Thr Lys Leu
2855 2860 2865

Tyr Cys Ile Cys Lys Thr Pro Tyr Asp Glu Ser Lys Phe Tyr Ile
2870 2875 2880

Gly Cys Asp Arg Cys Gln Asn Trp Tyr His Gly Arg Cys Val Gly
2885 2890 2895

Ile Leu Gln Ser Glu Ala Glu Leu Ile Asp Glu Tyr Val Cys Pro
2900 2905 2910

Gln Cys Gln Ser Thr Glu Asp Ala Met Thr Val Leu Thr Pro Leu
2915 2920 2925

Thr Glu Lys Asp Tyr Glu Gly Leu Lys Arg Val Leu Arg Ser Leu
2930 2935 2940

Gln Ala His Lys Met Ala Trp Pro Phe Leu Glu Pro Val Asp Pro
2945 2950 2955

Asn Asp Ala Pro Asp Tyr Tyr Gly Val Ile Lys Glu Pro Met Asp
2960 2965 2970

```
Leu Ala  Thr Met Glu Glu Arg  Val Gln Arg Arg Tyr  Tyr Glu Lys
    2975                2980                2985

Leu Thr  Glu Phe Val Ala Asp  Met Thr Lys Ile Phe  Asp Asn Cys
    2990                2995                3000

Arg Tyr  Tyr Asn Pro Ser Asp  Ser Pro Phe Tyr Gln  Cys Ala Glu
    3005                3010                3015

Val Leu  Glu Ser Phe Phe Val  Gln Lys Leu Lys Gly  Phe Lys Ala
    3020                3025                3030

Ser Arg  Ser His Asn Asn Lys  Leu Gln Ser Thr Ala  Ser
    3035                3040                3045
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<210> 9879
<211> 810
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1987; "

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factor; "

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<400> 9879

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Met Val Ser Glu Glu Glu Glu Glu Glu Asp Gly Asp Ala Glu Glu Thr
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Gln Asp Ser Glu Asp Asp Glu Glu Asp Glu Met Glu Glu Asp Asp Asp
            20                  25                  30

Asp Ser Asp Tyr Pro Glu Glu Met Glu Asp Asp Asp Asp Asp Ala Ser
        35                  40                  45
```

```
Tyr Cys Thr Glu Ser Ser Phe Arg Ser His Ser Thr Tyr Ser Ser Thr
    50                  55                  60

Pro Gly Arg Arg Lys Pro Arg Val His Arg Pro Arg Ser Pro Ile Leu
65                  70                  75                  80

Glu Glu Lys Asp Ile Pro Pro Leu Glu Phe Pro Lys Ser Ser Glu Asp
                85                  90                  95

Leu Met Val Pro Asn Glu His Ile Met Asn Val Ile Ala Ile Tyr Glu
            100                 105                 110

Val Leu Arg Asn Phe Gly Thr Val Leu Arg Leu Ser Pro Phe Arg Phe
        115                 120                 125

Glu Asp Phe Cys Ala Ala Leu Val Ser Gln Glu Gln Cys Thr Leu Met
    130                 135                 140

Ala Glu Met His Val Val Leu Leu Lys Ala Val Leu Arg Glu Glu Asp
145                 150                 155                 160

Thr Ser Asn Thr Thr Phe Gly Pro Ala Asp Leu Lys Asp Ser Val Asn
                165                 170                 175

Ser Thr Leu Tyr Phe Ile Asp Gly Met Thr Trp Pro Glu Val Leu Arg
            180                 185                 190

Val Tyr Cys Glu Ser Asp Lys Glu Tyr His His Val Leu Pro Tyr Gln
        195                 200                 205

Glu Ala Glu Asp Tyr Pro Tyr Gly Pro Val Glu Asn Lys Ile Lys Val
    210                 215                 220

Leu Gln Phe Leu Val Asp Gln Phe Leu Thr Thr Asn Ile Ala Arg Glu
225                 230                 235                 240

Glu Leu Met Ser Glu Gly Val Ile Gln Tyr Asp Asp His Cys Arg Val
                245                 250                 255

Cys His Lys Leu Gly Asp Leu Leu Cys Cys Glu Thr Cys Ser Ala Val
            260                 265                 270
```

```
Tyr His Leu Glu Cys Val Lys Pro Pro Leu Glu Glu Val Pro Glu Asp
        275                 280                 285

Glu Trp Gln Cys Glu Val Cys Val Ala His Lys Val Pro Gly Val Thr
    290                 295                 300

Asp Cys Val Ala Glu Ile Gln Lys Asn Lys Pro Tyr Ile Arg His Glu
305                 310                 315                 320

Pro Ile Gly Tyr Asp Arg Ser Arg Arg Lys Tyr Trp Phe Leu Asn Arg
                325                 330                 335

Arg Leu Ile Ile Glu Glu Asp Thr Glu Asn Glu Asn Glu Lys Lys Ile
            340                 345                 350

Trp Tyr Tyr Ser Thr Lys Val Gln Leu Ala Glu Leu Ile Asp Cys Leu
        355                 360                 365

Asp Lys Asp Tyr Trp Glu Ala Glu Leu Cys Lys Ile Leu Glu Glu Met
    370                 375                 380

Arg Glu Glu Ile His Arg His Met Asp Ile Thr Glu Asp Leu Thr Asn
385                 390                 395                 400

Lys Ala Arg Gly Ser Asn Lys Ser Phe Leu Ala Ala Ala Asn Glu Glu
                405                 410                 415

Ile Leu Glu Ser Ile Arg Ala Lys Lys Gly Asp Ile Asp Asn Val Lys
            420                 425                 430

Ser Pro Glu Glu Thr Glu Lys Asp Lys Asn Glu Thr Glu Asn Asp Ser
        435                 440                 445

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

Lys Asp Ser Asp Asp Lys Thr Pro Asp Asp Asp Pro Glu Gln Gly Lys
465                 470                 475                 480

Ser Glu Glu Pro Thr Glu Val Gly Asp Lys Gly Asn Ser Val Ser Ala
                485                 490                 495

Asn Leu Gly Asp Asn Thr Thr Asn Ala Thr Ser Glu Glu Thr Ser Pro
```

```
            500                 505                 510

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

Ser Asn Met Ala Glu Lys Lys Val Ala Ser Glu Leu Pro Gln Asp Val
    530                 535                 540

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

Thr Thr Ser Ile Gln Pro Asn Leu Glu Asn Ser Asn Ser Ser Ser Glu
                565                 570                 575

Leu Asn Ser Ser Gln Ser Glu Ser Ala Lys Ala Ala Asp Asp Pro Glu
            580                 585                 590

Asn Gly Glu Arg Glu Ser His Thr Pro Val Ser Ile Gln Glu Glu Ile
        595                 600                 605

Val Gly Asp Phe Lys Ser Glu Lys Ser Asn Gly Glu Leu Ser Glu Ser
    610                 615                 620

Pro Gly Ala Gly Lys Gly Ala Ser Gly Ser Thr Arg Ile Ile Thr Arg
625                 630                 635                 640

Leu Arg Asn Pro Asp Ser Lys Leu Ser Gln Leu Lys Ser Gln Gln Val
                645                 650                 655

Ala Ala Ala Ala His Glu Ala Asn Lys Leu Phe Lys Glu Gly Lys Glu
            660                 665                 670

Val Leu Val Val Asn Ser Gln Gly Glu Ile Ser Arg Leu Ser Thr Lys
        675                 680                 685

Lys Glu Val Ile Met Lys Gly Asn Ile Asn Asn Tyr Phe Lys Leu Gly
    690                 695                 700

Gln Glu Gly Lys Tyr Arg Val Tyr His Asn Gln Tyr Ser Thr Asn Ser
705                 710                 715                 720

Phe Ala Leu Asn Lys His Gln His Arg Glu Asp His Asp Lys Arg Arg
                725                 730                 735
```

```
His Leu Ala His Lys Phe Cys Leu Thr Pro Ala Gly Glu Phe Lys Trp
            740                 745                 750

Asn Gly Ser Val His Gly Ser Lys Val Leu Thr Ile Ser Thr Leu Arg
        755                 760                 765

Leu Thr Ile Thr Gln Leu Glu Thr Thr Ser Leu His Pro Phe Phe Ile
    770                 775                 780

Pro Thr Gly His His Ile Gly Gln Ile Gly Ser Arg Gln Phe Arg Cys
785                 790                 795                 800

Val Ala Asn Pro Glu Asn Leu His Trp Leu
                805                 810


<210> 9880
<211> 650
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 9880
Xaa Thr Val Leu Pro Gly Pro Gly Gln Gln Leu Met Gln Ala Ala Met
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Pro Asn Gly Thr Val Gln Arg Phe Leu Phe Thr Pro Leu Ala Thr Thr
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```
            20                  25                  30

Ala Thr Thr Ala Ser Thr Thr Thr Thr Thr Val Ser Thr Thr Ala Ala
        35                  40                  45

Gly Thr Gly Glu Gln Arg Gln Ser Lys Leu Ser Pro Gln Met Gln Val
    50                  55                  60

His Gln Asp Lys Thr Leu Pro Pro Ala Gln Ser Ser Ser Val Gly Pro
65                  70                  75                  80

Ala Glu Ala Gln Pro Gln Thr Ala Gln Pro Ser Ala Gln Pro Gln Pro
                85                  90                  95

Gln Thr Gln Pro Gln Ser Pro Ala Gln Pro Glu Val Gln Thr Gln Pro
            100                 105                 110

Glu Val Gln Thr Gln Thr Thr Val Ser Ser His Val Pro Ser Glu Ala
        115                 120                 125

Gln Pro Thr His Ala Gln Ser Ser Lys Pro Gln Val Ala Ala Gln Ser
    130                 135                 140

Gln Pro Gln Ser Asn Val Gln Gly Gln Ser Pro Val Arg Val Gln Ser
145                 150                 155                 160

Pro Ser Gln Thr Arg Ile Arg Pro Ser Thr Pro Ser Gln Leu Ser Pro
                165                 170                 175

Gly Gln Gln Ser Gln Val Gln Thr Thr Thr Ser Gln Pro Ile Pro Ile
            180                 185                 190

Gln Pro His Thr Ser Leu Gln Ile Pro Ser Gln Gly Gln Pro Gln Ser
        195                 200                 205

Gln Pro Gln Val Val Met Lys His Asn Ala Val Ile Glu His Leu Lys
    210                 215                 220

Gln Lys Lys Ser Met Thr Pro Ala Glu Arg Glu Glu Asn Gln Arg Met
225                 230                 235                 240

Ile Val Cys Asn Gln Val Met Lys Tyr Ile Leu Asp Lys Ile Asp Lys
                245                 250                 255
```

```
Glu Glu Lys Gln Ala Ala Lys Lys Arg Lys Arg Glu Glu Ser Val Glu
            260                 265                 270

Gln Lys Arg Ser Lys Gln Asn Ala Thr Lys Leu Ser Ala Leu Leu Phe
        275                 280                 285

Lys His Lys Glu Gln Leu Arg Ala Glu Ile Leu Lys Lys Arg Ala Leu
    290                 295                 300

Leu Asp Lys Asp Leu Gln Ile Glu Val Gln Glu Glu Leu Lys Arg Asp
305                 310                 315                 320

Leu Lys Ile Lys Lys Glu Lys Asp Leu Met Gln Leu Ala Gln Ala Thr
                325                 330                 335

Ala Val Ala Ala Pro Cys Pro Pro Val Thr Pro Ala Pro Pro Ala Pro
            340                 345                 350

Pro Ala Pro Pro Pro Ser Pro Pro Pro Pro Pro Ala Val Gln His Thr
        355                 360                 365

Gly Leu Leu Ser Thr Pro Thr Leu Pro Ala Ala Ser Gln Lys Arg Lys
    370                 375                 380

Arg Glu Glu Glu Lys Asp Ser Ser Ser Lys Ser Lys Lys Lys Lys Met
385                 390                 395                 400

Ile Ser Thr Thr Ser Lys Glu Thr Lys Lys Asp Thr Lys Leu Tyr Cys
                405                 410                 415

Ile Cys Lys Thr Pro Tyr Asp Glu Ser Lys Phe Tyr Ile Gly Cys Asp
            420                 425                 430

Leu Cys Thr Asn Trp Tyr His Gly Glu Cys Val Gly Ile Thr Glu Lys
        435                 440                 445

Glu Ala Lys Lys Met Asp Val Tyr Ile Cys Asn Asp Cys Lys Arg Ala
    450                 455                 460

Gln Glu Gly Ser Ser Glu Glu Leu Tyr Cys Ile Cys Arg Thr Pro Tyr
465                 470                 475                 480
```

```
Asp Glu Ser Gln Phe Tyr Ile Gly Cys Asp Arg Cys Gln Asn Trp Tyr
                485                 490                 495

His Gly Arg Cys Val Gly Ile Leu Gln Ser Glu Ala Glu Leu Ile Asp
            500                 505                 510

Glu Tyr Val Cys Pro Gln Cys Gln Ser Thr Glu Asp Ala Met Thr Val
        515                 520                 525

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

Arg Ser Leu Gln Ala His Lys Met Ala Trp Pro Phe Leu Glu Pro Val
545                 550                 555                 560

Asp Pro Asn Asp Ala Pro Asp Tyr Tyr Gly Val Ile Lys Glu Pro Met
                565                 570                 575

Asp Leu Ala Thr Met Glu Glu Arg Val Gln Arg Arg Tyr Tyr Glu Lys
            580                 585                 590

Leu Thr Glu Phe Val Ala Asp Met Thr Lys Ile Phe Asp Asn Cys Arg
        595                 600                 605

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

Glu Ser Phe Phe Val Gln Lys Leu Lys Gly Phe Lys Ala Ser Arg Ser
625                 630                 635                 640

His Asn Asn Lys Leu Gln Ser Thr Ala Ser
                645                 650


<210> 9881
<211> 2764
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<400> 9881
Met Val Ser Glu Glu Glu Glu Glu Glu Asp Gly Asp Ala Glu Glu Thr
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Gln Asp Ser Glu Asp Asp Glu Glu Asp Glu Met Glu Glu Asp Asp Asp
20 25 30

Asp Ser Asp Tyr Pro Glu Glu Met Glu Asp Asp Asp Asp Asp Ala Ser
35 40 45

Tyr Cys Thr Glu Ser Ser Phe Arg Ser His Ser Thr Tyr Ser Ser Thr
50 55 60

Pro Gly Arg Arg Lys Pro Arg Val His Arg Pro Arg Ser Pro Ile Leu
65 70 75 80

Glu Glu Lys Asp Ile Pro Pro Leu Glu Phe Pro Lys Ser Ser Glu Asp
85 90 95

Leu Met Val Pro Asn Glu His Ile Met Asn Val Ile Ala Ile Tyr Glu
100 105 110

Val Leu Arg Asn Phe Gly Thr Val Leu Arg Leu Ser Pro Phe Arg Phe
115 120 125

Glu Asp Phe Cys Ala Ala Leu Val Ser Gln Glu Gln Cys Thr Leu Met
130 135 140

Ala Glu Met His Val Val Leu Leu Lys Ala Val Leu Arg Glu Glu Asp
145 150 155 160

Thr Ser Asn Thr Thr Phe Gly Pro Ala Asp Leu Lys Asp Ser Val Asn
165 170 175

Ser Thr Leu Tyr Phe Ile Asp Gly Met Thr Trp Pro Glu Val Leu Arg

```
            180                 185                 190

Val Tyr Cys Glu Ser Asp Lys Glu Tyr His His Val Leu Pro Tyr Gln
        195                 200                 205

Glu Ala Glu Asp Tyr Pro Tyr Gly Pro Val Glu Asn Lys Ile Lys Val
    210                 215                 220

Leu Gln Phe Leu Val Asp Gln Phe Leu Thr Thr Asn Ile Ala Arg Glu
225                 230                 235                 240

Glu Leu Met Ser Glu Gly Val Ile Gln Tyr Asp Asp His Cys Arg Val
                245                 250                 255

Cys His Lys Leu Gly Asp Leu Leu Cys Cys Glu Thr Cys Ser Ala Val
            260                 265                 270

Tyr His Leu Glu Cys Val Lys Pro Pro Leu Glu Glu Val Pro Glu Asp
        275                 280                 285

Glu Trp Gln Cys Glu Val Cys Val Ala His Lys Val Pro Gly Val Thr
    290                 295                 300

Asp Cys Val Ala Glu Ile Gln Lys Asn Lys Pro Tyr Ile Arg His Glu
305                 310                 315                 320

Pro Ile Gly Tyr Asp Arg Ser Arg Arg Lys Tyr Trp Phe Leu Asn Arg
                325                 330                 335

Arg Leu Ile Ile Glu Glu Asp Thr Glu Asn Glu Asn Glu Lys Lys Ile
            340                 345                 350

Trp Tyr Tyr Ser Thr Lys Val Gln Leu Ala Glu Leu Ile Asp Cys Leu
        355                 360                 365

Asp Lys Asp Tyr Trp Glu Ala Glu Leu Cys Lys Ile Leu Glu Glu Met
    370                 375                 380

Arg Glu Glu Ile His Arg His Met Asp Ile Thr Glu Asp Leu Thr Asn
385                 390                 395                 400

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

```
Ile Leu Glu Ser Ile Arg Ala Lys Lys Gly Asp Ile Asp Asn Val Lys
            420                 425                 430

Ser Pro Glu Glu Thr Glu Lys Asp Lys Asn Glu Thr Glu Asn Asp Ser
        435                 440                 445

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

Lys Asp Ser Asp Asp Lys Thr Pro Asp Asp Asp Pro Glu Gln Gly Lys
465                 470                 475                 480

Ser Glu Glu Pro Thr Glu Val Gly Asp Lys Gly Asn Ser Val Ser Ala
                485                 490                 495

Asn Leu Gly Asp Asn Thr Thr Asn Ala Thr Ser Glu Glu Thr Ser Pro
            500                 505                 510

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

Ser Asn Met Ala Glu Lys Lys Val Ala Ser Glu Leu Pro Gln Asp Val
    530                 535                 540

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

Thr Thr Ser Ile Gln Pro Asn Leu Glu Asn Ser Asn Ser Ser Ser Glu
                565                 570                 575

Leu Asn Ser Ser Gln Ser Glu Ser Ala Lys Ala Ala Asp Asp Pro Glu
            580                 585                 590

Asn Gly Glu Arg Glu Ser His Thr Pro Val Ser Ile Gln Glu Glu Ile
        595                 600                 605

Val Gly Asp Phe Lys Ser Glu Lys Ser Asn Gly Glu Leu Ser Glu Ser
    610                 615                 620

Pro Gly Ala Gly Lys Gly Ala Ser Gly Ser Thr Arg Ile Ile Thr Arg
625                 630                 635                 640
```

Leu Arg Asn Pro Asp Ser Lys Leu Ser Gln Leu Lys Ser Gln Gln Val
645 650 655

Ala Ala Ala Ala His Glu Ala Asn Lys Leu Phe Lys Glu Gly Lys Glu
660 665 670

Val Leu Val Val Asn Ser Gln Gly Glu Ile Ser Arg Leu Ser Thr Lys
675 680 685

Lys Glu Val Ile Met Lys Gly Asn Ile Asn Asn Tyr Phe Lys Leu Gly
690 695 700

Gln Glu Gly Lys Tyr Arg Val Tyr His Asn Gln Tyr Ser Thr Asn Ser
705 710 715 720

Phe Ala Leu Asn Lys His Gln His Arg Glu Asp His Asp Lys Arg Arg
725 730 735

His Leu Ala His Lys Phe Cys Leu Thr Pro Ala Gly Glu Phe Lys Trp
740 745 750

Asn Gly Ser Val His Gly Ser Lys Val Leu Thr Ile Ser Thr Leu Arg
755 760 765

Leu Thr Ile Thr Gln Leu Glu Asn Asn Ile Pro Ser Ser Phe Leu His
770 775 780

Pro Asn Trp Ala Ser His Arg Ala Asn Trp Ile Lys Ala Val Gln Met
785 790 795 800

Cys Ser Lys Pro Arg Glu Phe Ala Leu Ala Leu Ala Ile Leu Glu Cys
805 810 815

Ala Val Lys Pro Val Val Met Leu Pro Ile Trp Arg Glu Ser Leu Gly
820 825 830

His Thr Arg Leu His Arg Met Thr Ser Ile Glu Arg Glu Glu Lys Glu
835 840 845

Lys Val Lys Lys Lys Glu Lys Lys Gln Glu Glu Glu Glu Thr Met Gln
850 855 860

```
Gln Ala Thr Trp Val Lys Tyr Thr Phe Pro Val Lys His Gln Val Trp
865                 870                 875                 880

Lys Gln Lys Gly Glu Glu Tyr Arg Val Thr Gly Tyr Gly Gly Trp Ser
                885                 890                 895

Trp Ile Ser Lys Thr His Val Tyr Arg Phe Val Pro Lys Leu Pro Gly
            900                 905                 910

Asn Thr Asn Val Asn Tyr Arg Lys Ser Leu Glu Gly Thr Lys Asn Asn
        915                 920                 925

Met Asp Glu Asn Met Asp Glu Ser Asp Lys Arg Lys Cys Ser Arg Ser
    930                 935                 940

Pro Lys Lys Ile Lys Ile Glu Pro Asp Ser Glu Lys Asp Glu Val Lys
945                 950                 955                 960

Gly Ser Asp Ala Ala Lys Gly Ala Asp Gln Asn Glu Met Asp Ile Ser
                965                 970                 975

Lys Ile Thr Glu Lys Lys Asp Gln Asp Val Lys Glu Leu Leu Asp Ser
            980                 985                 990

Asp Ser Asp Lys Pro Cys Lys Glu  Glu Pro Met Glu Val  Asp Asp
Asp
        995                 1000                1005

Met Lys  Thr Glu Ser His Val  Asn Cys Gln Glu Ser  Ser Gln Val
    1010                1015                1020

Asp Val  Val Asn Val Ser Glu  Gly Phe His Leu Arg  Thr Ser Tyr
    1025                1030                1035

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

Arg Ile  Lys Gln Phe Thr Leu  Glu Glu Lys Gln Arg  Leu Glu Lys
    1055                1060                1065

Ile Lys  Leu Glu Gly Gly Ile  Lys Gly Ile Gly Lys  Thr Ser Thr
    1070                1075                1080
```

```
Asn Ser  Ser Lys Asn Leu Ser  Glu Ser Pro Val Ile  Thr Lys Ala
    1085                1090                1095

Lys Glu  Gly Cys Gln Ser Asp  Ser Met Arg Gln Glu  Gln Ser Pro
    1100                1105                1110

Asn Ala  Asn Asn Asp Gln Pro  Glu Asp Leu Ile Gln  Gly Cys Ser
    1115                1120                1125

Glu Ser  Asp Ser Ser Val Leu  Arg Met Ser Asp Pro  Ser His Thr
    1130                1135                1140

Thr Asn  Lys Leu Tyr Pro Lys  Asp Arg Val Leu Asp  Asp Val Ser
    1145                1150                1155

Ile Arg  Ser Pro Glu Thr Lys  Cys Pro Lys Gln Asn  Ser Ile Glu
    1160                1165                1170

Asn Asp  Ile Glu Glu Lys Val  Ser Asp Leu Ala Ser  Arg Gly Gln
    1175                1180                1185

Glu Pro  Ser Lys Ser Lys Thr  Lys Gly Asn Asp Phe  Phe Ile Asp
    1190                1195                1200

Asp Ser  Lys Leu Ala Ser Ala  Asp Asp Ile Gly Thr  Leu Ile Cys
    1205                1210                1215

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

Ser Ser  Ser Lys Ser Ala Leu  His Ser Ser Val Pro  Lys Ser Thr
    1235                1240                1245

Asn Asp  Arg Asp Ala Thr Pro  Leu Ser Arg Ala Met  Asp Phe Glu
    1250                1255                1260

Gly Lys  Leu Gly Cys Asp Ser  Glu Ser Asn Ser Thr  Leu Glu Asn
    1265                1270                1275

Ser Ser  Asp Thr Val Ser Ile  Gln Asp Ser Ser Glu  Glu Asp Met
    1280                1285                1290

Ile Val  Gln Asn Ser Asn Glu  Ser Ile Ser Glu Gln  Phe Arg Thr
```

1295 1300 1305

Arg Glu Gln Asp Val Glu Val Leu Glu Pro Leu Lys Cys Glu Leu
1310 1315 1320

Val Ser Gly Glu Ser Thr Gly Asn Cys Glu Asp Arg Leu Pro Val
1325 1330 1335

Lys Gly Thr Glu Ala Asn Gly Lys Lys Pro Ser Gln Gln Lys Lys
1340 1345 1350

Leu Glu Glu Arg Pro Val Asn Lys Cys Ser Asp Gln Ile Lys Leu
1355 1360 1365

Lys Asn Thr Thr Asp Lys Lys Asn Asn Glu Asn Arg Glu Ser Glu
1370 1375 1380

Lys Lys Gly Gln Arg Thr Ser Thr Phe Gln Ile Asn Gly Lys Asp
1385 1390 1395

Asn Lys Pro Lys Ile Tyr Leu Lys Gly Glu Cys Leu Lys Glu Ile
1400 1405 1410

Ser Glu Ser Arg Val Val Ser Gly Asn Val Glu Pro Lys Val Asn
1415 1420 1425

Asn Ile Asn Lys Ile Ile Pro Glu Asn Asp Ile Lys Ser Leu Thr
1430 1435 1440

Val Lys Glu Ser Ala Ile Arg Pro Phe Ile Asn Gly Asp Val Ile
1445 1450 1455

Met Glu Asp Phe Asn Glu Arg Asn Ser Ser Glu Thr Lys Ser His
1460 1465 1470

Leu Leu Ser Ser Ser Asp Ala Glu Gly Asn Tyr Arg Asp Ser Leu
1475 1480 1485

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

Thr Pro Ser Ala Ser Cys Pro Glu Ser Asn Ser Val Asn Gln Val
1505 1510 1515

```
Glu Asp  Met Glu Ile Glu Thr  Ser Glu Val Lys Lys  Val Thr Ser
    1520                1525                1530

Ser Pro  Ile Thr Ser Glu Glu  Glu Ser Asn Leu Ser  Asn Asp Phe
    1535                1540                1545

Ile Asp  Glu Asn Gly Leu Pro  Ile Asn Lys Asn Glu  Asn Val Asn
    1550                1555                1560

Gly Glu  Ser Lys Arg Lys Thr  Val Ile Thr Glu Val  Thr Thr Met
    1565                1570                1575

Thr Ser  Thr Val Ala Thr Glu  Ser Lys Thr Val Ile  Lys Val Glu
    1580                1585                1590

Lys Gly  Asp Lys Gln Thr Val  Val Ser Ser Thr Glu  Asn Cys Ala
    1595                1600                1605

Lys Ser  Thr Val Thr Thr Thr  Thr Thr Thr Val Thr  Lys Leu Ser
    1610                1615                1620

Thr Pro  Ser Thr Gly Gly Ser  Val Asp Ile Ile Ser  Val Lys Glu
    1625                1630                1635

Gln Ser  Lys Thr Val Val Thr  Thr Thr Val Thr Asp  Ser Leu Thr
    1640                1645                1650

Thr Thr  Gly Gly Thr Leu Val  Thr Ser Met Thr Val  Ser Lys Glu
    1655                1660                1665

Tyr Ser  Thr Arg Asp Lys Val  Lys Leu Met Lys Phe  Ser Arg Pro
    1670                1675                1680

Lys Lys  Thr Arg Ser Gly Thr  Ala Leu Pro Ser Tyr  Arg Lys Phe
    1685                1690                1695

Val Thr  Lys Ser Ser Lys Lys  Ser Ile Phe Val Leu  Pro Asn Asp
    1700                1705                1710

Asp Leu  Lys Lys Leu Ala Arg  Lys Gly Gly Ile Arg  Glu Val Pro
    1715                1720                1725
```

```
Tyr Phe  Asn Tyr Asn Ala Lys  Pro Ala Leu Asp Ile  Trp Pro Tyr
    1730                1735                1740

Pro Ser  Pro Arg Pro Thr Phe  Gly Ile Thr Trp Arg  Tyr Arg Leu
    1745                1750                1755

Gln Thr  Val Lys Ser Leu Ala  Gly Val Ser Leu Met  Leu Arg Leu
    1760                1765                1770

Leu Trp  Ala Ser Leu Arg Trp  Asp Asp Met Ala Ala  Lys Ala Pro
    1775                1780                1785

Pro Gly  Gly Gly Thr Thr Arg  Thr Glu Thr Ser Glu  Thr Glu Ile
    1790                1795                1800

Thr Thr  Thr Glu Ile Ile Lys  Arg Arg Asp Val Gly  Pro Tyr Gly
    1805                1810                1815

Ile Arg  Ser Glu Tyr Cys Ile  Arg Lys Ile Ile Cys  Pro Ile Gly
    1820                1825                1830

Val Pro  Glu Thr Pro Lys Glu  Thr Pro Thr Pro Gln  Arg Lys Gly
    1835                1840                1845

Leu Arg  Ser Ser Ala Leu Arg  Pro Lys Arg Pro Glu  Thr Pro Lys
    1850                1855                1860

Gln Thr  Gly Pro Val Ile Ile  Glu Thr Trp Val Ala  Glu Glu Glu
    1865                1870                1875

Leu Glu  Leu Trp Glu Ile Arg  Ala Phe Ala Glu Arg  Val Glu Lys
    1880                1885                1890

Glu Lys  Ala Gln Ala Val Glu  Gln Gln Ala Lys Lys  Arg Leu Glu
    1895                1900                1905

Gln Gln  Lys Pro Thr Val Ile  Ala Thr Ser Thr Thr  Ser Pro Thr
    1910                1915                1920

Ser Ser  Thr Thr Ser Thr Ile  Ser Pro Ala Gln Lys  Val Met Val
    1925                1930                1935
```

Ala Pro Ile Ser Gly Ser Val Thr Thr Gly Thr Lys Met Val Leu
1940 1945 1950

Thr Thr Lys Val Gly Ser Pro Ala Thr Val Thr Phe Gln Gln Asn
1955 1960 1965

Lys Asn Phe His Gln Thr Phe Ala Thr Trp Val Lys Gln Gly Gln
1970 1975 1980

Ser Asn Ser Gly Val Val Gln Val Gln Gln Lys Val Leu Gly Ile
1985 1990 1995

Ile Pro Ser Ser Thr Gly Thr Ser Gln Gln Thr Phe Thr Ser Phe
2000 2005 2010

Gln Pro Arg Thr Ala Thr Val Thr Ile Arg Pro Asn Thr Ser Gly
2015 2020 2025

Ser Gly Gly Thr Thr Ser Asn Ser Gln Val Ile Thr Gly Pro Gln
2030 2035 2040

Ile Arg Pro Gly Met Thr Val Ile Arg Thr Pro Leu Gln Gln Ser
2045 2050 2055

Thr Leu Gly Lys Ala Ile Ile Arg Thr Pro Val Met Val Gln Pro
2060 2065 2070

Gly Ala Pro Gln Gln Val Met Thr Gln Ile Ile Arg Gly Gln Pro
2075 2080 2085

Val Ser Thr Ala Val Ser Ala Pro Asn Thr Val Ser Ser Thr Pro
2090 2095 2100

Gly Gln Lys Ser Leu Thr Ser Ala Thr Ser Thr Ser Asn Ile Gln
2105 2110 2115

Ser Ser Ala Ser Gln Pro Pro Arg Pro Gln Gln Gly Gln Val Lys
2120 2125 2130

Leu Thr Met Ala Gln Leu Thr Gln Leu Thr Gln Gly His Gly Gly
2135 2140 2145

Asn Gln Gly Leu Thr Val Val Ile Gln Gly Gln Gly Gln Thr Thr

2150 2155 2160

Gly Gln Leu Gln Leu Ile Pro Gln Gly Val Thr Val Leu Pro Gly
2165 2170 2175

Pro Gly Gln Gln Leu Met Gln Ala Ala Met Pro Asn Gly Thr Val
2180 2185 2190

Gln Arg Phe Leu Phe Thr Pro Leu Ala Thr Thr Ala Thr Thr Ala
2195 2200 2205

Ser Thr Thr Thr Thr Thr Val Ser Thr Thr Ala Ala Gly Thr Gly
2210 2215 2220

Glu Gln Arg Gln Ser Lys Leu Ser Pro Gln Met Gln Val His Gln
2225 2230 2235

Asp Lys Thr Leu Pro Pro Ala Gln Ser Ser Ser Val Gly Pro Ala
2240 2245 2250

Glu Ala Gln Pro Gln Thr Ala Gln Pro Ser Ala Gln Pro Gln Pro
2255 2260 2265

Gln Thr Gln Pro Gln Ser Pro Ala Gln Pro Glu Val Gln Thr Gln
2270 2275 2280

Pro Glu Val Gln Thr Gln Thr Thr Val Ser Ser His Val Pro Ser
2285 2290 2295

Glu Ala Gln Pro Thr His Ala Gln Ser Ser Lys Pro Gln Val Ala
2300 2305 2310

Ala Gln Ser Gln Pro Gln Ser Asn Val Gln Gly Gln Ser Pro Val
2315 2320 2325

Arg Val Gln Ser Pro Ser Gln Thr Arg Ile Arg Pro Ser Thr Pro
2330 2335 2340

Ser Gln Leu Ser Pro Gly Gln Gln Ser Gln Val Gln Thr Thr Thr
2345 2350 2355

Ser Gln Pro Ile Pro Ile Gln Pro His Thr Ser Leu Gln Ile Pro
2360 2365 2370

```
Ser Gln  Gly Gln Pro Gln Ser  Gln Pro Gln Val Val  Met Lys His
    2375                 2380                 2385

Asn Ala  Val Ile Glu His Leu  Lys Gln Lys Lys Ser  Met Thr Pro
    2390                 2395                 2400

Ala Glu  Arg Glu Glu Asn Gln  Arg Met Ile Val Cys  Asn Gln Val
    2405                 2410                 2415

Met Lys  Tyr Ile Leu Asp Lys  Ile Asp Lys Glu Glu  Lys Gln Ala
    2420                 2425                 2430

Ala Lys  Lys Arg Lys Arg Glu  Glu Ser Val Glu Gln  Lys Arg Ser
    2435                 2440                 2445

Lys Gln  Asn Ala Thr Lys Leu  Ser Ala Leu Leu Phe  Lys His Lys
    2450                 2455                 2460

Glu Gln  Leu Arg Ala Glu Ile  Leu Lys Lys Arg Ala  Leu Leu Asp
    2465                 2470                 2475

Lys Asp  Leu Gln Ile Glu Val  Gln Glu Glu Leu Lys  Arg Asp Leu
    2480                 2485                 2490

Lys Ile  Lys Lys Glu Lys Asp  Leu Met Gln Leu Ala  Gln Ala Thr
    2495                 2500                 2505

Ala Val  Ala Ala Pro Cys Pro  Pro Val Thr Pro Ala  Pro Pro Ala
    2510                 2515                 2520

Pro Pro  Ala Pro Pro Pro Ser  Pro Pro Pro Pro Pro  Ala Val Gln
    2525                 2530                 2535

His Thr  Gly Leu Leu Ser Thr  Pro Thr Leu Pro Ala  Ala Ser Gln
    2540                 2545                 2550

Lys Arg  Lys Arg Glu Glu Glu  Lys Asp Ser Ser Ser  Lys Ser Lys
    2555                 2560                 2565

Lys Lys  Lys Met Ile Ser Thr  Thr Ser Lys Glu Thr  Lys Lys Asp
    2570                 2575                 2580
```

Thr Lys Leu Tyr Cys Ile Cys Lys Thr Pro Tyr Asp Glu Ser Lys
2585 2590 2595

Phe Tyr Ile Gly Cys Asp Arg Cys Gln Asn Trp Tyr His Gly Arg
2600 2605 2610

Cys Val Gly Ile Leu Gln Ser Glu Ala Glu Leu Ile Asp Glu Tyr
2615 2620 2625

Val Cys Pro Gln Cys Gln Ser Thr Glu Asp Ala Met Thr Val Leu
2630 2635 2640

Thr Pro Leu Thr Glu Lys Asp Tyr Glu Gly Leu Lys Arg Val Leu
2645 2650 2655

Arg Ser Leu Gln Ala His Lys Met Ala Trp Pro Phe Leu Glu Pro
2660 2665 2670

Val Asp Pro Asn Asp Ala Pro Asp Tyr Tyr Gly Val Ile Lys Glu
2675 2680 2685

Pro Met Asp Leu Ala Thr Met Glu Glu Arg Val Gln Arg Arg Tyr
2690 2695 2700

Tyr Glu Lys Leu Thr Glu Phe Val Ala Asp Met Thr Lys Ile Phe
2705 2710 2715

Asp Asn Cys Arg Tyr Tyr Asn Pro Ser Asp Ser Pro Phe Tyr Gln
2720 2725 2730

Cys Ala Glu Val Leu Glu Ser Phe Phe Val Gln Lys Leu Lys Gly
2735 2740 2745

Phe Lys Ala Ser Arg Ser His Asn Asn Lys Leu Gln Ser Thr Ala
2750 2755 2760

Ser

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Ser Gly Pro Ile Gly Gly Leu Arg Ser Arg His Arg Gly Ser Ser Arg
35 40 45

Gly Arg Trp Ala Ala Ala Gln Ala Glu Val Ala Pro Lys Thr Arg Leu
50 55 60

Ser Ser Pro Arg Gly Gly Ser Ser Ser Arg Arg Lys Pro Pro Pro Pro
65 70 75 80

Pro Pro Ala Pro Pro Ser Thr Ser Ala Pro Gly Arg Gly Gly Arg Gly
85 90 95

Gly Gly Gly Gly Arg Thr Gly Gly Gly Gly Gly Gly Gly His Leu Ala
100 105 110

Arg Thr Thr Ala Ala Arg Arg Ala Val Asn Lys Val Val Tyr Asp Asp
115 120 125

His Glu Ser Glu Glu Glu Glu Glu Glu Glu Asp Met Val Ser Glu Glu
130 135 140

Glu Glu Glu Glu Asp Gly Asp Ala Glu Glu Thr Gln Asp Ser Glu Asp

145 150 155 160

Asp Glu Glu Asp Glu Met Glu Glu Asp Asp Asp Asp Ser Asp Tyr Pro
165 170 175

Glu Glu Met Glu Asp Asp Asp Asp Asp Ala Ser Tyr Cys Thr Glu Ser
180 185 190

Ser Phe Arg Ser His Ser Thr Tyr Ser Ser Thr Pro Gly Arg Arg Lys
195 200 205

Pro Arg Val His Arg Pro Arg Ser Pro Ile Leu Glu Glu Lys Asp Ile
210 215 220

Pro Pro Leu Glu Phe Pro Lys Ser Ser Glu Asp Leu Met Val Pro Asn
225 230 235 240

Glu His Ile Met Asn Val Ile Ala Ile Tyr Glu Val Leu Arg Asn Phe
245 250 255

Gly Thr Val Leu Arg Leu Ser Pro Phe Arg Phe Glu Asp Phe Cys Ala
260 265 270

Ala Leu Val Ser Gln Glu Gln Cys Thr Leu Met Ala Glu Met His Val
275 280 285

Val Leu Leu Lys Ala Val Leu Arg Glu Glu Asp Thr Ser Asn Thr Thr
290 295 300

Phe Gly Pro Ala Asp Leu Lys Asp Ser Val Asn Ser Thr Leu Tyr Phe
305 310 315 320

Ile Asp Gly Met Thr Trp Pro Glu Val Leu Arg Val Tyr Cys Glu Ser
325 330 335

Asp Lys Glu Tyr His His Val Leu Pro Tyr Gln Glu Ala Glu Asp Tyr
340 345 350

Pro Tyr Gly Pro Val Glu Asn Lys Ile Lys Val Leu Gln Phe Leu Val
355 360 365

Asp Gln Phe Leu Thr Thr Asn Ile Ala Arg Glu Glu Leu Met Ser Glu
370 375 380

Gly Val Ile Gln Tyr Asp Asp His Cys Arg Val Cys His Lys Leu Gly
385 390 395 400

Asp Leu Leu Cys Cys Glu Thr Cys Ser Ala Val Tyr His Leu Glu Cys
405 410 415

Val Lys Pro Pro Leu Glu Glu Val Pro Glu Asp Glu Trp Gln Cys Glu
420 425 430

Val Cys Val Ala His Lys Val Pro Gly Val Thr Asp Cys Val Ala Glu
435 440 445

Ile Gln Lys Asn Lys Pro Tyr Ile Arg His Glu Pro Ile Gly Tyr Asp
450 455 460

Arg Ser Arg Arg Lys Tyr Trp Phe Leu Asn Arg Arg Leu Ile Ile Glu
465 470 475 480

Glu Asp Thr Glu Asn Glu Asn Glu Lys Lys Ile Trp Tyr Tyr Ser Thr
485 490 495

Lys Val Gln Leu Ala Glu Leu Ile Asp Cys Leu Asp Lys Asp Tyr Trp
500 505 510

Glu Ala Glu Leu Cys Lys Ile Leu Glu Glu Met Arg Glu Glu Ile His
515 520 525

Arg His Met Asp Ile Thr Glu Asp Leu Thr Asn Lys Ala Arg Gly Ser
530 535 540

Asn Lys Ser Phe Leu Ala Ala Ala Asn Glu Glu Ile Leu Glu Ser Ile
545 550 555 560

Arg Ala Lys Lys Gly Asp Ile Asp Asn Val Lys Ser Pro Glu Glu Thr
565 570 575

Glu Lys Asp Lys Asn Glu Thr Glu Asn Asp Ser Lys Asp Ala Glu Lys
580 585 590

Asn Arg Glu Glu Phe Glu Asp Gln Ser Leu Glu Lys Asp Ser Asp Asp
595 600 605

```
Lys Thr Pro Asp Asp Asp Pro Glu Gln Gly Lys Ser Glu Glu Pro Thr
    610                 615                 620

Glu Val Gly Asp Lys Gly Asn Ser Val Ser Ala Asn Leu Gly Asp Asn
625                 630                 635                 640

Thr Thr Asn Ala Thr Ser Glu Glu Thr Ser Pro Ser Glu Gly Arg Ser
                645                 650                 655

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

Lys Lys Val Ala Ser Glu Leu Pro Gln Asp Val Pro Val Gly Asp Phe
        675                 680                 685

Lys Ser Glu Lys Ser Asn Gly Glu Leu Ser Glu Ser Pro Gly Ala Gly
    690                 695                 700

Lys Gly Ala Ser Gly Ser Thr Arg Ile Ile Thr Arg Leu Arg Asn Pro
705                 710                 715                 720

Asp Ser Lys Leu Ser Gln Leu Lys Ser Gln Gln Val Ala Ala Ala Ala
                725                 730                 735

His Glu Ala Asn Lys Leu Phe Lys Glu Gly Lys Glu Val Leu Val Val
            740                 745                 750

Asn Ser Gln Gly Glu Ile Ser Arg Leu Ser Thr Lys Lys Glu Val Ile
        755                 760                 765

Met Lys Gly Asn Ile Asn Asn Tyr Phe Lys Leu Gly Gln Glu Gly Lys
    770                 775                 780

Tyr Arg Val Tyr His Asn Gln Tyr Ser Thr Asn Ser Phe Ala Leu Asn
785                 790                 795                 800

Lys His Gln His Arg Glu Asp His Asp Lys Arg Arg His Leu Ala His
                805                 810                 815

Lys Phe Cys Leu Thr Pro Ala Gly Glu Phe Lys Trp Asn Gly Ser Val
            820                 825                 830
```

```
His Gly Ser Lys Val Leu Thr Ile Ser Thr Leu Arg Leu Thr Ile Thr
        835                 840                 845

Gln Leu Glu Asn Asn Ile Pro Ser Ser Phe Leu His Pro Asn Trp Ala
    850                 855                 860

Ser His Arg Ala Asn Trp Ile Lys Ala Val Gln Met Cys Ser Lys Pro
865                 870                 875                 880

Arg Glu Phe Ala Leu Ala Leu Ala Ile Leu Glu Cys Ala Val Lys Pro
                885                 890                 895

Val Val Met Leu Pro Ile Trp Arg Glu Ser Leu Gly His Thr Arg Leu
            900                 905                 910

His Arg Met Thr Ser Ile Glu Arg Glu Glu Lys Glu Lys Val Lys Lys
        915                 920                 925

Lys Glu Lys Lys Gln Glu Glu Glu Glu Thr Met Gln Gln Ala Thr Trp
    930                 935                 940

Val Lys Tyr Thr Phe Pro Val Lys His Gln Val Trp Lys Gln Lys Gly
945                 950                 955                 960

Glu Glu Tyr Arg Val Thr Gly Tyr Gly Gly Trp Ser Trp Ile Ser Lys
                965                 970                 975

Thr His Val Tyr Arg Phe Val Pro Lys Leu Pro Gly Asn Thr Asn Val
            980                 985                 990

Asn Tyr Arg Lys Ser Leu Glu Gly  Thr Lys Asn Asn Met  Asp Glu
Asn
        995                 1000                1005

Met Asp  Glu Ser Asp Lys Arg  Lys Cys Ser Arg Ser  Pro Lys Lys
    1010                1015                1020

Ile Lys  Ile Glu Pro Asp Ser  Glu Lys Asp Glu Val  Lys Gly Ser
    1025                1030                1035

Asp Ala  Ala Lys Gly Ala Asp  Gln Asn Glu Met Asp  Ile Ser Lys
    1040                1045                1050
```

Ile Thr Glu Lys Lys Asp Gln Asp Val Lys Glu Leu Leu Asp Ser
1055 1060 1065

Asp Ser Asp Lys Pro Cys Lys Glu Glu Pro Met Glu Val Asp Asp
1070 1075 1080

Asp Met Lys Thr Glu Ser His Val Asn Cys Gln Glu Ser Ser Gln
1085 1090 1095

Val Asp Val Val Asn Val Ser Glu Gly Phe His Leu Arg Thr Ser
1100 1105 1110

Tyr Lys Lys Lys Thr Lys Ser Ser Lys Leu Asp Gly Leu Leu Glu
1115 1120 1125

Arg Arg Ile Lys Gln Phe Thr Leu Glu Glu Lys Gln Arg Leu Glu
1130 1135 1140

Lys Ile Lys Leu Glu Gly Gly Ile Lys Gly Ile Gly Lys Thr Ser
1145 1150 1155

Thr Asn Ser Ser Lys Asn Leu Ser Glu Ser Pro Val Ile Thr Lys
1160 1165 1170

Ala Lys Glu Gly Cys Gln Ser Asp Ser Met Arg Gln Glu Gln Ser
1175 1180 1185

Pro Asn Ala Asn Asn Asp Gln Pro Glu Asp Leu Ile Gln Gly Cys
1190 1195 1200

Ser Glu Ser Asp Ser Ser Val Leu Arg Met Ser Asp Pro Ser His
1205 1210 1215

Thr Thr Asn Lys Leu Tyr Pro Lys Asp Arg Val Leu Asp Asp Val
1220 1225 1230

Ser Ile Arg Ser Pro Glu Thr Lys Cys Pro Lys Gln Asn Ser Ile
1235 1240 1245

Glu Asn Asp Ile Glu Glu Lys Val Ser Asp Leu Ala Ser Arg Gly
1250 1255 1260

Gln Glu Pro Ser Lys Ser Lys Thr Lys Gly Asn Asp Phe Phe Ile

1265 1270 1275

Asp Asp Ser Lys Leu Ala Ser Ala Asp Asp Ile Gly Thr Leu Ile
1280 1285 1290

Cys Lys Asn Lys Lys Pro Leu Ile Gln Glu Glu Ser Asp Thr Ile
1295 1300 1305

Val Ser Ser Ser Lys Ser Ala Leu His Ser Ser Val Pro Lys Ser
1310 1315 1320

Thr Asn Asp Arg Asp Ala Thr Pro Leu Ser Arg Ala Met Asp Phe
1325 1330 1335

Glu Gly Lys Leu Gly Cys Asp Ser Glu Ser Asn Ser Thr Leu Glu
1340 1345 1350

Asn Ser Ser Asp Thr Val Ser Ile Gln Asp Ser Ser Glu Glu Asp
1355 1360 1365

Met Ile Val Gln Asn Ser Asn Glu Ser Ile Ser Glu Gln Phe Arg
1370 1375 1380

Thr Arg Glu Gln Asp Val Glu Val Leu Glu Pro Leu Lys Cys Glu
1385 1390 1395

Leu Val Ser Gly Glu Ser Thr Gly Asn Cys Glu Asp Arg Leu Pro
1400 1405 1410

Val Lys Gly Thr Glu Ala Asn Gly Lys Lys Pro Ser Gln Gln Lys
1415 1420 1425

Lys Leu Glu Glu Arg Pro Val Asn Lys Cys Ser Asp Gln Ile Lys
1430 1435 1440

Leu Lys Asn Thr Thr Asp Lys Lys Asn Asn Glu Asn Arg Glu Ser
1445 1450 1455

Glu Lys Lys Gly Gln Arg Thr Ser Thr Phe Gln Ile Asn Gly Lys
1460 1465 1470

Asp Asn Lys Pro Lys Ile Tyr Leu Lys Gly Glu Cys Leu Lys Glu
1475 1480 1485

```
Ile Ser  Glu Ser Arg Val Val  Ser Gly Asn Val Glu  Pro Lys Val
    1490                 1495                 1500

Asn Asn  Ile Asn Lys Ile Ile  Pro Glu Asn Asp Ile  Lys Ser Leu
    1505                 1510                 1515

Thr Val  Lys Glu Ser Ala Ile  Arg Pro Phe Ile Asn  Gly Asp Val
    1520                 1525                 1530

Ile Met  Glu Asp Phe Asn Glu  Arg Asn Ser Ser Glu  Thr Lys Ser
    1535                 1540                 1545

His Leu  Leu Ser Ser Ser Asp  Ala Glu Gly Asn Tyr  Arg Asp Ser
    1550                 1555                 1560

Leu Glu  Thr Leu Pro Ser Thr  Lys Glu Ser Asp Ser  Thr Gln Thr
    1565                 1570                 1575

Thr Thr  Pro Ser Ala Ser Cys  Pro Glu Ser Asn Ser  Val Asn Gln
    1580                 1585                 1590

Val Glu  Asp Met Glu Ile Glu  Thr Ser Glu Val Lys  Lys Val Thr
    1595                 1600                 1605

Ser Ser  Pro Ile Thr Ser Glu  Glu Glu Ser Asn Leu  Ser Asn Asp
    1610                 1615                 1620

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

Asn Gly  Glu Ser Lys Arg Lys  Thr Val Ile Thr Glu  Val Thr Thr
    1640                 1645                 1650

Met Thr  Ser Thr Val Ala Thr  Glu Ser Lys Thr Val  Ile Lys Val
    1655                 1660                 1665

Glu Lys  Gly Asp Lys Gln Thr  Val Val Ser Ser Thr  Glu Asn Cys
    1670                 1675                 1680

Ala Lys  Ser Thr Val Thr Thr  Thr Thr Thr Thr Val  Thr Lys Leu
    1685                 1690                 1695
```

```
Ser Thr  Pro Ser Thr Gly Gly  Ser Val Asp Ile Ile  Ser Val Lys
    1700                1705                1710

Glu Gln  Ser Lys Thr Val Val  Thr Thr Thr Val Thr  Asp Ser Leu
    1715                1720                1725

Thr Thr  Thr Gly Gly Thr Leu  Val Thr Ser Met Thr  Val Ser Lys
    1730                1735                1740

Glu Tyr  Ser Thr Arg Asp Lys  Val Lys Leu Met Lys  Phe Ser Arg
    1745                1750                1755

Pro Lys  Lys Thr Arg Ser Gly  Thr Ala Leu Pro Ser  Tyr Arg Lys
    1760                1765                1770

Phe Val  Thr Lys Ser Ser Lys  Lys Ser Ile Phe Val  Leu Pro Asn
    1775                1780                1785

Asp Asp  Leu Lys Lys Leu Ala  Arg Lys Gly Gly Ile  Arg Glu Val
    1790                1795                1800

Pro Tyr  Phe Asn Tyr Asn Ala  Lys Pro Ala Leu Asp  Ile Trp Pro
    1805                1810                1815

Tyr Pro  Ser Pro Arg Pro Thr  Phe Gly Ile Thr Trp  Arg Tyr Arg
    1820                1825                1830

Leu Gln  Thr Val Lys Ser Leu  Ala Gly Val Ser Leu  Met Leu Arg
    1835                1840                1845

Leu Leu  Trp Ala Ser Leu Arg  Trp Asp Asp Met Ala  Ala Lys Ala
    1850                1855                1860

Pro Pro  Gly Gly Gly Thr Thr  Arg Thr Glu Thr Ser  Glu Thr Glu
    1865                1870                1875

Ile Thr  Thr Thr Glu Ile Ile  Lys Arg Arg Asp Val  Gly Pro Tyr
    1880                1885                1890

Gly Ile  Arg Ser Glu Tyr Cys  Ile Arg Lys Ile Ile  Cys Pro Ile
    1895                1900                1905
```

Gly Val Pro Glu Thr Pro Lys Glu Thr Pro Thr Pro Gln Arg Lys
1910 1915 1920

Gly Leu Arg Ser Ser Ala Leu Arg Pro Lys Arg Pro Glu Thr Pro
1925 1930 1935

Lys Gln Thr Gly Pro Val Ile Ile Glu Thr Trp Val Ala Glu Glu
1940 1945 1950

Glu Leu Glu Leu Trp Glu Ile Arg Ala Phe Ala Glu Arg Val Glu
1955 1960 1965

Lys Glu Lys Ala Gln Ala Val Glu Gln Gln Ala Lys Lys Arg Leu
1970 1975 1980

Glu Gln Gln Lys Pro Thr Val Ile Ala Thr Ser Thr Thr Ser Pro
1985 1990 1995

Thr Ser Ser Thr Thr Ser Thr Ile Ser Pro Ala Gln Lys Val Met
2000 2005 2010

Val Ala Pro Ile Ser Gly Ser Val Thr Thr Gly Thr Lys Met Val
2015 2020 2025

Leu Thr Thr Lys Val Gly Ser Pro Ala Thr Val Thr Phe Gln Gln
2030 2035 2040

Asn Lys Asn Phe His Gln Thr Phe Ala Thr Trp Val Lys Gln Gly
2045 2050 2055

Gln Ser Asn Ser Gly Val Val Gln Val Gln Gln Lys Val Leu Gly
2060 2065 2070

Ile Ile Pro Ser Ser Thr Gly Thr Ser Gln Gln Thr Phe Thr Ser
2075 2080 2085

Phe Gln Pro Arg Thr Ala Thr Val Thr Ile Arg Pro Asn Thr Ser
2090 2095 2100

Gly Ser Gly Gly Thr Thr Ser Asn Ser Gln Val Ile Thr Gly Pro
2105 2110 2115

Gln Ile Arg Pro Gly Met Thr Val Ile Arg Thr Pro Leu Gln Gln

2120 2125 2130

Ser Thr Leu Gly Lys Ala Ile Ile Arg Thr Pro Val Met Val Gln
2135 2140 2145

Pro Gly Ala Pro Gln Gln Val Met Thr Gln Ile Ile Arg Gly Gln
2150 2155 2160

Pro Val Ser Thr Ala Val Ser Ala Pro Asn Thr Val Ser Ser Thr
2165 2170 2175

Pro Gly Gln Lys Ser Leu Thr Ser Ala Thr Ser Thr Ser Asn Ile
2180 2185 2190

Gln Ser Ser Ala Ser Gln Pro Pro Arg Pro Gln Gln Gly Gln Val
2195 2200 2205

Lys Leu Thr Met Ala Gln Leu Thr Gln Leu Thr Gln Gly His Gly
2210 2215 2220

Gly Asn Gln Gly Leu Thr Val Val Ile Gln Gly Gln Gly Gln Thr
2225 2230 2235

Thr Gly Gln Leu Gln Leu Ile Pro Gln Gly Val Thr Val Leu Pro
2240 2245 2250

Gly Pro Gly Gln Gln Leu Met Gln Ala Ala Met Pro Asn Gly Thr
2255 2260 2265

Val Gln Arg Phe Leu Phe Thr Pro Leu Ala Thr Thr Ala Thr Thr
2270 2275 2280

Ala Ser Thr Thr Thr Thr Thr Val Ser Thr Thr Ala Ala Gly Thr
2285 2290 2295

Gly Glu Gln Arg Gln Ser Lys Leu Ser Pro Gln Met Gln Val His
2300 2305 2310

Gln Asp Lys Thr Leu Pro Pro Ala Gln Ser Ser Ser Val Gly Pro
2315 2320 2325

Ala Glu Ala Gln Pro Gln Thr Ala Gln Pro Ser Ala Gln Pro Gln
2330 2335 2340

```
Pro Gln  Thr Gln Pro Gln Ser  Pro Ala Gln Pro Glu  Val Gln Thr
    2345                2350                2355

Gln Pro  Glu Val Gln Thr Gln  Thr Thr Val Ser Ser  His Val Pro
    2360                2365                2370

Ser Glu  Ala Gln Pro Thr His  Ala Gln Ser Ser Lys  Pro Gln Val
    2375                2380                2385

Ala Ala  Gln Ser Gln Pro Gln  Ser Asn Val Gln Gly  Gln Ser Pro
    2390                2395                2400

Val Arg  Val Gln Ser Pro Ser  Gln Thr Arg Ile Arg  Pro Ser Thr
    2405                2410                2415

Pro Ser  Gln Leu Ser Pro Gly  Gln Gln Ser Gln Val  Gln Thr Thr
    2420                2425                2430

Thr Ser  Gln Pro Ile Pro Ile  Gln Pro His Thr Ser  Leu Gln Ile
    2435                2440                2445

Pro Ser  Gln Gly Gln Pro Gln  Ser Gln
    2450                2455


<210> 9883
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1987; "

<220>
<221> source
<223> /note="Gene Symbol: BPTF; "

<220>
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<223> /note="Gene Name:
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      factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443949"
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9883
Xaa Asp Ala Glu Lys Asn Arg Glu Glu Phe Glu Asp Gln Ser Leu Glu
1   5   10   15

Lys Asp Ser Asp Asp Lys Thr Pro Asp Asp Asp Pro Glu Gln Gly Lys
            20   25   30

Ser Glu Glu Glu Pro Asn Lys Thr Cys Glu Ser Ser Asn Thr Ser Ala
        35   40   45

Thr Thr Thr Ser Ile Gln Pro Asn Leu Glu Asn Ser Asn Ser Ser Ser
    50   55   60

Glu Leu Asn Ser Ser Gln Ser Glu Ser Ala Lys Ala Ala Asp Asp Pro
65   70   75   80

Glu Asn Gly Glu Arg Glu Ser His Thr Pro Val Ser Ile Gln Glu Glu
                85   90   95

Ile Val Gly Asp Phe Lys Ser Glu Lys Ser Asn Gly Glu Leu Ser Glu
            100   105   110

Ser Pro Gly Ala Gly Lys Gly Ala Ser Gly Ser Thr Arg Ile Ile Thr
        115   120   125

Arg Leu Arg Asn Pro Asp Ser Lys Leu
    130   135

<210> 9884
<211> 484
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>

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factor; "

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<221> source
<223> /note="ENSP ID: ENSP00000462535"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9884

```
Xaa Asn Ile Gln Ser Ser Ala Ser Gln Pro Pro Arg Pro Gln Gln Gly
1               5                   10                  15

Gln Val Lys Leu Thr Met Ala Gln Leu Thr Gln Leu Thr Gln Gly His
            20                  25                  30

Gly Gly Asn Gln Gly Leu Thr Val Val Ile Gln Gly Gln Gly Gln Thr
        35                  40                  45

Thr Gly Gln Leu Gln Leu Ile Pro Gln Gly Val Thr Val Leu Pro Gly
    50                  55                  60

Pro Gly Gln Gln Leu Met Gln Ala Ala Met Pro Asn Gly Thr Val Gln
65                  70                  75                  80

Arg Phe Leu Phe Thr Pro Leu Ala Thr Thr Ala Thr Thr Ala Ser Thr
                85                  90                  95

Thr Thr Thr Thr Val Ser Thr Thr Ala Ala Gly Thr Gly Glu Gln Arg
            100                 105                 110

Gln Ser Lys Leu Ser Pro Gln Met Gln Val His Gln Asp Lys Thr Leu
        115                 120                 125

Pro Pro Ala Gln Ser Ser Ser Val Gly Pro Ala Glu Ala Gln Pro Gln
    130                 135                 140

Thr Ala Gln Pro Ser Ala Gln Pro Gln Pro Gln Thr Gln Pro Gln Ser
145                 150                 155                 160

Pro Ala Gln Pro Glu Val Gln Thr Gln Pro Glu Val Gln Thr Gln Thr
```

```
                165                 170                 175

Thr Val Ser Ser His Val Pro Ser Glu Ala Gln Pro Thr His Ala Gln
            180                 185                 190

Ser Ser Lys Pro Gln Val Ala Ala Gln Ser Gln Pro Gln Ser Asn Val
        195                 200                 205

Gln Gly Gln Ser Pro Val Arg Val Gln Ser Pro Ser Gln Thr Arg Ile
    210                 215                 220

Arg Pro Ser Thr Pro Ser Gln Leu Ser Pro Gly Gln Gln Ser Gln Val
225                 230                 235                 240

Gln Thr Thr Thr Ser Gln Pro Ile Pro Ile Gln Pro His Thr Ser Leu
                245                 250                 255

Gln Ile Pro Ser Gln Gly Gln Pro Gln Ser Gln Pro Gln Val Val Met
            260                 265                 270

Lys His Asn Ala Val Ile Glu His Leu Lys Gln Lys Lys Ser Met Thr
        275                 280                 285

Pro Ala Glu Arg Glu Glu Asn Gln Arg Met Ile Val Cys Asn Gln Val
    290                 295                 300

Met Lys Tyr Ile Leu Asp Lys Ile Asp Lys Glu Glu Lys Gln Ala Ala
305                 310                 315                 320

Lys Lys Arg Lys Arg Glu Glu Ser Val Glu Gln Lys Arg Ser Lys Gln
                325                 330                 335

Asn Ala Thr Lys Leu Ser Ala Leu Leu Phe Lys His Lys Glu Gln Leu
            340                 345                 350

Arg Ala Glu Ile Leu Lys Lys Arg Ala Leu Leu Asp Lys Asp Leu Gln
        355                 360                 365

Ile Glu Val Gln Glu Glu Leu Lys Arg Asp Leu Lys Ile Lys Lys Glu
    370                 375                 380

Lys Asp Leu Met Gln Leu Ala Gln Ala Thr Ala Val Ala Ala Pro Cys
385                 390                 395                 400
```

Pro Pro Val Thr Pro Ala Pro Pro Ala Pro Pro Ala Pro Pro Pro Ser
405 410 415

Pro Pro Pro Pro Pro Ala Val Gln His Thr Gly Leu Leu Ser Thr Pro
420 425 430

Thr Leu Pro Ala Ala Ser Gln Lys Arg Lys Arg Glu Glu Glu Lys Asp
435 440 445

Ser Ser Ser Lys Ser Lys Lys Lys Lys Met Ile Ser Thr Thr Ser Lys
450 455 460

Glu Thr Lys Lys Asp Thr Lys Leu Tyr Cys Ile Cys Lys Thr Pro Tyr
465 470 475 480

Asp Glu Ser Lys

<210> 9885
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1987; "

<220>
<221> source
<223> /note="Gene Symbol: BPTF; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain PHD finger transcription
factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462703"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9885
Xaa Arg Tyr Tyr Glu Lys Leu Thr Glu Phe Val Ala Asp Met Thr Lys

1 5 10 15

Ile Phe Asp Asn Cys Arg Tyr Tyr Asn Pro Ser Asp Ser Pro Phe Tyr
20 25 30

Gln Cys Ala Glu Val Leu Glu Ser Phe Phe Val Gln Lys Leu Lys Gly
35 40 45

Phe Lys Ala Ser Arg Val Asn Glu Arg Thr Trp Leu Leu Leu Pro Asp
50 55 60

<210> 9886
<211> 69
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1987; "

<220>
<221> source
<223> /note="Gene Symbol: BPTF; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain PHD finger transcription
factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463736"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9886
Xaa Leu Thr Pro Leu Thr Glu Lys Asp Tyr Glu Gly Leu Lys Arg Val
1 5 10 15

Leu Arg Ser Leu Gln Ala His Lys Met Ala Trp Pro Phe Leu Glu Pro
20 25 30

Val Asp Pro Asn Asp Ala Pro Asp Tyr Tyr Gly Val Ile Lys Glu Pro
35 40 45

```
Met Gly Leu Ile Thr Thr Asn Cys Ser Leu Gln Leu Leu Lys Val Gln
    50                  55                  60


Arg Val Asn Leu Thr
65


<210> 9887
<211> 339
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1987; "

<220>
<221> source
<223> /note="Gene Symbol: BPTF; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain PHD finger transcription
      factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463776"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9887
Xaa Arg Lys Ile Ile Cys Pro Ile Gly Val Pro Glu Thr Pro Lys Glu
1               5                   10                  15


Thr Pro Thr Pro Gln Arg Lys Gly Leu Arg Ser Ser Ala Leu Arg Pro
            20                  25                  30


Lys Arg Pro Glu Thr Pro Lys Gln Thr Gly Pro Val Ile Ile Glu Thr
        35                  40                  45


Trp Val Ala Glu Glu Glu Leu Glu Leu Trp Glu Ile Arg Ala Phe Ala
    50                  55                  60


Glu Arg Val Glu Lys Glu Lys Ala Gln Ala Val Glu Gln Gln Ala Lys
65                  70                  75                  80
```

```
Lys Arg Leu Glu Gln Gln Lys Pro Thr Val Ile Ala Thr Ser Thr Thr
                85                  90                  95

Ser Pro Thr Ser Ser Thr Thr Ser Thr Ile Ser Pro Ala Gln Lys Val
            100                 105                 110

Met Val Ala Pro Ile Ser Gly Ser Val Thr Thr Gly Thr Lys Met Val
        115                 120                 125

Leu Thr Thr Lys Val Gly Ser Pro Ala Thr Val Thr Phe Gln Gln Asn
    130                 135                 140

Lys Asn Phe His Gln Thr Phe Ala Thr Trp Val Lys Gln Gly Gln Ser
145                 150                 155                 160

Asn Ser Ala Thr Ser Thr Ala Ala Thr Ser Ala Thr Thr Ile Ala Ser
                165                 170                 175

Thr Gly Gln Thr Phe Gln Ile Thr Gly Asn Pro Val Thr Met Ala Gly
            180                 185                 190

Lys Val Ile Thr Lys Leu Pro Leu Pro Ala Asn Ser Lys Ile Val Ala
        195                 200                 205

Val Asn Val Pro Ala Thr Gln Gly Gly Val Val Gln Val Gln Gln Lys
    210                 215                 220

Val Leu Gly Ile Ile Pro Ser Ser Thr Gly Thr Ser Gln Gln Thr Phe
225                 230                 235                 240

Thr Ser Phe Gln Pro Arg Thr Ala Thr Val Thr Ile Arg Pro Asn Thr
                245                 250                 255

Ser Gly Ser Gly Gly Thr Thr Ser Asn Ser Gln Val Ile Thr Gly Pro
            260                 265                 270

Gln Ile Arg Pro Gly Met Thr Val Ile Arg Thr Pro Leu Gln Gln Ser
        275                 280                 285

Thr Leu Gly Lys Ala Ile Ile Arg Thr Pro Val Met Val Gln Pro Gly
    290                 295                 300
```

```
Ala Pro Gln Gln Val Met Thr Gln Ile Ile Arg Gly Gln Pro Val Ser
305                 310                 315                 320

Thr Ala Val Ser Ala Pro Asn Thr Val Ser Ser Thr Pro Gly Gln Lys
                325                 330                 335

Ser Leu Thr
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<210> 9888
<211> 420
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1987; "

<220>
<221> source
<223> /note="Gene Symbol: BPTF; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain PHD finger transcription
factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463845"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9888

```
Xaa His Leu Lys Gln Lys Lys Ser Met Thr Pro Ala Glu Arg Glu Glu
1               5                   10                  15

Asn Gln Arg Met Ile Val Cys Asn Gln Val Met Lys Tyr Ile Leu Asp
            20                  25                  30

Lys Ile Asp Lys Glu Glu Lys Gln Ala Ala Lys Lys Arg Lys Arg Glu
        35                  40                  45

Glu Ser Val Glu Gln Lys Arg Ser Lys Gln Asn Ala Thr Lys Leu Ser
    50                  55                  60
```

```
Ala Leu Leu Phe Lys His Lys Glu Gln Leu Arg Ala Glu Ile Leu Lys
65                  70                  75                  80

Lys Arg Ala Leu Leu Asp Lys Asp Leu Gln Ile Glu Val Gln Glu Glu
                85                  90                  95

Leu Lys Arg Asp Leu Lys Ile Lys Lys Glu Lys Asp Leu Met Gln Leu
            100                 105                 110

Ala Gln Ala Thr Ala Val Ala Ala Pro Cys Pro Pro Val Thr Pro Ala
        115                 120                 125

Pro Pro Ala Pro Pro Ala Pro Pro Pro Ser Pro Pro Pro Pro Pro Ala
    130                 135                 140

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

Gln Lys Arg Lys Arg Glu Glu Glu Lys Asp Ser Ser Ser Lys Ser Lys
                165                 170                 175

Lys Lys Lys Met Ile Ser Thr Thr Ser Lys Glu Thr Lys Lys Asp Thr
            180                 185                 190

Lys Leu Tyr Cys Ile Cys Lys Thr Pro Tyr Asp Glu Ser Lys Phe Tyr
        195                 200                 205

Ile Gly Cys Asp Leu Cys Thr Asn Trp Tyr His Gly Glu Cys Val Gly
    210                 215                 220

Ile Thr Glu Lys Glu Ala Lys Lys Met Asp Val Tyr Ile Cys Asn Asp
225                 230                 235                 240

Cys Lys Arg Ala Gln Glu Gly Ser Ser Glu Glu Leu Tyr Cys Ile Cys
                245                 250                 255

Arg Thr Pro Tyr Asp Glu Ser Gln Phe Tyr Ile Gly Cys Asp Arg Cys
            260                 265                 270

Gln Asn Trp Tyr His Gly Arg Cys Val Gly Ile Leu Gln Ser Glu Ala
        275                 280                 285
```

```
Glu Leu Ile Asp Glu Tyr Val Cys Pro Gln Cys Gln Ser Thr Glu Asp
    290                 295                 300

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

Lys Arg Val Leu Arg Ser Leu Gln Ala His Lys Met Ala Trp Pro Phe
                325                 330                 335

Leu Glu Pro Val Asp Pro Asn Asp Ala Pro Asp Tyr Tyr Gly Val Ile
            340                 345                 350

Lys Glu Pro Met Asp Leu Ala Thr Met Glu Glu Arg Val Gln Arg Arg
        355                 360                 365

Tyr Tyr Glu Lys Leu Thr Glu Phe Val Ala Asp Met Thr Lys Ile Phe
    370                 375                 380

Asp Asn Cys Arg Tyr Tyr Asn Pro Ser Asp Ser Pro Phe Tyr Gln Cys
385                 390                 395                 400

Ala Glu Val Leu Glu Ser Phe Phe Val Gln Lys Leu Lys Gly Phe Lys
                405                 410                 415

Ala Ser Arg Leu
            420


<210> 9889
<211> 947
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "

<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain, testis-specific; "

<220>
<221> source
<223> /note="Uniprot ID:  Q58F21; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000354568"

<400> 9889
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1   5   10   15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
            20   25   30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
        35   40   45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
    50   55   60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65   70   75   80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
                85   90   95

Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
            100   105   110

Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
        115   120   125

Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
    130   135   140

Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala Val Ser Ser Ala Lys
145   150   155   160

Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln Gln Glu
                165   170   175

Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro Leu Asn Val Val
            180   185   190

Gln Gly Ala Ser Val Asn Ser Ser Ser Gln Thr Ala Ala Gln Val Thr
        195   200   205

```
Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Ala Thr Ser Ala
    210                 215                 220

Val Lys Ala Ser Ser Glu Phe Ser Pro Thr Phe Thr Glu Lys Ser Val
225                 230                 235                 240

Ala Leu Pro Pro Ile Lys Glu Asn Met Pro Lys Asn Val Leu Pro Asp
                245                 250                 255

Ser Gln Gln Gln Tyr Asn Val Val Lys Thr Val Lys Val Thr Glu Gln
            260                 265                 270

Leu Arg His Cys Ser Glu Ile Leu Lys Glu Met Leu Ala Lys Lys His
        275                 280                 285

Phe Ser Tyr Ala Trp Pro Phe Tyr Asn Pro Val Asp Val Asn Ala Leu
    290                 295                 300

Gly Leu His Asn Tyr Tyr Asp Val Val Lys Asn Pro Met Asp Leu Gly
305                 310                 315                 320

Thr Ile Lys Glu Lys Met Asp Asn Gln Glu Tyr Lys Asp Ala Tyr Lys
                325                 330                 335

Phe Ala Ala Asp Val Arg Leu Met Phe Met Asn Cys Tyr Lys Tyr Asn
            340                 345                 350

Pro Pro Asp His Glu Val Val Thr Met Ala Arg Met Leu Gln Asp Val
        355                 360                 365

Phe Glu Thr His Phe Ser Lys Ile Pro Ile Glu Pro Val Glu Ser Met
    370                 375                 380

Pro Leu Cys Tyr Ile Lys Thr Asp Ile Thr Glu Thr Thr Gly Arg Glu
385                 390                 395                 400

Asn Thr Asn Glu Ala Ser Ser Glu Gly Asn Ser Ser Asp Asp Ser Glu
                405                 410                 415

Asp Glu Arg Val Lys Arg Leu Ala Lys Leu Gln Glu Gln Leu Lys Ala
            420                 425                 430
```

```
Val His Gln Gln Leu Gln Val Leu Ser Gln Val Pro Phe Arg Lys Leu
        435                 440                 445

Asn Lys Lys Lys Glu Lys Ser Lys Lys Glu Lys Lys Lys Glu Lys Val
    450                 455                 460

Asn Asn Ser Asn Glu Asn Pro Arg Lys Met Cys Glu Gln Met Arg Leu
465                 470                 475                 480

Lys Glu Lys Ser Lys Arg Asn Gln Pro Lys Lys Arg Lys Gln Gln Phe
                485                 490                 495

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

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

Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg Glu Pro Ser Leu
    530                 535                 540

Ser Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys
545                 550                 555                 560

Ala Ser Thr Leu Arg Glu Leu Glu Lys Tyr Val Ser Ala Cys Leu Arg
                565                 570                 575

Lys Arg Pro Leu Lys Pro Pro Ala Lys Lys Ile Met Met Ser Lys Glu
            580                 585                 590

Glu Leu His Ser Gln Lys Lys Gln Glu Leu Glu Lys Arg Leu Leu Asp
        595                 600                 605

Val Asn Asn Gln Leu Asn Ser Arg Lys Arg Gln Thr Lys Ser Asp Lys
    610                 615                 620

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

Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Glu Ser Ser Ser Ser Asp
                645                 650                 655

Leu Ser Ser Ser Asp Ser Ser Asp Ser Glu Ser Glu Met Phe Pro Lys
```

660 665 670

Phe Thr Glu Val Lys Pro Asn Asp Ser Pro Ser Lys Glu Asn Val Lys
675 680 685

Lys Met Lys Asn Glu Cys Ile Pro Pro Glu Gly Arg Thr Gly Val Thr
690 695 700

Gln Ile Gly Tyr Cys Val Gln Asp Thr Thr Ser Ala Asn Thr Thr Leu
705 710 715 720

Val His Gln Thr Thr Pro Ser His Val Met Pro Pro Asn His His Gln
725 730 735

Leu Ala Phe Asn Tyr Gln Glu Leu Glu His Leu Gln Thr Val Lys Asn
740 745 750

Ile Ser Pro Leu Gln Ile Leu Pro Pro Ser Gly Asp Ser Glu Gln Leu
755 760 765

Ser Asn Gly Ile Thr Val Met His Pro Ser Gly Asp Ser Asp Thr Thr
770 775 780

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

Lys Asn Ala Asp Ser Trp Lys Ser Leu Gly Lys Pro Val Lys Pro Ser
805 810 815

Gly Val Met Lys Ser Ser Asp Glu Leu Phe Asn Gln Phe Arg Lys Ala
820 825 830

Ala Ile Glu Lys Glu Val Lys Ala Arg Thr Gln Glu Leu Ile Arg Lys
835 840 845

His Leu Glu Gln Asn Thr Lys Glu Leu Lys Ala Ser Gln Glu Asn Gln
850 855 860

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

Gln Asn Lys Cys Ser Gly Glu Glu Gln Lys Glu His Gln Gln Ser Ser
885 890 895

Glu Ala Gln Asp Lys Ser Lys Leu Trp Leu Leu Lys Asp Arg Asp Leu
900 905 910

Ala Arg Gln Lys Glu Gln Glu Arg Arg Arg Arg Glu Ala Met Val Gly
915 920 925

Thr Ile Asp Met Thr Leu Gln Ser Asp Ile Met Thr Met Phe Glu Asn
930 935 940

Asn Phe Asp
945

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<223> /note="Gene Name:
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Met Asp Leu Asn Thr Ile Lys Lys Arg Leu Glu Asn Lys Tyr Tyr Ala
1 5 10 15

Lys Ala Ser Glu Cys Ile Glu Asp Phe Asn Thr Met Phe Ser Asn Cys
20 25 30

Tyr Leu Tyr Asn Lys Pro Gly Asp Asp Ile Val Leu Met Ala Gln Ala
35 40 45

```
Leu Glu Lys Leu Phe Met Gln Lys Leu Ser Gln Met Pro Gln Glu Glu
    50                  55                  60

Gln Val Val Gly Val Lys Glu Arg Ile Lys Lys Gly Thr Gln Gln Asn
65                  70                  75                  80

Ile Ala Val Ser Ser Ala Lys Glu Lys Ser Ser Pro Ser Ala Thr Glu
                85                  90                  95

Lys Val Phe Lys Gln Gln Glu Ile Pro Ser Val Phe Pro Lys Thr Ser
            100                 105                 110

Ile Ser Pro Leu Asn Val Val Gln Gly Ala Ser Val Asn Ser Ser Ser
        115                 120                 125

Gln Thr Ala Ala Gln Val Thr Lys Gly Val Lys Arg Lys Ala Asp Thr
    130                 135                 140

Thr Thr Pro Ala Thr Ser Ala Val Lys Ala Ser Ser Glu Phe Ser Pro
145                 150                 155                 160

Thr Phe Thr Glu Lys Ser Val Ala Leu Pro Pro Ile Lys Glu Asn Met
                165                 170                 175

Pro Lys Asn Val Leu Pro Asp Ser Gln Gln Gln Tyr Asn Val Val Lys
            180                 185                 190

Thr Val Lys Val Thr Glu Gln Leu Arg His Cys Ser Glu Ile Leu Lys
        195                 200                 205

Glu Met Leu Ala Lys Lys His Phe Ser Tyr Ala Trp Pro Phe Tyr Asn
    210                 215                 220

Pro Val Asp Val Asn Ala Leu Gly Leu His Asn Tyr Tyr Asp Val Val
225                 230                 235                 240

Lys Asn Pro Met Asp Leu Gly Thr Ile Lys Glu Lys Met Asp Asn Gln
                245                 250                 255

Glu Tyr Lys Asp Ala Tyr Lys Phe Ala Ala Asp Val Arg Leu Met Phe
            260                 265                 270

Met Asn Cys Tyr Lys Tyr Asn Pro Pro Asp His Glu Val Val Thr Met
```

275 280 285

Ala Arg Met Leu Gln Asp Val Phe Glu Thr His Phe Ser Lys Ile Pro
290 295 300

Ile Glu Pro Val Glu Ser Met Pro Leu Cys Tyr Ile Lys Thr Asp Ile
305 310 315 320

Thr Glu Thr Thr Gly Arg Glu Asn Thr Asn Glu Ala Ser Ser Glu Gly
325 330 335

Asn Ser Ser Asp Asp Ser Glu Asp Glu Arg Val Lys Arg Leu Ala Lys
340 345 350

Leu Gln Glu Gln Leu Lys Ala Val His Gln Gln Leu Gln Val Leu Ser
355 360 365

Gln Val Pro Phe Arg Lys Leu Asn Lys Lys Lys Glu Lys Ser Lys Lys
370 375 380

Glu Lys Lys Lys Glu Lys Val Asn Asn Ser Asn Glu Asn Pro Arg Lys
385 390 395 400

Met Cys Glu Gln Met Arg Leu Lys Glu Lys Ser Lys Arg Asn Gln Pro
405 410 415

Lys Lys Arg Lys Gln Gln Phe Ile Gly Leu Lys Ser Glu Asp Glu Asp
420 425 430

Asn Ala Lys Pro Met Asn Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asn
435 440 445

Ile Asn Lys Leu Pro Gly Asp Lys Leu Gly Arg Val Val His Ile Ile
450 455 460

Gln Ser Arg Glu Pro Ser Leu Ser Asn Ser Asn Pro Asp Glu Ile Glu
465 470 475 480

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

Tyr Val Ser Ala Cys Leu Arg Lys Arg Pro Leu Lys Pro Pro Ala Lys
500 505 510

```
Lys Ile Met Met Ser Lys Glu Glu Leu His Ser Gln Lys Lys Gln Glu
        515                 520                 525

Leu Glu Lys Arg Leu Leu Asp Val Asn Asn Gln Leu Asn Ser Arg Lys
    530                 535                 540

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

Val Ser Arg Leu Ser Glu Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu
                565                 570                 575

Ser Glu Ser Ser Ser Ser Asp Leu Ser Ser Ser Asp Ser Ser Asp Ser
            580                 585                 590

Glu Ser Glu Met Phe Pro Lys Phe Thr Glu Val Lys Pro Asn Asp Ser
        595                 600                 605

Pro Ser Lys Glu Asn Val Lys Lys Met Lys Asn Glu Cys Ile Pro Pro
    610                 615                 620

Glu Gly Arg Thr Gly Val Thr Gln Ile Gly Tyr Cys Val Gln Asp Thr
625                 630                 635                 640

Thr Ser Ala Asn Thr Thr Leu Val His Gln Thr Thr Pro Ser His Val
                645                 650                 655

Met Pro Pro Asn His His Gln Leu Ala Phe Asn Tyr Gln Glu Leu Glu
            660                 665                 670

His Leu Gln Thr Val Lys Asn Ile Ser Pro Leu Gln Ile Leu Pro Pro
        675                 680                 685

Ser Gly Asp Ser Glu Gln Leu Ser Asn Gly Ile Thr Val Met His Pro
    690                 695                 700

Ser Gly Asp Ser Asp Thr Thr Met Leu Glu Ser Glu Cys Gln Ala Pro
705                 710                 715                 720

Val Gln Lys Asp Ile Lys Ile Lys Asn Ala Asp Ser Trp Lys Ser Leu
                725                 730                 735
```

```
Gly Lys Pro Val Lys Pro Ser Gly Val Met Lys Ser Ser Asp Glu Leu
            740                 745                 750

Phe Asn Gln Phe Arg Lys Ala Ala Ile Glu Lys Glu Val Lys Ala Arg
        755                 760                 765

Thr Gln Glu Leu Ile Arg Lys His Leu Glu Gln Asn Thr Lys Glu Leu
    770                 775                 780

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

Glu Ser Phe Ser Asn Lys Ile Gln Asn Lys Cys Ser Gly Glu Glu Gln
                805                 810                 815

Lys Glu His Gln Gln Ser Ser Glu Ala Gln Asp Lys Ser Lys Leu Trp
            820                 825                 830

Leu Leu Lys Asp Arg Asp Leu Ala Arg Gln Lys Glu Gln Glu Arg Arg
        835                 840                 845

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

Ile Met Thr Met Phe Glu Asn Asn Phe Asp
865                 870
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<210> 9891
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bromodomain, testis-specific; "

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<400> 9891

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Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1               5                  10                  15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
            20                  25                  30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
        35                  40                  45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
    50                  55                  60

Pro Gly Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe
65                  70                  75                  80

Met Gln Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val
                85                  90                  95

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

Ala Lys Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln
        115                 120                 125

Gln Glu Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro Leu Asn
    130                 135                 140

Val Val Gln Gly Ala Ser Val Asn Ser Ser Ser Gln Thr Ala Ala Gln
145                 150                 155                 160

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

Ser Ala Val Lys Ala Ser Ser Glu Phe Ser Pro Thr Phe Thr Glu Lys
            180                 185                 190

Ser Val Ala Leu Pro Pro Ile Lys Glu Asn Met Pro Lys Asn Val Leu
        195                 200                 205
```

```
Pro Asp Ser Gln Gln Gln Tyr Asn Val Val Lys Thr Val Lys Val Thr
    210                 215                 220

Glu Gln Leu Arg His Cys Ser Glu Ile Leu Lys Glu Met Leu Ala Lys
225                 230                 235                 240

Lys His Phe Ser Tyr Ala Trp Pro Phe Tyr Asn Pro Val Asp Val Asn
                245                 250                 255

Ala Leu Gly Leu His Asn Tyr Tyr Asp Val Val Lys Asn Pro Met Asp
            260                 265                 270

Leu Gly Thr Ile Lys Glu Lys Met Asp Asn Gln Glu Tyr Lys Asp Ala
        275                 280                 285

Tyr Lys Phe Ala Ala Asp Val Arg Leu Met Phe Met Asn Cys Tyr Lys
    290                 295                 300

Tyr Asn Pro Pro Asp His Glu Val Val Thr Met Ala Arg Met Leu Gln
305                 310                 315                 320

Asp Val Phe Glu Thr His Phe Ser Lys Ile Pro Ile Glu Pro Val Glu
                325                 330                 335

Ser Met Pro Leu Cys Tyr Ile Lys Thr Asp Ile Thr Glu Thr Thr Gly
            340                 345                 350

Arg Glu Asn Thr Asn Glu Ala Ser Ser Glu Gly Asn Ser Ser Asp Asp
        355                 360                 365

Ser Glu Asp Glu Arg Val Lys Arg Leu Ala Lys Leu Gln Glu Gln Leu
    370                 375                 380

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

Lys Leu Asn Lys Lys Lys Glu Lys Ser Lys Lys Glu Lys Lys Lys Glu
                405                 410                 415

Lys Val Asn Asn Ser Asn Glu Asn Pro Arg Lys Met Cys Glu Gln Met
            420                 425                 430
```

```
Arg Leu Lys Glu Lys Ser Lys Arg Asn Gln Pro Lys Lys Arg Lys Gln
        435                 440                 445

Gln Phe Ile Gly Leu Lys Ser Glu Asp Glu Asp Asn Ala Lys Pro Met
    450                 455                 460

Asn Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asn Ile Asn Lys Leu Pro
465                 470                 475                 480

Gly Asp Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg Glu Pro
                485                 490                 495

Ser Leu Ser Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe Glu Thr
            500                 505                 510

Leu Lys Ala Ser Thr Leu Arg Glu Leu Glu Lys Tyr Val Ser Ala Cys
        515                 520                 525

Leu Arg Lys Arg Pro Leu Lys Pro Pro Ala Lys Lys Ile Met Met Ser
    530                 535                 540

Lys Glu Glu Leu His Ser Gln Lys Lys Gln Glu Leu Glu Lys Arg Leu
545                 550                 555                 560

Leu Asp Val Asn Asn Gln Leu Asn Ser Arg Lys Arg Gln Thr Lys Ser
                565                 570                 575

Asp Lys Thr Gln Pro Ser Lys Ala Val Glu Asn Val Ser Arg Leu Ser
            580                 585                 590

Glu Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Glu Ser Ser Ser
        595                 600                 605

Ser Asp Leu Ser Ser Ser Asp Ser Ser Asp Ser Glu Ser Glu Met Phe
    610                 615                 620

Pro Lys Phe Thr Glu Val Lys Pro Asn Asp Ser Pro Ser Lys Glu Asn
625                 630                 635                 640

Val Lys Lys Met Lys Asn Glu Cys Ile Pro Pro Glu Gly Arg Thr Gly
                645                 650                 655
```

```
Val Thr Gln Ile Gly Tyr Cys Val Gln Asp Thr Thr Ser Ala Asn Thr
            660                 665                 670

Thr Leu Val His Gln Thr Thr Pro Ser His Val Met Pro Pro Asn His
        675                 680                 685

His Gln Leu Ala Phe Asn Tyr Gln Glu Leu Glu His Leu Gln Thr Val
    690                 695                 700

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

Gln Leu Ser Asn Gly Ile Thr Val Met His Pro Ser Gly Asp Ser Asp
                725                 730                 735

Thr Thr Met Leu Glu Ser Glu Cys Gln Ala Pro Val Gln Lys Asp Ile
            740                 745                 750

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

Pro Ser Gly Val Met Lys Ser Ser Asp Glu Leu Phe Asn Gln Phe Arg
    770                 775                 780

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

Arg Lys His Leu Glu Gln Asn Thr Lys Glu Leu Lys Ala Ser Gln Glu
                805                 810                 815

Asn Gln Arg Asp Leu Gly Asn Gly Leu Thr Val Glu Ser Phe Ser Asn
            820                 825                 830

Lys Ile Gln Asn Lys Cys Ser Gly Glu Glu Gln Lys Glu His Gln Gln
        835                 840                 845

Ser Ser Glu Ala Gln Asp Lys Ser Lys Leu Trp Leu Leu Lys Asp Arg
    850                 855                 860

Asp Leu Ala Arg Gln Lys Glu Gln Glu Arg Arg Arg Arg Glu Ala Met
865                 870                 875                 880

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

Glu Asn Asn Phe Asp
900

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<400> 9892
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1 5 10 15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
20 25 30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
35 40 45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
50 55 60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65 70 75 80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
85 90 95

```
Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
            100                 105                 110

Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
        115                 120                 125

Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
    130                 135                 140

Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala Val Ser Ser Ala Lys
145                 150                 155                 160

Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln Gln Glu
                165                 170                 175

Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro Leu Asn Val Val
            180                 185                 190

Gln Gly Ala Ser Val Asn Ser Ser Ser Gln Thr Ala Ala Gln Val Thr
        195                 200                 205

Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Ala Thr Ser Ala
    210                 215                 220

Val Lys Ala Ser Ser Glu Phe Ser Pro Thr Phe Thr Glu Lys Ser Val
225                 230                 235                 240

Ala Leu Pro Pro Ile Lys Glu Asn Met Pro Lys Asn Val Leu Pro Asp
                245                 250                 255

Ser Gln Gln Gln Tyr Asn Val Val Lys Thr Val Lys Val Thr Glu Gln
            260                 265                 270

Leu Arg His Cys Ser Glu Ile Leu Lys Glu Met Leu Ala Lys Lys His
        275                 280                 285

Phe Ser Tyr Ala Trp Pro Phe Tyr Asn Pro Val Asp Val Asn Ala Leu
    290                 295                 300

Gly Leu His Asn Tyr Tyr Asp Val Val Lys Asn Pro Met Asp Leu Gly
305                 310                 315                 320
```

```
Thr Ile Lys Glu Lys Met Asp Asn Gln Glu Tyr Lys Asp Ala Tyr Lys
                325                 330                 335

Phe Ala Ala Asp Val Arg Leu Met Phe Met Asn Cys Tyr Lys Tyr Asn
            340                 345                 350

Pro Pro Asp His Glu Val Val Thr Met Ala Arg Met Leu Gln Asp Val
        355                 360                 365

Phe Glu Thr His Phe Ser Lys Ile Pro Ile Glu Pro Val Glu Ser Met
    370                 375                 380

Pro Leu Cys Tyr Ile Lys Thr Asp Ile Thr Glu Thr Thr Gly Arg Glu
385                 390                 395                 400

Asn Thr Asn Glu Ala Ser Ser Glu Gly Asn Ser Ser Asp Asp Ser Glu
                405                 410                 415

Asp Glu Arg Val Lys Arg Leu Ala Lys Leu Gln Glu Gln Leu Lys Ala
            420                 425                 430

Val His Gln Gln Leu Gln Val Leu Ser Gln Val Pro Phe Arg Lys Leu
        435                 440                 445

Asn Lys Lys Lys Glu Lys Ser Lys Lys Glu Lys Lys Lys Glu Lys Val
    450                 455                 460

Asn Asn Ser Asn Glu Asn Pro Arg Lys Met Cys Glu Gln Met Arg Leu
465                 470                 475                 480

Lys Glu Lys Ser Lys Arg Asn Gln Pro Lys Lys Arg Lys Gln Gln Phe
                485                 490                 495

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

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

Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg Glu Pro Ser Leu
    530                 535                 540

Ser Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys
```

545 550 555 560

Ala Ser Thr Leu Arg Glu Leu Glu Lys Tyr Val Ser Ala Cys Leu Arg
565 570 575

Lys Arg Pro Leu Lys Pro Pro Ala Lys Lys Ile Met Met Ser Lys Glu
580 585 590

Glu Leu His Ser Gln Lys Lys Gln Glu Leu Glu Lys Arg Leu Leu Asp
595 600 605

Val Asn Asn Gln Leu Asn Ser Arg Lys Arg Gln Thr Lys Ser Asp Lys
610 615 620

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

Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Glu Ser Ser Ser Ser Asp
645 650 655

Leu Ser Ser Ser Asp Ser Ser Asp Ser Glu Ser Glu Met Phe Pro Lys
660 665 670

Phe Thr Glu Val Lys Pro Asn Asp Ser Pro Ser Lys Glu Asn Val Lys
675 680 685

Lys Met Lys Asn Glu Cys Ile Pro Pro Glu Gly Arg Thr Gly Val Thr
690 695 700

Gln Ile Gly Tyr Cys Val Gln Asp Thr Thr Ser Ala Asn Thr Thr Leu
705 710 715 720

Val His Gln Thr Thr Pro Ser His Val Met Pro Pro Asn His His Gln
725 730 735

Leu Ala Phe Asn Tyr Gln Glu Leu Glu His Leu Gln Thr Val Lys Asn
740 745 750

Ile Ser Pro Leu Gln Ile Leu Pro Pro Ser Gly Asp Ser Glu Gln Leu
755 760 765

Ser Asn Gly Ile Thr Val Met His Pro Ser Gly Asp Ser Asp Thr Thr
770 775 780

```
Met Leu Glu Ser Glu Cys Gln Ala Pro Val Gln Lys Asp Ile Lys Ile
785                 790                 795                 800

Lys Asn Ala Asp Ser Trp Lys Ser Leu Gly Lys Pro Val Lys Pro Ser
                805                 810                 815

Gly Val Met Lys Ser Ser Asp Glu Leu Phe Asn Gln Phe Arg Lys Ala
            820                 825                 830

Ala Ile Glu Lys Glu Val Lys Ala Arg Thr Gln Glu Leu Ile Arg Lys
        835                 840                 845

His Leu Glu Gln Asn Thr Lys Glu Leu Lys Ala Ser Gln Glu Asn Gln
    850                 855                 860

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

Gln Asn Lys Cys Ser Gly Glu Glu Gln Lys Glu His Gln Gln Ser Ser
                885                 890                 895

Glu Ala Gln Asp Lys Ser Lys Leu Trp Leu Leu Lys Asp Arg Asp Leu
            900                 905                 910

Ala Arg Gln Lys Glu Gln Glu Arg Arg Arg Arg Glu Ala Met Val Gly
        915                 920                 925

Thr Ile Asp Met Thr Leu Gln Ser Asp Ile Met Thr Met Phe Glu Asn
    930                 935                 940

Asn Phe Asp
945
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<212> PRT
<213> Homo sapiens

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<400> 9893

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Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1               5                   10                  15


Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
            20                  25                  30


Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
        35                  40                  45


Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
    50                  55                  60


Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65                  70                  75                  80


Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
                85                  90                  95


Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
            100                 105                 110


Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
        115                 120                 125


Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
    130                 135                 140


Arg Ile Lys Lys Gly Lys Ala Gly Gly Thr Gln Gln Asn Ile Ala Val
145                 150                 155                 160


Ser Ser Ala Lys Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe
```

```
                165                 170                 175

Lys Gln Gln Glu Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro
            180                 185                 190

Leu Asn Val Val Gln Gly Ala Ser Val Asn Ser Ser Ser Gln Thr Ala
        195                 200                 205

Ala Gln Val Thr Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro
    210                 215                 220

Ala Thr Ser Ala Val Lys Ala Ser Ser Glu Phe Ser Pro Thr Phe Thr
225                 230                 235                 240

Glu Lys Ser Val Ala Leu Pro Pro Ile Lys Glu Asn Met Pro Lys Asn
                245                 250                 255

Val Leu Pro Asp Ser Gln Gln Gln Tyr Asn Val Val Lys Thr Val Lys
            260                 265                 270

Val Thr Glu Gln Leu Arg His Cys Ser Glu Ile Leu Lys Glu Met Leu
        275                 280                 285

Ala Lys Lys His Phe Ser Tyr Ala Trp Pro Phe Tyr Asn Pro Val Asp
    290                 295                 300

Val Asn Ala Leu Gly Leu His Asn Tyr Tyr Asp Val Val Lys Asn Pro
305                 310                 315                 320

Met Asp Leu Gly Thr Ile Lys Glu Lys Met Asp Asn Gln Glu Tyr Lys
                325                 330                 335

Asp Ala Tyr Lys Phe Ala Ala Asp Val Arg Leu Met Phe Met Asn Cys
            340                 345                 350

Tyr Lys Tyr Asn Pro Pro Asp His Glu Val Val Thr Met Ala Arg Met
        355                 360                 365

Leu Gln Asp Val Phe Glu Thr His Phe Ser Lys Ile Pro Ile Glu Pro
    370                 375                 380

Val Glu Ser Met Pro Leu Cys Tyr Ile Lys Thr Asp Ile Thr Glu Thr
385                 390                 395                 400
```

```
Thr Gly Arg Glu Asn Thr Asn Glu Ala Ser Ser Glu Gly Asn Ser Ser
                405                 410                 415

Asp Asp Ser Glu Asp Glu Arg Val Lys Arg Leu Ala Lys Leu Gln Glu
            420                 425                 430

Gln Leu Lys Ala Val His Gln Gln Leu Gln Val Leu Ser Gln Val Pro
        435                 440                 445

Phe Arg Lys Leu Asn Lys Lys Lys Glu Lys Ser Lys Lys Glu Lys Lys
    450                 455                 460

Lys Glu Lys Val Asn Asn Ser Asn Glu Asn Pro Arg Lys Met Cys Glu
465                 470                 475                 480

Gln Met Arg Leu Lys Glu Lys Ser Lys Arg Asn Gln Pro Lys Lys Arg
                485                 490                 495

Lys Gln Gln Phe Ile Gly Leu Lys Ser Glu Asp Glu Asp Asn Ala Lys
            500                 505                 510

Pro Met Asn Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asn Ile Asn Lys
        515                 520                 525

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

Glu Pro Ser Leu Ser Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe
545                 550                 555                 560

Glu Thr Leu Lys Ala Ser Thr Leu Arg Glu Leu Glu Lys Tyr Val Ser
                565                 570                 575

Ala Cys Leu Arg Lys Arg Pro Leu Lys Pro Pro Ala Lys Lys Ile Met
            580                 585                 590

Met Ser Lys Glu Glu Leu His Ser Gln Lys Lys Gln Glu Leu Glu Lys
        595                 600                 605

Arg Leu Leu Asp Val Asn Asn Gln Leu Asn Ser Arg Lys Arg Gln Thr
    610                 615                 620
```

```
Lys Ser Asp Lys Thr Gln Pro Ser Lys Ala Val Glu Asn Val Ser Arg
625                 630                 635                 640

Leu Ser Glu Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Glu Ser
                645                 650                 655

Ser Ser Ser Asp Leu Ser Ser Ser Asp Ser Ser Asp Ser Glu Ser Glu
            660                 665                 670

Met Phe Pro Lys Phe Thr Glu Val Lys Pro Asn Asp Ser Pro Ser Lys
        675                 680                 685

Glu Asn Val Lys Lys Met Lys Asn Glu Cys Ile Pro Pro Glu Gly Arg
    690                 695                 700

Thr Gly Val Thr Gln Ile Gly Tyr Cys Val Gln Asp Thr Thr Ser Ala
705                 710                 715                 720

Asn Thr Thr Leu Val His Gln Thr Thr Pro Ser His Val Met Pro Pro
                725                 730                 735

Asn His His Gln Leu Ala Phe Asn Tyr Gln Glu Leu Glu His Leu Gln
            740                 745                 750

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

Ser Glu Gln Leu Ser Asn Gly Ile Thr Val Met His Pro Ser Gly Asp
    770                 775                 780

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

Asp Ile Lys Ile Lys Asn Ala Asp Ser Trp Lys Ser Leu Gly Lys Pro
                805                 810                 815

Val Lys Pro Ser Gly Val Met Lys Ser Ser Asp Glu Leu Phe Asn Gln
            820                 825                 830

Phe Arg Lys Ala Ala Ile Glu Lys Glu Val Lys Ala Arg Thr Gln Glu
        835                 840                 845
```

```
Leu Ile Arg Lys His Leu Glu Gln Asn Thr Lys Glu Leu Lys Ala Ser
    850                 855                 860

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

Ser Asn Lys Ile Gln Asn Lys Cys Ser Gly Glu Glu Gln Lys Glu His
                885                 890                 895

Gln Gln Ser Ser Glu Ala Gln Asp Lys Ser Lys Leu Trp Leu Leu Lys
            900                 905                 910

Asp Arg Asp Leu Ala Arg Gln Lys Glu Gln Glu Arg Arg Arg Arg Glu
        915                 920                 925

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

Met Phe Glu Asn Asn Phe Asp
945                 950


<210> 9894
<211> 176
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 1988; "

<220>
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<223> /note="Gene Symbol: BRDT; "

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<223> /note="Gene Name:
      bromodomain, testis-specific; "

<220>
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<223> /note="ENSP ID: ENSP00000396351"

<400> 9894
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1               5                   10                  15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
            20                  25                  30
```

```
Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
        35                  40                  45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
    50                  55                  60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65                  70                  75                  80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
                85                  90                  95

Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
            100                 105                 110

Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
        115                 120                 125

Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
    130                 135                 140

Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala Val Ser Ser Ala Lys
145                 150                 155                 160

Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln Gln Glu
                165                 170                 175
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<210> 9895
<211> 155
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1988; "

<220>
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<223> /note="Gene Symbol: BRDT; "

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<223> /note="Gene Name:
bromodomain, testis-specific; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000400002"

<400> 9895
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1   5   10   15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
            20   25   30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
        35   40   45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
    50   55   60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65   70   75   80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
                85   90   95

Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
            100   105   110

Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
        115   120   125

Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
    130   135   140

Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala
145   150   155

<210> 9896
<211> 14
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1988; "

<220>
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<223> /note="Gene Name:
bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400199"

<400> 9896
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro
1 5 10

<210> 9897
<211> 462
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1988; "

<220>
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<223> /note="Gene Symbol: BRDT; "

<220>
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<223> /note="Gene Name:
bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404969"

<400> 9897
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1 5 10 15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
20 25 30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
35 40 45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
50 55 60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65 70 75 80

```
Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
                85                  90                  95

Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
            100                 105                 110

Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
        115                 120                 125

Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
    130                 135                 140

Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala Val Ser Ser Ala Lys
145                 150                 155                 160

Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln Gln Glu
                165                 170                 175

Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro Leu Asn Val Val
            180                 185                 190

Gln Gly Ala Ser Val Asn Ser Ser Ser Gln Thr Ala Ala Gln Val Thr
        195                 200                 205

Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Ala Thr Ser Ala
    210                 215                 220

Val Lys Ala Ser Ser Glu Phe Ser Pro Thr Phe Thr Glu Lys Ser Val
225                 230                 235                 240

Ala Leu Pro Pro Ile Lys Glu Asn Met Pro Lys Asn Val Leu Pro Asp
                245                 250                 255

Ser Gln Gln Gln Tyr Asn Val Val Lys Thr Val Lys Val Thr Glu Gln
            260                 265                 270

Leu Arg His Cys Ser Glu Ile Leu Lys Glu Met Leu Ala Lys Lys His
        275                 280                 285

Phe Ser Tyr Ala Trp Pro Phe Tyr Asn Pro Val Asp Val Asn Ala Leu
    290                 295                 300

Gly Leu His Asn Tyr Tyr Asp Val Val Lys Asn Pro Met Asp Leu Gly
```

```
305                 310                 315                 320

Thr Ile Lys Glu Lys Met Asp Asn Gln Glu Tyr Lys Asp Ala Tyr Lys
                325                 330                 335

Phe Ala Ala Asp Val Arg Leu Met Phe Met Asn Cys Tyr Lys Tyr Asn
            340                 345                 350

Pro Pro Asp His Glu Val Val Thr Met Ala Arg Met Leu Gln Asp Val
        355                 360                 365

Phe Glu Thr His Phe Ser Lys Ile Pro Ile Glu Pro Val Glu Ser Met
    370                 375                 380

Pro Leu Cys Tyr Ile Lys Thr Asp Ile Thr Glu Thr Thr Gly Arg Glu
385                 390                 395                 400

Asn Thr Asn Glu Ala Ser Ser Glu Gly Asn Ser Ser Asp Asp Ser Glu
                405                 410                 415

Asp Glu Arg Val Lys Arg Leu Ala Lys Leu Gln Glu Gln Leu Lys Ala
            420                 425                 430

Val His Gln Gln Leu Gln Val Leu Ser Gln Val Pro Phe Arg Lys Leu
        435                 440                 445

Asn Lys Lys Lys Glu Lys Ser Lys Lys Glu Lys Lys Lys Glu
    450                 455                 460


<210> 9898
<211> 31
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "

<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain, testis-specific; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000408138"

<400> 9898
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1   5   10   15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln
            20   25   30

<210> 9899
<211> 52
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "

<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

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<221> source
<223> /note="Gene Name:
      bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000408625"

<400> 9899
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1   5   10   15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
            20   25   30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
        35   40   45

Ser Trp Pro Phe
    50

<210> 9900
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "

<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410587"

<400> 9900

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Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1               5                  10                  15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
            20                  25                  30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
        35                  40                  45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
    50                  55                  60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65                  70                  75                  80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
                85                  90                  95

Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
            100                 105                 110

Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
        115                 120                 125

Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
    130                 135                 140

Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala
145                 150                 155
```

<210> 9901
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "

<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414349"

<400> 9901
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1 5 10 15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
20 25 30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
35 40 45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
50 55 60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65 70 75 80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
85 90 95

<210> 9902
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "

<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416714"

<400> 9902
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1 5 10 15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
20 25 30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
35 40 45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
50 55 60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65 70 75 80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
85 90 95

Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly
100 105 110

Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln
115 120 125

Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu
130 135 140

Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala Val Ser Ser Ala Lys
145 150 155 160

Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln Gln Glu
165 170 175

```
Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro Leu Asn Val Val
            180                 185                 190


Gln Gly Ala Ser Val Asn Ser Ser
        195                 200


<210> 9903
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "

<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

<220>
<221> source
<223> /note="Gene Name:
      bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446599"

<400> 9903
Met Asp Leu Asn Thr Ile Lys Lys Arg Leu Glu Asn Lys Tyr Tyr Ala
1               5                   10                  15


Lys Ala Ser Glu Cys Ile Glu Asp Phe Asn Thr Met Phe Ser Asn Cys
            20                  25                  30


Tyr Leu Tyr Asn Lys Pro Gly Asp Asp Ile Val Leu Met Ala Gln Ala
        35                  40                  45


Leu Glu Lys Leu Phe Met Gln Lys Leu Ser Gln Met Pro Gln Glu
    50                  55                  60


<210> 9904
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1988; "
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<220>
<221> source
<223> /note="Gene Symbol: BRDT; "

<220>
<221> source
<223> /note="Gene Name:
bromodomain, testis-specific; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447394"

<400> 9904
Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro
1 5 10 15

Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu
20 25 30

Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe
35 40 45

Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Gln Leu Pro
50 55 60

Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys
65 70 75 80

Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu
85 90 95

Asp Phe Asn Thr
100

<210> 9905
<211> 659
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1989; "

<220>
<221> source
<223> /note="Gene Symbol: BTK; "

<220>
<221> source

<223> /note="Gene Name:
Bruton agammaglobulinemia tyr kinase; "

<220>
<221> source
<223> /note="Uniprot ID: Q06187; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000308176"

<400> 9905

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Met Ala Ala Val Ile Leu Glu Ser Ile Phe Leu Lys Arg Ser Gln Gln
1               5                  10                  15

Lys Lys Lys Thr Ser Pro Leu Asn Phe Lys Lys Arg Leu Phe Leu Leu
            20                  25                  30

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

Arg Gly Ser Lys Lys Gly Ser Ile Asp Val Glu Lys Ile Thr Cys Val
    50                  55                  60

Glu Thr Val Val Pro Glu Lys Asn Pro Pro Pro Glu Arg Gln Ile Pro
65                  70                  75                  80

Arg Arg Gly Glu Glu Ser Ser Glu Met Glu Gln Ile Ser Ile Ile Glu
                85                  90                  95

Arg Phe Pro Tyr Pro Phe Gln Val Val Tyr Asp Glu Gly Pro Leu Tyr
            100                 105                 110

Val Phe Ser Pro Thr Glu Glu Leu Arg Lys Arg Trp Ile His Gln Leu
        115                 120                 125

Lys Asn Val Ile Arg Tyr Asn Ser Asp Leu Val Gln Lys Tyr His Pro
    130                 135                 140

Cys Phe Trp Ile Asp Gly Gln Tyr Leu Cys Cys Ser Gln Thr Ala Lys
145                 150                 155                 160

Asn Ala Met Gly Cys Gln Ile Leu Glu Asn Arg Asn Gly Ser Leu Lys
                165                 170                 175

Pro Gly Ser Ser His Arg Lys Thr Lys Lys Pro Leu Pro Pro Thr Pro
```

```
            180                 185                 190

Glu Glu Asp Gln Ile Leu Lys Lys Pro Leu Pro Pro Glu Pro Ala Ala
        195                 200                 205

Ala Pro Val Ser Thr Ser Glu Leu Lys Lys Val Val Ala Leu Tyr Asp
    210                 215                 220

Tyr Met Pro Met Asn Ala Asn Asp Leu Gln Leu Arg Lys Gly Asp Glu
225                 230                 235                 240

Tyr Phe Ile Leu Glu Glu Ser Asn Leu Pro Trp Trp Arg Ala Arg Asp
                245                 250                 255

Lys Asn Gly Gln Glu Gly Tyr Ile Pro Ser Asn Tyr Val Thr Glu Ala
            260                 265                 270

Glu Asp Ser Ile Glu Met Tyr Glu Trp Tyr Ser Lys His Met Thr Arg
        275                 280                 285

Ser Gln Ala Glu Gln Leu Leu Lys Gln Glu Gly Lys Glu Gly Gly Phe
    290                 295                 300

Ile Val Arg Asp Ser Ser Lys Ala Gly Lys Tyr Thr Val Ser Val Phe
305                 310                 315                 320

Ala Lys Ser Thr Gly Asp Pro Gln Gly Val Ile Arg His Tyr Val Val
                325                 330                 335

Cys Ser Thr Pro Gln Ser Gln Tyr Tyr Leu Ala Glu Lys His Leu Phe
            340                 345                 350

Ser Thr Ile Pro Glu Leu Ile Asn Tyr His Gln His Asn Ser Ala Gly
        355                 360                 365

Leu Ile Ser Arg Leu Lys Tyr Pro Val Ser Gln Gln Asn Lys Asn Ala
    370                 375                 380

Pro Ser Thr Ala Gly Leu Gly Tyr Gly Ser Trp Glu Ile Asp Pro Lys
385                 390                 395                 400

Asp Leu Thr Phe Leu Lys Glu Leu Gly Thr Gly Gln Phe Gly Val Val
                405                 410                 415
```

```
Lys Tyr Gly Lys Trp Arg Gly Gln Tyr Asp Val Ala Ile Lys Met Ile
            420                 425                 430

Lys Glu Gly Ser Met Ser Glu Asp Glu Phe Ile Glu Glu Ala Lys Val
        435                 440                 445

Met Met Asn Leu Ser His Glu Lys Leu Val Gln Leu Tyr Gly Val Cys
    450                 455                 460

Thr Lys Gln Arg Pro Ile Phe Ile Ile Thr Glu Tyr Met Ala Asn Gly
465                 470                 475                 480

Cys Leu Leu Asn Tyr Leu Arg Glu Met Arg His Arg Phe Gln Thr Gln
                485                 490                 495

Gln Leu Leu Glu Met Cys Lys Asp Val Cys Glu Ala Met Glu Tyr Leu
            500                 505                 510

Glu Ser Lys Gln Phe Leu His Arg Asp Leu Ala Ala Arg Asn Cys Leu
        515                 520                 525

Val Asn Asp Gln Gly Val Val Lys Val Ser Asp Phe Gly Leu Ser Arg
    530                 535                 540

Tyr Val Leu Asp Asp Glu Tyr Thr Ser Ser Val Gly Ser Lys Phe Pro
545                 550                 555                 560

Val Arg Trp Ser Pro Pro Glu Val Leu Met Tyr Ser Lys Phe Ser Ser
                565                 570                 575

Lys Ser Asp Ile Trp Ala Phe Gly Val Leu Met Trp Glu Ile Tyr Ser
            580                 585                 590

Leu Gly Lys Met Pro Tyr Glu Arg Phe Thr Asn Ser Glu Thr Ala Glu
        595                 600                 605

His Ile Ala Gln Gly Leu Arg Leu Tyr Arg Pro His Leu Ala Ser Glu
    610                 615                 620

Lys Val Tyr Thr Ile Met Tyr Ser Cys Trp His Glu Lys Ala Asp Glu
625                 630                 635                 640
```

Arg Pro Thr Phe Lys Ile Leu Leu Ser Asn Ile Leu Asp Val Met Asp
645 650 655

Glu Glu Ser

<210> 9906
<211> 483
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1989; "

<220>
<221> source
<223> /note="Gene Symbol: BTK; "

<220>
<221> source
<223> /note="Gene Name:
Bruton agammaglobulinemia tyr kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000361971"

<400> 9906
Met Ala Ala Val Ile Leu Glu Ser Ile Phe Leu Lys Arg Ser Gln Gln
1 5 10 15

Lys Lys Lys Thr Ser Pro Leu Asn Phe Lys Lys Arg Leu Phe Leu Leu
20 25 30

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

Arg Gly Ser Lys Lys Gly Ser Ile Asp Val Glu Lys Ile Thr Cys Val
50 55 60

Glu Thr Val Val Pro Glu Lys Asn Pro Pro Pro Glu Arg Gln Ile Pro
65 70 75 80

Arg Arg Gly Glu Glu Ser Ser Glu Met Glu Gln Ile Ser Ile Ile Glu
85 90 95

Arg Phe Pro Tyr Pro Phe Gln Val Val Tyr Asp Glu Gly Pro Leu Tyr

```
            100                 105                 110

Val Phe Ser Pro Thr Glu Glu Leu Arg Lys Arg Trp Ile His Gln Leu
        115                 120                 125

Lys Asn Val Ile Arg Tyr Asn Ser Asp Leu Val Gln Lys Tyr His Pro
    130                 135                 140

Cys Phe Trp Ile Asp Gly Gln Tyr Leu Cys Cys Ser Gln Thr Ala Lys
145                 150                 155                 160

Asn Ala Met Gly Cys Gln Ile Leu Glu Asn Arg Asn Gly Ser Leu Lys
                165                 170                 175

Pro Gly Ser Ser His Arg Lys Thr Lys Lys Pro Leu Pro Pro Thr Pro
            180                 185                 190

Glu Glu Asp Gln Ile Leu Lys Lys Pro Leu Pro Pro Glu Pro Ala Ala
        195                 200                 205

Ala Pro Val Ser Thr Ser Glu Leu Lys Lys Val Val Ala Leu Tyr Asp
    210                 215                 220

Tyr Met Pro Met Asn Ala Asn Asp Leu Gln Leu Arg Lys Gly Asp Glu
225                 230                 235                 240

Tyr Phe Ile Leu Glu Glu Ser Asn Leu Pro Trp Trp Arg Ala Arg Asp
                245                 250                 255

Lys Asn Gly Gln Glu Gly Tyr Ile Pro Ser Asn Tyr Val Thr Glu Ala
            260                 265                 270

Glu Asp Ser Ile Glu Met Tyr Glu Trp Tyr Ser Lys His Met Thr Arg
        275                 280                 285

Ser Gln Ala Glu Gln Leu Leu Lys Gln Glu Gly Lys Glu Gly Gly Phe
    290                 295                 300

Ile Val Arg Asp Ser Ser Lys Ala Gly Lys Tyr Thr Val Ser Val Phe
305                 310                 315                 320

Ala Lys Ser Thr Gly Asp Pro Gln Gly Val Ile Arg His Tyr Val Val
                325                 330                 335
```

```
Cys Ser Thr Pro Gln Ser Gln Tyr Tyr Leu Ala Ala Arg Asn Cys Leu
            340                 345                 350

Val Asn Asp Gln Gly Val Val Lys Val Ser Asp Phe Gly Leu Ser Arg
        355                 360                 365

Tyr Val Leu Asp Asp Glu Tyr Thr Ser Ser Val Gly Ser Lys Phe Pro
    370                 375                 380

Val Arg Trp Ser Pro Pro Glu Val Leu Met Tyr Ser Lys Phe Ser Ser
385                 390                 395                 400

Lys Ser Asp Ile Trp Ala Phe Gly Val Leu Met Trp Glu Ile Tyr Ser
                405                 410                 415

Leu Gly Lys Met Pro Tyr Glu Arg Phe Thr Asn Ser Glu Thr Ala Glu
            420                 425                 430

His Ile Ala Gln Gly Leu Arg Leu Tyr Arg Pro His Leu Ala Ser Glu
        435                 440                 445

Lys Val Tyr Thr Ile Met Tyr Ser Cys Trp His Glu Lys Ala Asp Glu
    450                 455                 460

Arg Pro Thr Phe Lys Ile Leu Leu Ser Asn Ile Leu Asp Val Met Asp
465                 470                 475                 480

Glu Glu Ser
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<210> 9907
<211> 568
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1989; "

<220>
<221> source
<223> /note="Gene Symbol: BTK; "

<220>
<221> source

<223> /note="Gene Name:
Bruton agammaglobulinemia tyr kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479125"

<400> 9907

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Met Ala Ala Val Ile Leu Glu Ser Ile Phe Leu Lys Arg Ser Gln Gln
1               5                  10                  15

Lys Lys Lys Thr Ser Pro Leu Asn Phe Lys Lys Arg Leu Phe Leu Leu
            20                  25                  30

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

Arg Gly Ser Lys Lys Gly Ser Ile Asp Val Glu Lys Ile Thr Cys Val
    50                  55                  60

Glu Thr Val Val Pro Glu Lys Asn Pro Pro Pro Glu Arg Gln Ile Pro
65                  70                  75                  80

Arg Arg Gly Glu Glu Ser Ser Glu Met Glu Gln Ile Ser Ile Ile Glu
                85                  90                  95

Arg Phe Pro Tyr Pro Phe Gln Val Val Tyr Asp Glu Gly Pro Leu Tyr
            100                 105                 110

Val Phe Ser Pro Thr Glu Glu Leu Arg Lys Arg Trp Ile His Gln Leu
        115                 120                 125

Lys Asn Val Ile Arg Tyr Asn Ser Asp Leu Val Gln Lys Tyr His Pro
    130                 135                 140

Cys Phe Trp Ile Asp Gly Gln Tyr Leu Cys Cys Ser Gln Thr Ala Lys
145                 150                 155                 160

Asn Ala Met Gly Cys Gln Ile Leu Glu Asn Arg Asn Gly Ser Leu Lys
                165                 170                 175

Pro Gly Ser Ser His Arg Lys Thr Lys Lys Pro Leu Pro Pro Thr Pro
            180                 185                 190

Glu Glu Asp Gln Ile Leu Lys Lys Pro Leu Pro Pro Glu Pro Ala Ala
```

```
        195                 200                 205

Ala Pro Val Ser Thr Ser Glu Leu Lys Lys Val Val Ala Leu Tyr Asp
    210                 215                 220

Tyr Met Pro Met Asn Ala Asn Asp Leu Gln Leu Arg Lys Gly Asp Glu
225                 230                 235                 240

Tyr Phe Ile Leu Glu Glu Ser Asn Leu Pro Trp Trp Arg Ala Arg Asp
                245                 250                 255

Lys Asn Gly Gln Glu Gly Tyr Ile Pro Ser Asn Tyr Val Thr Glu Ala
            260                 265                 270

Glu Asp Ser Ile Glu Met Tyr Glu Trp Tyr Ser Lys His Met Thr Arg
        275                 280                 285

Ser Gln Ala Glu Gln Leu Leu Lys Gln Glu Gly Lys Glu Gly Gly Phe
    290                 295                 300

Ile Val Arg Asp Ser Ser Lys Ala Gly Lys Tyr Thr Val Ser Val Phe
305                 310                 315                 320

Ala Lys Ser Thr Gly Asp Pro Gln Gly Val Ile Arg His Tyr Val Val
                325                 330                 335

Cys Ser Thr Pro Gln Ser Gln Tyr Tyr Leu Ala Glu Lys His Leu Phe
            340                 345                 350

Ser Thr Ile Pro Glu Leu Ile Asn Tyr His Gln His Asn Ser Ala Gly
        355                 360                 365

Leu Ile Ser Arg Leu Lys Tyr Pro Val Ser Gln Gln Asn Lys Asn Ala
    370                 375                 380

Pro Ser Thr Ala Gly Leu Gly Tyr Gly Ser Trp Glu Ile Asp Pro Lys
385                 390                 395                 400

Asp Leu Thr Phe Leu Lys Glu Leu Gly Thr Gly Gln Phe Gly Val Val
                405                 410                 415

Lys Tyr Gly Lys Trp Arg Gly Gln Tyr Asp Val Ala Ile Lys Met Ile
            420                 425                 430
```

```
Lys Glu Gly Ser Met Ser Glu Asp Glu Phe Ile Glu Glu Ala Lys Val
        435                 440                 445

Met Met Asn Leu Ser His Glu Lys Leu Val Gln Leu Tyr Gly Val Cys
    450                 455                 460

Thr Lys Gln Arg Pro Ile Phe Ile Ile Thr Glu Tyr Met Ala Asn Gly
465                 470                 475                 480

Cys Leu Leu Asn Tyr Leu Arg Glu Met Arg His Arg Phe Gln Thr Gln
                485                 490                 495

Gln Leu Leu Glu Met Cys Lys Asp Val Cys Glu Ala Met Glu Tyr Leu
            500                 505                 510

Glu Ser Lys Gln Phe Leu His Arg Asp Leu Ala Ala Arg Asn Cys Leu
        515                 520                 525

Val Asn Asp Gln Gly Val Val Lys Val Ser Asp Phe Gly Leu Ser Arg
    530                 535                 540

Tyr Val Leu Asp Asp Glu Tyr Thr Ser Ser Val Gly Ser Lys Phe Pro
545                 550                 555                 560

Val Arg Trp Ser Pro Pro Glu Ser
                565
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<210> 9908
<211> 693
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1989; "

<220>
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<223> /note="Gene Symbol: BTK; "

<220>
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<223> /note="Gene Name:
Bruton agammaglobulinemia tyr kinase; "

<220>

<221> source
<223> /note="Uniprot ID: Q06187; "

<220>
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<223> /note="ENSP ID: ENSP00000483570"

<400> 9908

```
Met Ala Ser Trp Ser Ile Gln Gln Met Val Ile Gly Cys Pro Leu Cys
1               5                  10                  15

Gly Arg His Cys Ser Gly Gly Glu His Thr Gly Glu Leu Gln Lys Glu
            20                  25                  30

Glu Ala Met Ala Ala Val Ile Leu Glu Ser Ile Phe Leu Lys Arg Ser
        35                  40                  45

Gln Gln Lys Lys Lys Thr Ser Pro Leu Asn Phe Lys Lys Arg Leu Phe
    50                  55                  60

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

Gly Arg Arg Gly Ser Lys Lys Gly Ser Ile Asp Val Glu Lys Ile Thr
                85                  90                  95

Cys Val Glu Thr Val Val Pro Glu Lys Asn Pro Pro Pro Glu Arg Gln
            100                 105                 110

Ile Pro Arg Arg Gly Glu Glu Ser Ser Glu Met Glu Gln Ile Ser Ile
        115                 120                 125

Ile Glu Arg Phe Pro Tyr Pro Phe Gln Val Val Tyr Asp Glu Gly Pro
    130                 135                 140

Leu Tyr Val Phe Ser Pro Thr Glu Glu Leu Arg Lys Arg Trp Ile His
145                 150                 155                 160

Gln Leu Lys Asn Val Ile Arg Tyr Asn Ser Asp Leu Val Gln Lys Tyr
                165                 170                 175

His Pro Cys Phe Trp Ile Asp Gly Gln Tyr Leu Cys Cys Ser Gln Thr
            180                 185                 190

Ala Lys Asn Ala Met Gly Cys Gln Ile Leu Glu Asn Arg Asn Gly Ser
```

```
        195                 200                 205

Leu Lys Pro Gly Ser Ser His Arg Lys Thr Lys Lys Pro Leu Pro Pro
    210                 215                 220

Thr Pro Glu Glu Asp Gln Ile Leu Lys Lys Pro Leu Pro Pro Glu Pro
225                 230                 235                 240

Ala Ala Ala Pro Val Ser Thr Ser Glu Leu Lys Lys Val Val Ala Leu
                245                 250                 255

Tyr Asp Tyr Met Pro Met Asn Ala Asn Asp Leu Gln Leu Arg Lys Gly
            260                 265                 270

Asp Glu Tyr Phe Ile Leu Glu Glu Ser Asn Leu Pro Trp Trp Arg Ala
        275                 280                 285

Arg Asp Lys Asn Gly Gln Glu Gly Tyr Ile Pro Ser Asn Tyr Val Thr
    290                 295                 300

Glu Ala Glu Asp Ser Ile Glu Met Tyr Glu Trp Tyr Ser Lys His Met
305                 310                 315                 320

Thr Arg Ser Gln Ala Glu Gln Leu Leu Lys Gln Glu Gly Lys Glu Gly
                325                 330                 335

Gly Phe Ile Val Arg Asp Ser Ser Lys Ala Gly Lys Tyr Thr Val Ser
            340                 345                 350

Val Phe Ala Lys Ser Thr Gly Asp Pro Gln Gly Val Ile Arg His Tyr
        355                 360                 365

Val Val Cys Ser Thr Pro Gln Ser Gln Tyr Tyr Leu Ala Glu Lys His
    370                 375                 380

Leu Phe Ser Thr Ile Pro Glu Leu Ile Asn Tyr His Gln His Asn Ser
385                 390                 395                 400

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

Asn Ala Pro Ser Thr Ala Gly Leu Gly Tyr Gly Ser Trp Glu Ile Asp
            420                 425                 430
```

```
Pro Lys Asp Leu Thr Phe Leu Lys Glu Leu Gly Thr Gly Gln Phe Gly
        435                 440                 445

Val Val Lys Tyr Gly Lys Trp Arg Gly Gln Tyr Asp Val Ala Ile Lys
    450                 455                 460

Met Ile Lys Glu Gly Ser Met Ser Glu Asp Glu Phe Ile Glu Glu Ala
465                 470                 475                 480

Lys Val Met Met Asn Leu Ser His Glu Lys Leu Val Gln Leu Tyr Gly
                485                 490                 495

Val Cys Thr Lys Gln Arg Pro Ile Phe Ile Ile Thr Glu Tyr Met Ala
            500                 505                 510

Asn Gly Cys Leu Leu Asn Tyr Leu Arg Glu Met Arg His Arg Phe Gln
        515                 520                 525

Thr Gln Gln Leu Leu Glu Met Cys Lys Asp Val Cys Glu Ala Met Glu
    530                 535                 540

Tyr Leu Glu Ser Lys Gln Phe Leu His Arg Asp Leu Ala Ala Arg Asn
545                 550                 555                 560

Cys Leu Val Asn Asp Gln Gly Val Val Lys Val Ser Asp Phe Gly Leu
                565                 570                 575

Ser Arg Tyr Val Leu Asp Asp Glu Tyr Thr Ser Ser Val Gly Ser Lys
            580                 585                 590

Phe Pro Val Arg Trp Ser Pro Pro Glu Val Leu Met Tyr Ser Lys Phe
        595                 600                 605

Ser Ser Lys Ser Asp Ile Trp Ala Phe Gly Val Leu Met Trp Glu Ile
    610                 615                 620

Tyr Ser Leu Gly Lys Met Pro Tyr Glu Arg Phe Thr Asn Ser Glu Thr
625                 630                 635                 640

Ala Glu His Ile Ala Gln Gly Leu Arg Leu Tyr Arg Pro His Leu Ala
                645                 650                 655
```

Ser Glu Lys Val Tyr Thr Ile Met Tyr Ser Cys Trp His Glu Lys Ala
660 665 670

Asp Glu Arg Pro Thr Phe Lys Ile Leu Leu Ser Asn Ile Leu Asp Val
675 680 685

Met Asp Glu Glu Ser
690

<210> 9909
<211> 353
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1990; "

<220>
<221> source
<223> /note="Gene Symbol: BRIX1; "

<220>
<221> source
<223> /note="Gene Name:
BRX1, biogenesis of ribosomes; "

<220>
<221> source
<223> /note="Uniprot ID: Q8TDN6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000338862"

<400> 9909
Met Ala Ala Thr Lys Arg Lys Arg Arg Gly Gly Phe Ala Val Gln Ala
1 5 10 15

Lys Lys Pro Lys Arg Asn Glu Ile Asp Ala Glu Pro Pro Ala Lys Arg
20 25 30

His Ala Thr Ala Glu Glu Val Glu Glu Glu Glu Arg Asp Arg Ile Pro
35 40 45

Gly Pro Val Cys Lys Gly Lys Trp Lys Asn Lys Glu Arg Ile Leu Ile
50 55 60

Phe Ser Ser Arg Gly Ile Asn Phe Arg Thr Arg His Leu Met Gln Asp

65 70 75 80

Leu Arg Met Leu Met Pro His Ser Lys Ala Asp Thr Lys Met Asp Arg
85 90 95

Lys Asp Lys Leu Phe Val Ile Asn Glu Val Cys Glu Met Lys Asn Cys
100 105 110

Asn Lys Cys Ile Tyr Phe Glu Ala Lys Lys Lys Gln Asp Leu Tyr Met
115 120 125

Trp Leu Ser Asn Ser Pro His Gly Pro Ser Ala Lys Phe Leu Val Gln
130 135 140

Asn Ile His Thr Leu Ala Glu Leu Lys Met Thr Gly Asn Cys Leu Lys
145 150 155 160

Gly Ser Arg Pro Leu Leu Ser Phe Asp Pro Ala Phe Asp Glu Leu Pro
165 170 175

His Tyr Ala Leu Leu Lys Glu Leu Leu Ile Gln Ile Phe Ser Thr Pro
180 185 190

Arg Tyr His Pro Lys Ser Gln Pro Phe Val Asp His Val Phe Thr Phe
195 200 205

Thr Ile Leu Asp Asn Arg Ile Trp Phe Arg Asn Phe Gln Ile Ile Glu
210 215 220

Glu Asp Ala Ala Leu Val Glu Ile Gly Pro Arg Phe Val Leu Asn Leu
225 230 235 240

Ile Lys Ile Phe Gln Gly Ser Phe Gly Gly Pro Thr Leu Tyr Glu Asn
245 250 255

Pro His Tyr Gln Ser Pro Asn Met His Arg Arg Val Ile Arg Ser Ile
260 265 270

Thr Ala Ala Lys Tyr Arg Glu Lys Gln Gln Val Lys Asp Val Gln Lys
275 280 285

Leu Arg Lys Lys Glu Pro Lys Thr Leu Leu Pro His Asp Pro Thr Ala
290 295 300

```
Asp Val Phe Val Thr Pro Ala Glu Glu Lys Pro Ile Glu Ile Gln Trp
305                 310                 315                 320


Val Lys Pro Glu Pro Lys Val Asp Leu Lys Ala Arg Lys Lys Arg Ile
                325                 330                 335


Tyr Lys Arg Gln Arg Lys Met Lys Gln Arg Met Asp Ser Gly Lys Thr
            340                 345                 350


Lys
```

<210> 9910
<211> 474
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1991; "

<220>
<221> source
<223> /note="Gene Symbol: BSDC1; "

<220>
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<223> /note="Gene Name:
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domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NW68; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000344816"

<400> 9910

```
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1               5                   10                  15


Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe Met
            20                  25                  30


Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr Ala
        35                  40                  45
```

```
Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala Ile
    50                  55                  60

Ala Ala Cys Ser Arg Gly Ala Cys Phe Leu Cys Pro Phe Ser Ile Gln
65                  70                  75                  80

Thr Glu Gly Ser Ser Gly Ala Thr Glu Lys Met Lys Lys Gly Leu Ser
                85                  90                  95

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

Thr Ile Asp Cys Asp Val Ile Thr Leu Met Gly Thr Pro Ser Gly Thr
        115                 120                 125

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

Asp Pro Ala Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu Phe
145                 150                 155                 160

Asp Ala Trp Leu Ser Gln Phe Cys Leu Glu Glu Lys Lys Gly Glu Ile
                165                 170                 175

Ser Glu Leu Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr Lys
            180                 185                 190

Met Val Pro Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr Phe
        195                 200                 205

Tyr Lys Val His Gln Leu Glu Gln Glu Gln Ala Arg Arg Asp Ala Leu
    210                 215                 220

Lys Gln Arg Ala Glu Gln Ser Ile Ser Glu Glu Pro Gly Trp Glu Glu
225                 230                 235                 240

Glu Glu Glu Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu Ala
                245                 250                 255

Lys Val Pro Val Ala Lys Ile Ser Thr Phe Pro Glu Gly Glu Pro Gly
            260                 265                 270
```

```
Pro Gln Ser Pro Cys Glu Glu Asn Leu Val Thr Ser Val Glu Pro Pro
        275                 280                 285

Ala Glu Val Thr Pro Ser Glu Ser Ser Glu Ser Ile Ser Leu Val Thr
    290                 295                 300

Gln Ile Ala Asn Pro Ala Thr Ala Pro Glu Ala Arg Val Leu Pro Lys
305                 310                 315                 320

Asp Leu Ser Gln Lys Leu Leu Glu Ala Ser Leu Glu Glu Gln Gly Leu
                325                 330                 335

Ala Val Asp Val Gly Glu Thr Gly Pro Ser Pro Pro Ile His Ser Lys
            340                 345                 350

Pro Leu Thr Pro Ala Gly His Thr Gly Gly Pro Glu Pro Arg Pro Pro
        355                 360                 365

Ala Arg Val Glu Thr Leu Arg Glu Glu Ala Pro Thr Asp Leu Arg Val
    370                 375                 380

Phe Glu Leu Asn Ser Asp Ser Gly Lys Ser Thr Pro Ser Asn Asn Gly
385                 390                 395                 400

Lys Lys Gly Ser Ser Thr Asp Ile Ser Glu Asp Trp Glu Lys Asp Phe
                405                 410                 415

Asp Leu Asp Met Thr Glu Glu Glu Val Gln Met Ala Leu Ser Lys Val
            420                 425                 430

Asp Ala Ser Gly Glu Val Ser Gly Pro Gly Gly Ser Glu Gly Ser Glu
        435                 440                 445

Pro Asn Gly Pro Gly Cys Glu Ser Ser Pro Gln Pro Ala Gln Leu Ser
    450                 455                 460

Pro Gln Glu Gly Pro Cys Ser Cys Leu Arg
465                 470
```

<210> 9911
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1991; "

<220>
<221> source
<223> /note="Gene Symbol: BSDC1; "

<220>
<221> source
<223> /note="Gene Name:
BSD
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362620"

<400> 9911
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1 5 10 15

Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe Met
20 25 30

Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr Ala
35 40 45

Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala Gly
50 55 60

<210> 9912
<211> 447
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1991; "

<220>
<221> source
<223> /note="Gene Symbol: BSDC1; "

<220>
<221> source
<223> /note="Gene Name:
BSD
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NW68; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397759"

<400> 9912
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1   5   10   15

Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe Met
            20   25   30

Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr Ala
        35   40   45

Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala Ile
    50   55   60

Ala Ala Cys Ser Arg Gly Ala Cys Phe Leu Cys Pro Phe Ser Ile Gln
65   70   75   80

Thr Glu Gly Ser Ser Gly Ala Thr Glu Lys Met Lys Lys Gly Leu Ser
                85   90   95

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

Thr Ile Asp Cys Asp Val Ile Thr Leu Met Gly Thr Pro Ser Gly Thr
        115   120   125

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

Asp Pro Ala Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu Phe
145   150   155   160

Asp Ala Trp Leu Ser Gln Phe Cys Leu Glu Glu Lys Lys Gly Glu Ile
                165   170   175

Ser Glu Leu Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr Lys
            180   185   190

Met Val Pro Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr Phe
        195   200   205

```
Tyr Lys Val His Gln Leu Glu Gln Glu Gln Ala Arg Arg Asp Ala Leu
    210                 215                 220

Lys Gln Arg Ala Glu Gln Ser Ile Ser Glu Glu Pro Gly Trp Glu Glu
225                 230                 235                 240

Glu Glu Glu Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu Ala
                245                 250                 255

Lys Val Pro Val Ala Lys Ile Ser Thr Phe Pro Glu Gly Glu Pro Gly
            260                 265                 270

Pro Gln Ser Pro Cys Glu Glu Asn Leu Val Thr Ser Val Glu Pro Pro
        275                 280                 285

Ala Glu Val Thr Pro Ser Glu Ser Ser Glu Ser Ile Ser Leu Val Thr
    290                 295                 300

Gln Ile Ala Asn Pro Ala Thr Ala Pro Glu Ala Arg Val Leu Pro Lys
305                 310                 315                 320

Asp Leu Ser Gln Lys Leu Leu Glu Ala Ser Leu Glu Glu Gln Gly Leu
                325                 330                 335

Ala Val Asp Val Gly Glu Thr Gly Pro Ser Pro Pro Ile His Ser Lys
            340                 345                 350

Pro Leu Thr Pro Ala Gly His Thr Gly Gly Pro Glu Pro Arg Pro Pro
        355                 360                 365

Ala Arg Val Glu Thr Leu Arg Glu Glu Ala Pro Thr Asp Leu Arg Val
    370                 375                 380

Phe Glu Leu Asn Ser Asp Ser Gly Lys Ser Thr Pro Ser Asn Asn Gly
385                 390                 395                 400

Lys Lys Gly Ser Ser Thr Asp Ile Ser Glu Asp Trp Glu Lys Asp Phe
                405                 410                 415

Asp Leu Asp Met Thr Glu Glu Glu Val Gln Met Ala Leu Ser Lys Val
            420                 425                 430
```

Asp Ala Ser Gly Glu Leu Glu Asp Val Glu Trp Glu Asp Trp Glu
435 440 445

<210> 9913
<211> 374
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1991; "

<220>
<221> source
<223> /note="Gene Symbol: BSDC1; "

<220>
<221> source
<223> /note="Gene Name:
BSD
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NW68; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405752"

<400> 9913
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1 5 10 15

Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe Met
20 25 30

Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr Ala
35 40 45

Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala Ala
50 55 60

Arg Leu Tyr Ser Leu Gln Ser Asp Pro Ala Thr Tyr Cys Asn Glu Pro
65 70 75 80

Asp Gly Pro Pro Glu Leu Phe Asp Ala Trp Leu Ser Gln Phe Cys Leu
85 90 95

Glu Glu Lys Lys Gly Glu Ile Ser Glu Leu Leu Val Gly Ser Pro Ser

```
            100                 105                 110

Ile Arg Ala Leu Tyr Thr Lys Met Val Pro Ala Ala Val Ser His Ser
        115                 120                 125

Glu Phe Trp His Arg Tyr Phe Tyr Lys Val His Gln Leu Glu Gln Glu
    130                 135                 140

Gln Ala Arg Arg Asp Ala Leu Lys Gln Arg Ala Glu Gln Ser Ile Ser
145                 150                 155                 160

Glu Glu Pro Gly Trp Glu Glu Glu Glu Glu Glu Leu Met Gly Ile Ser
                165                 170                 175

Pro Ile Ser Pro Lys Glu Ala Lys Val Pro Val Ala Lys Ile Ser Thr
            180                 185                 190

Phe Pro Glu Gly Glu Pro Gly Pro Gln Ser Pro Cys Glu Glu Asn Leu
        195                 200                 205

Val Thr Ser Val Glu Pro Pro Ala Glu Val Thr Pro Ser Glu Ser Ser
    210                 215                 220

Glu Ser Ile Ser Leu Val Thr Gln Ile Ala Asn Pro Ala Thr Ala Pro
225                 230                 235                 240

Glu Ala Arg Val Leu Pro Lys Asp Leu Ser Gln Lys Leu Leu Glu Ala
                245                 250                 255

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

Ser Pro Pro Ile His Ser Lys Pro Leu Thr Pro Ala Gly His Thr Gly
        275                 280                 285

Gly Pro Glu Pro Arg Pro Pro Ala Arg Val Glu Thr Leu Arg Glu Glu
    290                 295                 300

Ala Pro Thr Asp Leu Arg Val Phe Glu Leu Asn Ser Asp Ser Gly Lys
305                 310                 315                 320

Ser Thr Pro Ser Asn Asn Gly Lys Lys Gly Ser Ser Thr Asp Ile Ser
                325                 330                 335
```

```
Glu Asp Trp Glu Lys Asp Phe Asp Leu Asp Met Thr Glu Glu Glu Val
            340                 345                 350

Gln Met Ala Leu Ser Lys Val Asp Ala Ser Gly Glu Leu Glu Asp Val
        355                 360                 365

Glu Trp Glu Asp Trp Glu
    370
```

<210> 9914
<211> 430
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1991; "

<220>
<221> source
<223> /note="Gene Symbol: BSDC1; "

<220>
<221> source
<223> /note="Gene Name:
BSD
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NW68; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412173"

<400> 9914

```
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1               5                  10                  15

Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe Met
            20                  25                  30

Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr Ala
        35                  40                  45

Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala Thr
    50                  55                  60
```

```
Glu Gly Ser Ser Gly Ala Thr Glu Lys Met Lys Lys Gly Leu Ser Asp
65                  70                  75                  80

Phe Leu Gly Val Ile Ser Asp Thr Phe Ala Pro Ser Pro Asp Lys Thr
                85                  90                  95

Ile Asp Cys Asp Val Ile Thr Leu Met Gly Thr Pro Ser Gly Thr Ala
            100                 105                 110

Glu Pro Tyr Asp Gly Thr Lys Ala Arg Leu Tyr Ser Leu Gln Ser Asp
        115                 120                 125

Pro Ala Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu Phe Asp
    130                 135                 140

Ala Trp Leu Ser Gln Phe Cys Leu Glu Glu Lys Lys Gly Glu Ile Ser
145                 150                 155                 160

Glu Leu Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr Lys Met
                165                 170                 175

Val Pro Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr Phe Tyr
            180                 185                 190

Lys Val His Gln Leu Glu Gln Glu Gln Ala Arg Arg Asp Ala Leu Lys
        195                 200                 205

Gln Arg Ala Glu Gln Ser Ile Ser Glu Glu Pro Gly Trp Glu Glu Glu
    210                 215                 220

Glu Glu Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu Ala Lys
225                 230                 235                 240

Val Pro Val Ala Lys Ile Ser Thr Phe Pro Glu Gly Glu Pro Gly Pro
                245                 250                 255

Gln Ser Pro Cys Glu Glu Asn Leu Val Thr Ser Val Glu Pro Pro Ala
            260                 265                 270

Glu Val Thr Pro Ser Glu Ser Ser Glu Ser Ile Ser Leu Val Thr Gln
        275                 280                 285
```

```
Ile Ala Asn Pro Ala Thr Ala Pro Glu Ala Arg Val Leu Pro Lys Asp
    290                 295                 300

Leu Ser Gln Lys Leu Leu Glu Ala Ser Leu Glu Glu Gln Gly Leu Ala
305                 310                 315                 320

Val Asp Val Gly Glu Thr Gly Pro Ser Pro Pro Ile His Ser Lys Pro
                325                 330                 335

Leu Thr Pro Ala Gly His Thr Gly Gly Pro Glu Pro Arg Pro Pro Ala
            340                 345                 350

Arg Val Glu Thr Leu Arg Glu Glu Ala Pro Thr Asp Leu Arg Val Phe
        355                 360                 365

Glu Leu Asn Ser Asp Ser Gly Lys Ser Thr Pro Ser Asn Asn Gly Lys
    370                 375                 380

Lys Gly Ser Ser Thr Asp Ile Ser Glu Asp Trp Glu Lys Asp Phe Asp
385                 390                 395                 400

Leu Asp Met Thr Glu Glu Glu Val Gln Met Ala Leu Ser Lys Val Asp
                405                 410                 415

Ala Ser Gly Glu Leu Glu Asp Val Glu Trp Glu Asp Trp Glu
            420                 425                 430


<210> 9915
<211> 428
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1991; "

<220>
<221> source
<223> /note="Gene Symbol: BSDC1; "

<220>
<221> source
<223> /note="Gene Name:
      BSD
      domain containing 1; "

<220>
<221> source
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<223> /note="Uniprot ID: Q9NW68; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414103"

<400> 9915

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Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1               5                  10                  15

Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe Met
            20                  25                  30

Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr Ala
        35                  40                  45

Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala Thr
    50                  55                  60

Glu Gly Ser Ser Gly Ala Thr Glu Lys Met Lys Lys Gly Leu Ser Asp
65                  70                  75                  80

Phe Leu Gly Val Ile Ser Asp Thr Phe Ala Pro Ser Pro Asp Lys Thr
                85                  90                  95

Ile Asp Cys Asp Val Ile Thr Leu Met Gly Thr Pro Ser Gly Thr Ala
            100                 105                 110

Glu Pro Tyr Asp Gly Thr Lys Ala Arg Leu Tyr Ser Leu Gln Ser Asp
        115                 120                 125

Pro Ala Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu Phe Asp
    130                 135                 140

Ala Trp Leu Ser Gln Phe Cys Leu Glu Glu Lys Lys Gly Glu Ile Ser
145                 150                 155                 160

Glu Leu Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr Lys Met
                165                 170                 175

Val Pro Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr Phe Tyr
            180                 185                 190

Lys Val His Gln Leu Glu Gln Glu Gln Ala Arg Arg Asp Ala Leu Lys
        195                 200                 205
```

```
Gln Arg Ala Glu Gln Ser Ile Ser Glu Glu Pro Gly Trp Glu Glu Glu
    210                 215                 220

Glu Glu Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu Ala Lys
225                 230                 235                 240

Val Pro Val Ala Lys Ile Ser Thr Phe Pro Glu Gly Glu Pro Gly Pro
                245                 250                 255

Gln Ser Pro Cys Glu Glu Asn Leu Val Thr Ser Val Glu Pro Pro Ala
            260                 265                 270

Glu Val Thr Pro Ser Glu Ser Ser Glu Ser Ile Ser Leu Val Thr Gln
        275                 280                 285

Ile Ala Asn Pro Ala Thr Ala Pro Glu Ala Arg Val Leu Pro Lys Asp
    290                 295                 300

Leu Ser Gln Lys Leu Leu Glu Ala Ser Leu Glu Glu Gln Gly Leu Ala
305                 310                 315                 320

Val Asp Val Gly Glu Thr Gly Pro Ser Pro Pro Ile His Ser Lys Pro
                325                 330                 335

Leu Thr Pro Ala Gly His Thr Gly Gly Pro Glu Pro Arg Pro Pro Ala
            340                 345                 350

Arg Val Glu Thr Leu Arg Glu Glu Ala Pro Thr Asp Leu Arg Val Phe
        355                 360                 365

Glu Leu Asn Ser Asp Ser Gly Lys Ser Thr Pro Ser Asn Asn Gly Lys
    370                 375                 380

Lys Glu Thr Arg Ser Gln Phe Thr Val Asp Phe Leu Trp Lys Ile Ser
385                 390                 395                 400

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

Asn Leu Pro Phe Pro Arg Leu Lys His Gly His Gln
            420                 425
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<210> 9916
<211> 335
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1991; "

<220>
<221> source
<223> /note="Gene Symbol: BSDC1; "

<220>
<221> source
<223> /note="Gene Name:
BSD
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NW68; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432382"

<400> 9916
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1   5   10   15

Ser Tyr Gln Ala Val Lys Glu Lys Ala Arg Leu Tyr Ser Leu Gln Ser
            20   25   30

Asp Pro Ala Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu Phe
        35   40   45

Asp Ala Trp Leu Ser Gln Phe Cys Leu Glu Glu Lys Lys Gly Glu Ile
    50   55   60

Ser Glu Leu Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr Lys
65   70   75   80

Met Val Pro Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr Phe
                85   90   95

Tyr Lys Val His Gln Leu Glu Gln Glu Gln Ala Arg Arg Asp Ala Leu
            100   105   110

```
Lys Gln Arg Ala Glu Gln Ser Ile Ser Glu Glu Pro Gly Trp Glu Glu
        115                 120                 125

Glu Glu Glu Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu Ala
    130                 135                 140

Lys Val Pro Val Ala Lys Ile Ser Thr Phe Pro Glu Gly Glu Pro Gly
145                 150                 155                 160

Pro Gln Ser Pro Cys Glu Glu Asn Leu Val Thr Ser Val Glu Pro Pro
                165                 170                 175

Ala Glu Val Thr Pro Ser Glu Ser Ser Glu Ser Ile Ser Leu Val Thr
            180                 185                 190

Gln Ile Ala Asn Pro Ala Thr Ala Pro Glu Ala Arg Val Leu Pro Lys
        195                 200                 205

Asp Leu Ser Gln Lys Leu Leu Glu Ala Ser Leu Glu Glu Gln Gly Leu
    210                 215                 220

Ala Val Asp Val Gly Glu Thr Gly Pro Ser Pro Pro Ile His Ser Lys
225                 230                 235                 240

Pro Leu Thr Pro Ala Gly His Thr Gly Gly Pro Glu Pro Arg Pro Pro
                245                 250                 255

Ala Arg Val Glu Thr Leu Arg Glu Glu Ala Pro Thr Asp Leu Arg Val
            260                 265                 270

Phe Glu Leu Asn Ser Asp Ser Gly Lys Ser Thr Pro Ser Asn Asn Gly
        275                 280                 285

Lys Lys Gly Ser Ser Thr Asp Ile Ser Glu Asp Trp Glu Lys Asp Phe
    290                 295                 300

Asp Leu Asp Met Thr Glu Glu Glu Val Gln Met Ala Leu Ser Lys Val
305                 310                 315                 320

Asp Ala Ser Gly Glu Leu Glu Asp Val Glu Trp Glu Asp Trp Glu
                325                 330                 335
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<210> 9917

<211> 177
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1991; "

<220>
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<223> /note="Gene Symbol: BSDC1; "

<220>
<221> source
<223> /note="Gene Name:
BSD
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432524"

<400> 9917

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Met Val Ala Glu Leu Ala Ala Ala Glu Leu Pro Ser Ser Gln Arg Glu
1               5                   10                  15


Gly Val Ile Ser Asp Thr Phe Ala Pro Ser Pro Asp Lys Thr Ile Asp
            20                  25                  30


Cys Asp Val Ile Thr Leu Met Gly Thr Pro Ser Gly Thr Ala Glu Pro
        35                  40                  45


Tyr Asp Gly Thr Lys Ala Arg Leu Tyr Ser Leu Gln Ser Asp Pro Ala
    50                  55                  60


Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu Phe Asp Ala Trp
65                  70                  75                  80


Leu Ser Gln Phe Cys Leu Glu Glu Lys Lys Gly Glu Ile Ser Glu Leu
                85                  90                  95


Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr Lys Met Val Pro
            100                 105                 110


Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr Phe Tyr Lys Val
        115                 120                 125


His Gln Leu Glu Gln Glu Gln Ala Arg Arg Asp Ala Leu Lys Gln Arg
    130                 135                 140
```

```
Ala Glu Gln Ser Ile Ser Glu Glu Pro Gly Trp Glu Glu Glu Glu Glu
145                 150                 155                 160


Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu Ala Lys Val Pro
                165                 170                 175


Val



<210> 9918
<211> 89
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1991; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
      BSD
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432841"

<400> 9918
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1               5                   10                  15


Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe Met
            20                  25                  30


Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr Ala
        35                  40                  45


Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala Gly
    50                  55                  60


Pro Arg Asn Cys Leu Thr Pro Gly Phe Pro Ser Ser Ala Trp Arg Arg
65                  70                  75                  80
```

Arg Arg Gly Arg Ser Gln Ser Ser Leu
85

<210> 9919
<211> 156
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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BSD
domain containing 1; "

<220>
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<400> 9919
Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln Gln
1 5 10 15

Ser Tyr Gln Ala Val Lys Glu Lys Thr Glu Gly Ser Ser Gly Ala Thr
20 25 30

Glu Lys Met Lys Lys Gly Leu Ser Asp Phe Leu Gly Val Ile Ser Asp
35 40 45

Thr Phe Ala Pro Ser Pro Asp Lys Thr Ile Asp Cys Asp Val Ile Thr
50 55 60

Leu Met Gly Thr Pro Ser Gly Thr Ala Glu Pro Tyr Asp Gly Thr Lys
65 70 75 80

Ala Arg Leu Tyr Ser Leu Gln Ser Asp Pro Ala Thr Tyr Cys Asn Glu
85 90 95

Pro Asp Gly Pro Pro Glu Leu Phe Asp Ala Trp Leu Ser Gln Phe Cys
100 105 110

```
Leu Glu Glu Lys Lys Gly Glu Ile Ser Glu Leu Leu Val Gly Ser Pro
        115                 120                 125

Ser Ile Arg Ala Leu Tyr Thr Lys Met Val Pro Ala Ala Val Ser His
    130                 135                 140

Ser Glu Phe Trp His Arg Tyr Phe Tyr Lys Val His
145                 150                 155


<210> 9920
<211> 1849
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1992; "

<220>
<221> source
<223> /note="Gene Symbol: BTAF1; "

<220>
<221> source
<223> /note="Gene Name:
      BTAF1 RNA polymerase II, B-TFIID transcription
      factor-associated, 170kDa; "

<220>
<221> source
<223> /note="Uniprot ID:  O14981; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265990"

<400> 9920
Met Ala Val Ser Arg Leu Asp Arg Leu Phe Ile Leu Leu Asp Thr Gly
1               5                   10                  15

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

Val Lys Leu His Pro His Glu Leu Asn Asn Leu Leu Ser Lys Val Leu
        35                  40                  45

Ile Tyr Leu Arg Ser Ala Asn Trp Asp Thr Arg Ile Ala Ala Gly Gln
    50                  55                  60

Ala Val Glu Ala Ile Val Lys Asn Val Pro Glu Trp Asn Pro Val Pro
```

65 70 75 80

Arg Thr Arg Gln Glu Pro Thr Ser Glu Ser Ser Met Glu Asp Ser Pro
85 90 95

Thr Thr Glu Arg Leu Asn Phe Asp Arg Phe Asp Ile Cys Arg Leu Leu
100 105 110

Gln His Gly Ala Ser Leu Leu Gly Ser Ala Gly Ala Glu Phe Glu Val
115 120 125

Gln Asp Glu Lys Ser Gly Glu Val Asp Pro Lys Glu Arg Ile Ala Arg
130 135 140

Gln Arg Lys Leu Leu Gln Lys Lys Leu Gly Leu Asn Met Gly Glu Ala
145 150 155 160

Ile Gly Met Ser Thr Glu Glu Leu Phe Asn Asp Glu Asp Leu Asp Tyr
165 170 175

Thr Pro Thr Ser Ala Ser Phe Val Asn Lys Gln Pro Thr Leu Gln Ala
180 185 190

Ala Glu Leu Ile Asp Ser Glu Phe Arg Ala Gly Met Ser Asn Arg Gln
195 200 205

Lys Asn Lys Ala Lys Arg Met Ala Lys Leu Phe Ala Lys Gln Arg Ser
210 215 220

Arg Asp Ala Val Glu Thr Asn Glu Lys Ser Asn Asp Ser Thr Asp Gly
225 230 235 240

Glu Pro Glu Glu Lys Arg Arg Lys Ile Ala Asn Val Val Ile Asn Gln
245 250 255

Ser Ala Asn Asp Ser Lys Val Leu Ile Asp Asn Ile Pro Asp Ser Ser
260 265 270

Ser Leu Ile Glu Glu Thr Asn Glu Trp Pro Leu Glu Ser Phe Cys Glu
275 280 285

Glu Leu Cys Asn Asp Leu Phe Asn Pro Ser Trp Glu Val Arg His Gly
290 295 300

Ala Gly Thr Gly Leu Arg Glu Ile Leu Lys Ala His Gly Lys Ser Gly
305 310 315 320

Gly Lys Met Gly Asp Ser Thr Leu Glu Glu Met Ile Gln Gln His Gln
325 330 335

Glu Trp Leu Glu Asp Leu Val Ile Arg Leu Leu Cys Val Phe Ala Leu
340 345 350

Asp Arg Phe Gly Asp Phe Val Ser Asp Glu Val Val Ala Pro Val Arg
355 360 365

Glu Thr Cys Ala Gln Thr Leu Gly Val Val Leu Lys His Met Asn Glu
370 375 380

Thr Gly Val His Lys Thr Val Asp Val Leu Leu Lys Leu Leu Thr Gln
385 390 395 400

Glu Gln Trp Glu Val Arg His Gly Gly Leu Leu Gly Ile Lys Tyr Ala
405 410 415

Leu Ala Val Arg Gln Asp Val Ile Asn Thr Leu Leu Pro Lys Val Leu
420 425 430

Thr Arg Ile Ile Glu Gly Leu Gln Asp Leu Asp Asp Asp Val Arg Ala
435 440 445

Val Ala Ala Ala Ser Leu Val Pro Val Val Glu Ser Leu Val Tyr Leu
450 455 460

Gln Thr Gln Lys Val Pro Phe Ile Ile Asn Thr Leu Trp Asp Ala Leu
465 470 475 480

Leu Glu Leu Asp Asp Leu Thr Ala Ser Thr Asn Ser Ile Met Thr Leu
485 490 495

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

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

```
Thr Ile Ser Ser Val Arg Arg Ala Ala Leu Glu Thr Leu Phe Thr Leu
    530                 535                 540

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

Pro Asp Met Leu Arg His Ile Phe Gln Phe Cys Val Leu Glu Ser Ser
                565                 570                 575

Gln Glu Ile Leu Asp Leu Ile His Lys Val Trp Met Glu Leu Leu Ser
            580                 585                 590

Lys Ala Ser Val Gln Tyr Val Val Ala Ala Ala Cys Pro Trp Met Gly
        595                 600                 605

Ala Trp Leu Cys Leu Met Met Gln Pro Ser His Leu Pro Ile Asp Leu
    610                 615                 620

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

Lys Val Arg Gln Gly Gln Ser Gln Asn Lys Glu Val Leu Gln Glu Tyr
                645                 650                 655

Ile Ala Gly Ala Asp Thr Ile Met Glu Asp Pro Ala Thr Arg Asp Phe
            660                 665                 670

Val Val Met Arg Ala Arg Met Met Ala Ala Lys Leu Leu Gly Ala Leu
        675                 680                 685

Cys Cys Cys Ile Cys Asp Pro Gly Val Asn Val Val Thr Gln Glu Ile
    690                 695                 700

Lys Pro Ala Glu Ser Leu Gly Gln Leu Leu Leu Phe His Leu Asn Ser
705                 710                 715                 720

Lys Ser Ala Leu Gln Arg Ile Ser Val Ala Leu Val Ile Cys Glu Trp
                725                 730                 735

Ala Ala Leu Gln Lys Glu Cys Lys Ala Val Thr Leu Ala Val Gln Pro
            740                 745                 750
```

```
Arg Leu Leu Asp Ile Leu Ser Glu His Leu Tyr Tyr Asp Glu Ile Ala
        755                 760                 765

Val Pro Phe Thr Arg Met Gln Asn Glu Cys Lys Gln Leu Ile Ser Ser
    770                 775                 780

Leu Ala Asp Val His Ile Glu Val Gly Asn Arg Val Asn Asn Asn Val
785                 790                 795                 800

Leu Thr Ile Asp Gln Ala Ser Asp Leu Val Thr Thr Val Phe Asn Glu
                805                 810                 815

Ala Thr Ser Ser Phe Asp Leu Asn Pro Gln Val Leu Gln Gln Leu Asp
            820                 825                 830

Ser Lys Arg Gln Gln Val Gln Met Thr Val Thr Glu Thr Asn Gln Glu
        835                 840                 845

Trp Gln Val Leu Gln Leu Arg Val His Thr Phe Ala Ala Cys Ala Val
    850                 855                 860

Val Ser Leu Gln Gln Leu Pro Glu Lys Leu Asn Pro Ile Ile Lys Pro
865                 870                 875                 880

Leu Met Glu Thr Ile Lys Lys Glu Glu Asn Thr Leu Val Gln Asn Tyr
                885                 890                 895

Ala Ala Gln Cys Ile Ala Lys Leu Leu Gln Gln Cys Thr Thr Arg Thr
            900                 905                 910

Pro Cys Pro Asn Ser Lys Ile Ile Lys Asn Leu Cys Ser Ser Leu Cys
        915                 920                 925

Val Asp Pro Tyr Leu Thr Pro Cys Val Thr Cys Pro Val Pro Thr Gln
    930                 935                 940

Ser Gly Gln Glu Asn Ser Lys Gly Ser Thr Ser Glu Lys Asp Gly Met
945                 950                 955                 960

His His Thr Val Thr Lys His Arg Gly Ile Ile Thr Leu Tyr Arg His
                965                 970                 975

Gln Lys Ala Ala Phe Ala Ile Thr Ser Arg Arg Gly Pro Thr Pro Lys
```

980 985 990

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

Ile Leu Val Glu Leu Asp Glu Ala Gln Lys Pro Tyr Leu Val Gln
1010 1015 1020

Arg Arg Gly Ala Glu Phe Ala Leu Thr Thr Ile Val Lys His Phe
1025 1030 1035

Gly Gly Glu Met Ala Val Lys Leu Pro His Leu Trp Asp Ala Met
1040 1045 1050

Val Gly Pro Leu Arg Asn Thr Ile Asp Ile Asn Asn Phe Asp Gly
1055 1060 1065

Lys Ser Leu Leu Asp Lys Gly Asp Ser Pro Ala Gln Glu Leu Val
1070 1075 1080

Asn Ser Leu Gln Val Phe Glu Thr Ala Ala Ala Ser Met Asp Ser
1085 1090 1095

Glu Leu His Pro Leu Leu Val Gln His Leu Pro His Leu Tyr Met
1100 1105 1110

Cys Leu Gln Tyr Pro Ser Thr Ala Val Arg His Met Ala Ala Arg
1115 1120 1125

Cys Val Gly Val Met Ser Lys Ile Ala Thr Met Glu Thr Met Asn
1130 1135 1140

Ile Phe Leu Glu Lys Val Leu Pro Trp Leu Gly Ala Ile Asp Asp
1145 1150 1155

Ser Val Lys Gln Glu Gly Ala Ile Glu Ala Leu Ala Cys Val Met
1160 1165 1170

Glu Gln Leu Asp Val Gly Ile Val Pro Tyr Ile Val Leu Leu Val
1175 1180 1185

Val Pro Val Leu Gly Arg Met Ser Asp Gln Thr Asp Ser Val Arg

1190 1195 1200

Phe Met Ala Thr Gln Cys Phe Ala Thr Leu Ile Arg Leu Met Pro
1205 1210 1215

Leu Glu Ala Gly Ile Pro Asp Pro Pro Asn Met Ser Ala Glu Leu
1220 1225 1230

Ile Gln Leu Lys Ala Lys Glu Arg His Phe Leu Glu Gln Leu Leu
1235 1240 1245

Asp Gly Lys Lys Leu Glu Asn Tyr Lys Ile Pro Val Pro Ile Asn
1250 1255 1260

Ala Glu Leu Arg Lys Tyr Gln Gln Asp Gly Val Asn Trp Leu Ala
1265 1270 1275

Phe Leu Asn Lys Tyr Lys Leu His Gly Ile Leu Cys Asp Asp Met
1280 1285 1290

Gly Leu Gly Lys Thr Leu Gln Ser Ile Cys Ile Leu Ala Gly Asp
1295 1300 1305

His Cys His Arg Ala Gln Glu Tyr Ala Arg Ser Lys Leu Ala Glu
1310 1315 1320

Cys Met Pro Leu Pro Ser Leu Val Val Cys Pro Pro Thr Leu Thr
1325 1330 1335

Gly His Trp Val Asp Glu Val Gly Lys Phe Cys Ser Arg Glu Tyr
1340 1345 1350

Leu Asn Pro Leu His Tyr Thr Gly Pro Pro Thr Glu Arg Ile Arg
1355 1360 1365

Leu Gln His Gln Val Lys Arg His Asn Leu Ile Val Ala Ser Tyr
1370 1375 1380

Asp Val Val Arg Asn Asp Ile Asp Phe Phe Arg Asn Ile Lys Phe
1385 1390 1395

Asn Tyr Cys Ile Leu Asp Glu Gly His Val Ile Lys Asn Gly Lys
1400 1405 1410

```
Thr Lys  Leu Ser Lys Ala Val  Lys Gln Leu Thr Ala  Asn Tyr Arg
    1415                1420                1425

Ile Ile  Leu Ser Gly Thr Pro  Ile Gln Asn Asn Val  Leu Glu Leu
    1430                1435                1440

Trp Ser  Leu Phe Asp Phe Leu  Met Pro Gly Phe Leu  Gly Thr Glu
    1445                1450                1455

Arg Gln  Phe Ala Ala Arg Tyr  Gly Lys Pro Ile Leu  Ala Ser Arg
    1460                1465                1470

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

Met Asp  Ala Leu His Arg Gln  Val Leu Pro Phe Leu  Leu Arg Arg
    1490                1495                1500

Met Lys  Glu Asp Val Leu Gln  Asp Leu Pro Pro Lys  Ile Ile Gln
    1505                1510                1515

Asp Tyr  Tyr Cys Thr Leu Ser  Pro Leu Gln Val Gln  Leu Tyr Glu
    1520                1525                1530

Asp Phe  Ala Lys Ser Arg Ala  Lys Cys Asp Val Asp  Glu Thr Val
    1535                1540                1545

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

Ala Thr  Gly His Val Phe Gln  Ala Leu Gln Tyr Leu  Arg Lys Leu
    1565                1570                1575

Cys Asn  His Pro Ala Leu Val  Leu Thr Pro Gln His  Pro Glu Phe
    1580                1585                1590

Lys Thr  Thr Ala Glu Lys Leu  Ala Val Gln Asn Ser  Ser Leu His
    1595                1600                1605

Asp Ile  Gln His Ala Pro Lys  Leu Ser Ala Leu Lys  Gln Leu Leu
    1610                1615                1620
```

```
Leu Asp  Cys Gly Leu Gly Asn  Gly Ser Thr Ser Glu  Ser Gly Thr
    1625                1630                1635

Glu Ser  Val Val Ala Gln His  Arg Ile Leu Ile Phe  Cys Gln Leu
    1640                1645                1650

Lys Ser  Met Leu Asp Ile Val  Glu His Asp Leu Leu  Lys Pro His
    1655                1660                1665

Leu Pro  Ser Val Thr Tyr Leu  Arg Leu Asp Gly Ser  Ile Pro Pro
    1670                1675                1680

Gly Gln  Arg His Ser Ile Val  Ser Arg Phe Asn Asn  Asp Pro Ser
    1685                1690                1695

Ile Asp  Val Leu Leu Leu Thr  Thr His Val Gly Gly  Leu Gly Leu
    1700                1705                1710

Asn Leu  Thr Gly Ala Asp Thr  Val Val Phe Val Glu  His Asp Trp
    1715                1720                1725

Asn Pro  Met Arg Asp Leu Gln  Ala Met Asp Arg Ala  His Arg Ile
    1730                1735                1740

Gly Gln  Lys Arg Val Val Asn  Val Tyr Arg Leu Ile  Thr Arg Gly
    1745                1750                1755

Thr Leu  Glu Glu Lys Ile Met  Gly Leu Gln Lys Phe  Lys Met Asn
    1760                1765                1770

Ile Ala  Asn Thr Val Ile Ser  Gln Glu Asn Ser Ser  Leu Gln Ser
    1775                1780                1785

Met Gly  Thr Asp Gln Leu Leu  Asp Leu Phe Thr Leu  Asp Lys Asp
    1790                1795                1800

Gly Lys  Ala Glu Lys Ala Asp  Thr Ser Thr Ser Gly  Lys Ala Ser
    1805                1810                1815

Met Lys  Ser Ile Leu Glu Asn  Leu Ser Asp Leu Trp  Asp Gln Glu
    1820                1825                1830
```

Gln Tyr Asp Ser Glu Tyr Ser Leu Glu Asn Phe Met His Ser Leu
1835 1840 1845

Lys

<210> 9921
<211> 1849
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1992; "

<220>
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<223> /note="Gene Symbol: BTAF1; "

<220>
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<223> /note="Gene Name:
BTAF1 RNA polymerase II, B-TFIID transcription
factor-associated, 170kDa; "

<220>
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<223> /note="ENSP ID: ENSP00000439924"

<400> 9921
Met Gly Val Phe Arg Leu Asp Arg Leu Phe Ile Leu Leu Asp Thr Gly
1 5 10 15

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

Val Lys Leu His Pro His Glu Leu Asn Asn Leu Leu Ser Lys Val Leu
35 40 45

Ile Tyr Leu Arg Ser Ala Asn Trp Asp Thr Arg Ile Ala Ala Gly Gln
50 55 60

Ala Val Glu Ala Ile Val Lys Asn Val Pro Glu Trp Asn Pro Val Pro
65 70 75 80

Arg Thr Arg Gln Glu Pro Thr Ser Glu Ser Ser Met Glu Asp Ser Pro
85 90 95

Thr Thr Glu Arg Leu Asn Phe Asp Arg Phe Asp Ile Cys Arg Leu Leu

100 105 110

Gln His Gly Ala Ser Leu Leu Gly Ser Ala Gly Ala Glu Phe Glu Val
115 120 125

Gln Asp Glu Lys Ser Gly Glu Val Asp Pro Lys Glu Arg Ile Ala Arg
130 135 140

Gln Arg Lys Leu Leu Gln Lys Lys Leu Gly Leu Asn Met Gly Glu Ala
145 150 155 160

Ile Gly Met Ser Thr Glu Glu Leu Phe Asn Asp Glu Asp Leu Asp Tyr
165 170 175

Thr Pro Thr Ser Ala Ser Phe Val Asn Lys Gln Pro Thr Leu Gln Ala
180 185 190

Ala Glu Leu Ile Asp Ser Glu Phe Arg Ala Gly Met Ser Asn Arg Gln
195 200 205

Lys Asn Lys Ala Lys Arg Met Ala Lys Leu Phe Ala Lys Gln Arg Ser
210 215 220

Arg Asp Ala Val Glu Thr Asn Glu Lys Ser Asn Asp Ser Thr Asp Gly
225 230 235 240

Glu Pro Glu Glu Lys Arg Arg Lys Ile Ala Asn Val Val Ile Asn Gln
245 250 255

Ser Ala Asn Asp Ser Lys Val Leu Ile Asp Asn Ile Pro Asp Ser Ser
260 265 270

Ser Leu Ile Glu Glu Thr Asn Glu Trp Pro Leu Glu Ser Phe Cys Glu
275 280 285

Glu Leu Cys Asn Asp Leu Phe Asn Pro Ser Trp Glu Val Arg His Gly
290 295 300

Ala Gly Thr Gly Leu Arg Glu Ile Leu Lys Ala His Gly Lys Ser Gly
305 310 315 320

Gly Lys Met Gly Asp Ser Thr Leu Glu Glu Met Ile Gln Gln His Gln
325 330 335

```
Glu Trp Leu Glu Asp Leu Val Ile Arg Leu Leu Cys Val Phe Ala Leu
            340                 345                 350

Asp Arg Phe Gly Asp Phe Val Ser Asp Glu Val Val Ala Pro Val Arg
        355                 360                 365

Glu Thr Cys Ala Gln Thr Leu Gly Val Val Leu Lys His Met Asn Glu
    370                 375                 380

Thr Gly Val His Lys Thr Val Asp Val Leu Leu Lys Leu Leu Thr Gln
385                 390                 395                 400

Glu Gln Trp Glu Val Arg His Gly Gly Leu Leu Gly Ile Lys Tyr Ala
                405                 410                 415

Leu Ala Val Arg Gln Asp Val Ile Asn Thr Leu Leu Pro Lys Val Leu
            420                 425                 430

Thr Arg Ile Ile Glu Gly Leu Gln Asp Leu Asp Asp Asp Val Arg Ala
        435                 440                 445

Val Ala Ala Ala Ser Leu Val Pro Val Val Glu Ser Leu Val Tyr Leu
    450                 455                 460

Gln Thr Gln Lys Val Pro Phe Ile Ile Asn Thr Leu Trp Asp Ala Leu
465                 470                 475                 480

Leu Glu Leu Asp Asp Leu Thr Ala Ser Thr Asn Ser Ile Met Thr Leu
                485                 490                 495

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

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

Thr Ile Ser Ser Val Arg Arg Ala Ala Leu Glu Thr Leu Phe Thr Leu
    530                 535                 540

Leu Ser Thr Gln Asp Gln Asn Ser Ser Ser Trp Leu Ile Pro Ile Leu
545                 550                 555                 560
```

```
Pro Asp Met Leu Arg His Ile Phe Gln Phe Cys Val Leu Glu Ser Ser
                565                 570                 575

Gln Glu Ile Leu Asp Leu Ile His Lys Val Trp Met Glu Leu Leu Ser
            580                 585                 590

Lys Ala Ser Val Gln Tyr Val Val Ala Ala Ala Cys Pro Trp Met Gly
        595                 600                 605

Ala Trp Leu Cys Leu Met Met Gln Pro Ser His Leu Pro Ile Asp Leu
    610                 615                 620

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

Lys Val Arg Gln Gly Gln Ser Gln Asn Lys Glu Val Leu Gln Glu Tyr
                645                 650                 655

Ile Ala Gly Ala Asp Thr Ile Met Glu Asp Pro Ala Thr Arg Asp Phe
            660                 665                 670

Val Val Met Arg Ala Arg Met Met Ala Ala Lys Leu Leu Gly Ala Leu
        675                 680                 685

Cys Cys Cys Ile Cys Asp Pro Gly Val Asn Val Val Thr Gln Glu Ile
    690                 695                 700

Lys Pro Ala Glu Ser Leu Gly Gln Leu Leu Leu Phe His Leu Asn Ser
705                 710                 715                 720

Lys Ser Ala Leu Gln Arg Ile Ser Val Ala Leu Val Ile Cys Glu Trp
                725                 730                 735

Ala Ala Leu Gln Lys Glu Cys Lys Ala Val Thr Leu Ala Val Gln Pro
            740                 745                 750

Arg Leu Leu Asp Ile Leu Ser Glu His Leu Tyr Tyr Asp Glu Ile Ala
        755                 760                 765

Val Pro Phe Thr Arg Met Gln Asn Glu Cys Lys Gln Leu Ile Ser Ser
    770                 775                 780
```

```
Leu Ala Asp Val His Ile Glu Val Gly Asn Arg Val Asn Asn Asn Val
785                 790                 795                 800

Leu Thr Ile Asp Gln Ala Ser Asp Leu Val Thr Thr Val Phe Asn Glu
                805                 810                 815

Ala Thr Ser Ser Phe Asp Leu Asn Pro Gln Val Leu Gln Gln Leu Asp
            820                 825                 830

Ser Lys Arg Gln Gln Val Gln Met Thr Val Thr Glu Thr Asn Gln Glu
        835                 840                 845

Trp Gln Val Leu Gln Leu Arg Val His Thr Phe Ala Ala Cys Ala Val
    850                 855                 860

Val Ser Leu Gln Gln Leu Pro Glu Lys Leu Asn Pro Ile Ile Lys Pro
865                 870                 875                 880

Leu Met Glu Thr Ile Lys Lys Glu Glu Asn Thr Leu Val Gln Asn Tyr
                885                 890                 895

Ala Ala Gln Cys Ile Ala Lys Leu Leu Gln Gln Cys Thr Thr Arg Thr
            900                 905                 910

Pro Cys Pro Asn Ser Lys Ile Ile Lys Asn Leu Cys Ser Ser Leu Cys
        915                 920                 925

Val Asp Pro Tyr Leu Thr Pro Cys Val Thr Cys Pro Val Pro Thr Gln
    930                 935                 940

Ser Gly Gln Glu Asn Ser Lys Gly Ser Thr Ser Glu Lys Asp Gly Met
945                 950                 955                 960

His His Thr Val Thr Lys His Arg Gly Ile Ile Thr Leu Tyr Arg His
                965                 970                 975

Gln Lys Ala Ala Phe Ala Ile Thr Ser Arg Arg Gly Pro Thr Pro Lys
            980                 985                 990

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

```
Ile Leu  Val Glu Leu Asp Glu  Ala Gln Lys Pro Tyr  Leu Val Gln
    1010                1015                1020

Arg Arg  Gly Ala Glu Phe Ala  Leu Thr Thr Ile Val  Lys His Phe
    1025                1030                1035

Gly Gly  Glu Met Ala Val Lys  Leu Pro His Leu Trp  Asp Ala Met
    1040                1045                1050

Val Gly  Pro Leu Arg Asn Thr  Ile Asp Ile Asn Asn  Phe Asp Gly
    1055                1060                1065

Lys Ser  Leu Leu Asp Lys Gly  Asp Ser Pro Ala Gln  Glu Leu Val
    1070                1075                1080

Asn Ser  Leu Gln Val Phe Glu  Thr Ala Ala Ala Ser  Met Asp Ser
    1085                1090                1095

Glu Leu  His Pro Leu Leu Val  Gln His Leu Pro His  Leu Tyr Met
    1100                1105                1110

Cys Leu  Gln Tyr Pro Ser Thr  Ala Val Arg His Met  Ala Ala Arg
    1115                1120                1125

Cys Val  Gly Val Met Ser Lys  Ile Ala Thr Met Glu  Thr Met Asn
    1130                1135                1140

Ile Phe  Leu Glu Lys Val Leu  Pro Trp Leu Gly Ala  Ile Asp Asp
    1145                1150                1155

Ser Val  Lys Gln Glu Gly Ala  Ile Glu Ala Leu Ala  Cys Val Met
    1160                1165                1170

Glu Gln  Leu Asp Val Gly Ile  Val Pro Tyr Ile Val  Leu Leu Val
    1175                1180                1185

Val Pro  Val Leu Gly Arg Met  Ser Asp Gln Thr Asp  Ser Val Arg
    1190                1195                1200

Phe Met  Ala Thr Gln Cys Phe  Ala Thr Leu Ile Arg  Leu Met Pro
    1205                1210                1215

Leu Glu  Ala Gly Ile Pro Asp  Pro Pro Asn Met Ser  Ala Glu Leu
```

1220 1225 1230

Ile Gln Leu Lys Ala Lys Glu Arg His Phe Leu Glu Gln Leu Leu
1235 1240 1245

Asp Gly Lys Lys Leu Glu Asn Tyr Lys Ile Pro Val Pro Ile Asn
1250 1255 1260

Ala Glu Leu Arg Lys Tyr Gln Gln Asp Gly Val Asn Trp Leu Ala
1265 1270 1275

Phe Leu Asn Lys Tyr Lys Leu His Gly Ile Leu Cys Asp Asp Met
1280 1285 1290

Gly Leu Gly Lys Thr Leu Gln Ser Ile Cys Ile Leu Ala Gly Asp
1295 1300 1305

His Cys His Arg Ala Gln Glu Tyr Ala Arg Ser Lys Leu Ala Glu
1310 1315 1320

Cys Met Pro Leu Pro Ser Leu Val Val Cys Pro Pro Thr Leu Thr
1325 1330 1335

Gly His Trp Val Asp Glu Val Gly Lys Phe Cys Ser Arg Glu Tyr
1340 1345 1350

Leu Asn Pro Leu His Tyr Thr Gly Pro Pro Thr Glu Arg Ile Arg
1355 1360 1365

Leu Gln His Gln Val Lys Arg His Asn Leu Ile Val Ala Ser Tyr
1370 1375 1380

Asp Val Val Arg Asn Asp Ile Asp Phe Phe Arg Asn Ile Lys Phe
1385 1390 1395

Asn Tyr Cys Ile Leu Asp Glu Gly His Val Ile Lys Asn Gly Lys
1400 1405 1410

Thr Lys Leu Ser Lys Ala Val Lys Gln Leu Thr Ala Asn Tyr Arg
1415 1420 1425

Ile Ile Leu Ser Gly Thr Pro Ile Gln Asn Asn Val Leu Glu Leu
1430 1435 1440

```
Trp Ser  Leu Phe Asp Phe Leu  Met Pro Gly Phe Leu  Gly Thr Glu
    1445                1450                1455

Arg Gln  Phe Ala Ala Arg Tyr  Gly Lys Pro Ile Leu  Ala Ser Arg
    1460                1465                1470

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

Met Asp  Ala Leu His Arg Gln  Val Leu Pro Phe Leu  Leu Arg Arg
    1490                1495                1500

Met Lys  Glu Asp Val Leu Gln  Asp Leu Pro Pro Lys  Ile Ile Gln
    1505                1510                1515

Asp Tyr  Tyr Cys Thr Leu Ser  Pro Leu Gln Val Gln  Leu Tyr Glu
    1520                1525                1530

Asp Phe  Ala Lys Ser Arg Ala  Lys Cys Asp Val Asp  Glu Thr Val
    1535                1540                1545

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

Ala Thr  Gly His Val Phe Gln  Ala Leu Gln Tyr Leu  Arg Lys Leu
    1565                1570                1575

Cys Asn  His Pro Ala Leu Val  Leu Thr Pro Gln His  Pro Glu Phe
    1580                1585                1590

Lys Thr  Thr Ala Glu Lys Leu  Ala Val Gln Asn Ser  Ser Leu His
    1595                1600                1605

Asp Ile  Gln His Ala Pro Lys  Leu Ser Ala Leu Lys  Gln Leu Leu
    1610                1615                1620

Leu Asp  Cys Gly Leu Gly Asn  Gly Ser Thr Ser Glu  Ser Gly Thr
    1625                1630                1635

Glu Ser  Val Val Ala Gln His  Arg Ile Leu Ile Phe  Cys Gln Leu
    1640                1645                1650
```

Lys Ser Met Leu Asp Ile Val Glu His Asp Leu Leu Lys Pro His
1655 1660 1665

Leu Pro Ser Val Thr Tyr Leu Arg Leu Asp Gly Ser Ile Pro Pro
1670 1675 1680

Gly Gln Arg His Ser Ile Val Ser Arg Phe Asn Asn Asp Pro Ser
1685 1690 1695

Ile Asp Val Leu Leu Leu Thr Thr His Val Gly Gly Leu Gly Leu
1700 1705 1710

Asn Leu Thr Gly Ala Asp Thr Val Val Phe Val Glu His Asp Trp
1715 1720 1725

Asn Pro Met Arg Asp Leu Gln Ala Met Asp Arg Ala His Arg Ile
1730 1735 1740

Gly Gln Lys Arg Val Val Asn Val Tyr Arg Leu Ile Thr Arg Gly
1745 1750 1755

Thr Leu Glu Glu Lys Ile Met Gly Leu Gln Lys Phe Lys Met Asn
1760 1765 1770

Ile Ala Asn Thr Val Ile Ser Gln Glu Asn Ser Ser Leu Gln Ser
1775 1780 1785

Met Gly Thr Asp Gln Leu Leu Asp Leu Phe Thr Leu Asp Lys Asp
1790 1795 1800

Gly Lys Ala Glu Lys Ala Asp Thr Ser Thr Ser Gly Lys Ala Ser
1805 1810 1815

Met Lys Ser Ile Leu Glu Asn Leu Ser Asp Leu Trp Asp Gln Glu
1820 1825 1830

Gln Tyr Asp Ser Glu Tyr Ser Leu Glu Asn Phe Met His Ser Leu
1835 1840 1845

Lys

<210> 9922
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
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domain containing 1; "

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<400> 9922
Met Ala Ser Leu Gly Pro Ala Ala Ala Gly Glu Gln Ala Ser Gly Ala
1   5   10   15

Glu Ala Glu Pro Gly Pro Ala Gly Pro Pro Pro Pro Pro Ser Pro Ser
            20   25   30

Ser Leu Gly Pro Leu Leu Pro Leu Gln Arg Glu Pro Leu Tyr Asn Trp
        35   40   45

Gln Ala Thr Lys Ala Ser Leu Lys Glu Arg Phe Ala Phe Leu Phe Asn
    50   55   60

Ser Glu Leu Leu Ser Asp Val Arg Phe Val Leu Gly Lys Gly Arg Gly
65   70   75   80

Ala Ala Ala Ala Gly Gly Pro Gln Arg Ile Pro Ala His Arg Phe Val
                85   90   95

Leu Ala Ala Gly Ser Ala Val Phe Asp Ala Met Phe Asn Gly Gly Met
            100   105   110

Ala Thr Thr Ser Ala Glu Ile Glu Leu Pro Asp Val Glu Pro Ala Ala

```
        115                 120                 125

Phe Leu Ala Leu Leu Arg Phe Leu Tyr Ser Asp Glu Val Gln Ile Gly
    130                 135                 140

Pro Glu Thr Val Met Thr Thr Leu Tyr Thr Ala Lys Lys Tyr Ala Val
145                 150                 155                 160

Pro Ala Leu Glu Ala His Cys Val Glu Phe Leu Thr Lys His Leu Arg
                165                 170                 175

Ala Asp Asn Ala Phe Met Leu Leu Thr Gln Ala Arg Leu Phe Asp Glu
            180                 185                 190

Pro Gln Leu Ala Ser Leu Cys Leu Asp Thr Ile Asp Lys Ser Thr Met
        195                 200                 205

Asp Ala Ile Ser Ala Glu Gly Phe Thr Asp Ile Asp Ile Asp Thr Leu
    210                 215                 220

Cys Ala Val Leu Glu Arg Asp Thr Leu Ser Ile Arg Glu Ser Arg Leu
225                 230                 235                 240

Phe Gly Ala Val Val Arg Trp Ala Glu Ala Glu Cys Gln Arg Gln Gln
                245                 250                 255

Leu Pro Val Thr Phe Gly Asn Lys Gln Lys Val Leu Gly Lys Ala Leu
            260                 265                 270

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

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

Leu His Phe Thr Val Asn Pro Lys Pro Arg Val Glu Tyr Ile Asp Arg
305                 310                 315                 320

Pro Arg Cys Cys Leu Arg Gly Lys Glu Cys Cys Ile Asn Arg Phe Gln
                325                 330                 335

Gln Val Glu Ser Arg Trp Gly Tyr Ser Gly Thr Ser Asp Arg Ile Arg
            340                 345                 350
```

```
Phe Thr Val Asn Arg Arg Ile Ser Ile Val Gly Phe Gly Leu Tyr Gly
        355                 360                 365

Ser Ile His Gly Pro Thr Asp Tyr Gln Val Asn Ile Gln Ile Ile Glu
    370                 375                 380

Tyr Glu Lys Lys Gln Thr Leu Gly Gln Asn Asp Thr Gly Phe Ser Cys
385                 390                 395                 400

Asp Gly Thr Ala Asn Thr Phe Arg Val Met Phe Lys Glu Pro Ile Glu
                405                 410                 415

Ile Leu Pro Asn Val Cys Tyr Thr Ala Cys Ala Thr Leu Lys Gly Pro
            420                 425                 430

Asp Ser His Tyr Gly Thr Lys Gly Leu Lys Lys Val Val His Glu Thr
        435                 440                 445

Pro Ala Ala Ser Lys Thr Val Phe Phe Phe Phe Ser Ser Pro Gly Asn
    450                 455                 460

Asn Asn Gly Thr Ser Ile Glu Asp Gly Gln Ile Pro Glu Ile Ile Phe
465                 470                 475                 480

Tyr Thr
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<210> 9923
<211> 385
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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domain containing 1; "

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<220>
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<223> /note="ENSP ID: ENSP00000368713"

<400> 9923
Met Ala Ser Leu Gly Pro Ala Ala Ala Gly Glu Gln Ala Ser Gly Ala
1   5   10   15

Glu Ala Glu Pro Gly Pro Ala Gly Pro Pro Pro Pro Ser Pro Ser
            20   25   30

Ser Leu Gly Pro Leu Leu Pro Leu Gln Arg Glu Pro Leu Tyr Asn Trp
        35   40   45

Gln Ala Thr Lys Ala Ser Leu Lys Glu Arg Phe Ala Phe Leu Phe Asn
    50   55   60

Ser Glu Leu Leu Ser Asp Val Arg Phe Val Leu Gly Lys Gly Arg Gly
65   70   75   80

Ala Ala Ala Ala Gly Gly Pro Gln Arg Ile Pro Ala His Arg Phe Val
                85   90   95

Leu Ala Ala Gly Ser Ala Val Phe Asp Ala Met Phe Asn Gly Gly Met
            100   105   110

Ala Thr Thr Ser Ala Glu Ile Glu Leu Pro Asp Val Glu Pro Ala Ala
        115   120   125

Phe Leu Ala Leu Leu Arg Phe Leu Tyr Ser Asp Glu Val Gln Ile Gly
    130   135   140

Pro Glu Thr Val Met Thr Thr Leu Tyr Thr Ala Lys Lys Tyr Ala Val
145   150   155   160

Pro Ala Leu Glu Ala His Cys Val Glu Phe Leu Thr Lys His Leu Arg
                165   170   175

Ala Asp Asn Ala Phe Met Leu Leu Thr Gln Ala Arg Leu Phe Asp Glu
            180   185   190

```
Pro Gln Leu Ala Ser Leu Cys Leu Asp Thr Ile Asp Lys Ser Thr Met
        195                 200                 205

Asp Ala Ile Ser Ala Glu Gly Phe Thr Asp Ile Asp Ile Asp Thr Leu
    210                 215                 220

Cys Ala Val Leu Glu Arg Asp Thr Leu Ser Ile Arg Glu Ser Arg Leu
225                 230                 235                 240

Phe Gly Ala Val Val Arg Trp Ala Glu Ala Glu Cys Gln Arg Gln Gln
                245                 250                 255

Leu Pro Val Thr Phe Gly Asn Lys Gln Lys Val Leu Gly Lys Ala Leu
            260                 265                 270

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

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

Leu His Phe Thr Val Asn Pro Lys Pro Arg Val Glu Tyr Ile Asp Arg
305                 310                 315                 320

Pro Arg Cys Cys Leu Arg Gly Lys Glu Cys Cys Ile Asn Arg Phe Gln
                325                 330                 335

Gln Val Glu Ser Arg Trp Gly Tyr Ser Gly Thr Ser Asp Arg Ile Arg
            340                 345                 350

Ser Leu Asn Met Arg Lys Ser Lys Pro Trp Asp Arg Met Ile Pro Ala
        355                 360                 365

Leu Val Val Met Gly Gln Leu Thr His Ser Gly Ser Cys Ser Arg Asn
    370                 375                 380

Pro
385
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<210> 9924
<211> 37
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BTBD1; "

<220>
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domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453104"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9924
Xaa Lys Tyr Ala Val Pro Ala Leu Glu Ala His Cys Val Glu Phe Leu
1 5 10 15

Thr Lys His Leu Arg Ala Asp Asn Ala Phe Met Leu Leu Thr Gln Ile
20 25 30

His Ser Val Gln Phe
35

<210> 9925
<211> 475
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1994; "

<220>
<221> source
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<220>
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BTB (POZ)
domain containing 10; "

<220>

<221> source
<223> /note="Uniprot ID: Q9BSF8; "

<220>
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<223> /note="ENSP ID: ENSP00000278174"

<400> 9925
Met Ala Gly Arg Pro His Pro Tyr Asp Gly Asn Ser Ser Asp Pro Glu
1   5   10   15

Asn Trp Asp Arg Lys Leu His Ser Arg Pro Arg Lys Leu Tyr Lys His
            20   25   30

Ser Ser Thr Ser Ser Arg Ile Ala Lys Gly Gly Val Asp His Thr Lys
        35   40   45

Met Ser Leu His Gly Ala Ser Gly Gly His Glu Arg Ser Arg Asp Arg
    50   55   60

Arg Arg Ser Ser Asp Arg Ser Arg Asp Ser Ser His Glu Arg Thr Glu
65   70   75   80

Ser Gln Leu Thr Pro Cys Ile Arg Asn Val Thr Ser Pro Thr Arg Gln
                85   90   95

His His Val Glu Arg Glu Lys Asp His Ser Ser Ser Arg Pro Ser Ser
            100   105   110

Pro Arg Pro Gln Lys Ala Ser Pro Asn Gly Ser Ile Ser Ser Ala Gly
        115   120   125

Asn Ser Ser Arg Asn Ser Ser Gln Ser Ser Ser Asp Gly Ser Cys Lys
    130   135   140

Thr Ala Gly Glu Met Val Phe Val Tyr Glu Asn Ala Lys Glu Gly Ala
145   150   155   160

Arg Asn Ile Arg Thr Ser Glu Arg Val Thr Leu Ile Val Asp Asn Thr
                165   170   175

Arg Phe Val Val Asp Pro Ser Ile Phe Thr Ala Gln Pro Asn Thr Met
            180   185   190

Leu Gly Arg Met Phe Gly Ser Gly Arg Glu His Asn Phe Thr Arg Pro

```
        195                 200                 205

Asn Glu Lys Gly Glu Tyr Glu Val Ala Glu Gly Ile Gly Ser Thr Val
    210                 215                 220

Phe Arg Ala Ile Leu Asp Tyr Tyr Lys Thr Gly Ile Ile Arg Cys Pro
225                 230                 235                 240

Asp Gly Ile Ser Ile Pro Glu Leu Arg Glu Ala Cys Asp Tyr Leu Cys
                245                 250                 255

Ile Ser Phe Glu Tyr Ser Thr Ile Lys Cys Arg Asp Leu Ser Ala Leu
            260                 265                 270

Met His Glu Leu Ser Asn Asp Gly Ala Arg Arg Gln Phe Glu Phe Tyr
        275                 280                 285

Leu Glu Glu Met Ile Leu Pro Leu Met Val Ala Ser Ala Gln Ser Gly
    290                 295                 300

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

Trp Asp Glu Glu Tyr Pro Pro Gln Met Gly Glu Glu Tyr Ser Gln Ile
                325                 330                 335

Ile Tyr Ser Thr Lys Leu Tyr Arg Phe Phe Lys Tyr Ile Glu Asn Arg
            340                 345                 350

Asp Val Ala Lys Ser Val Leu Lys Glu Arg Gly Leu Lys Lys Ile Arg
        355                 360                 365

Leu Gly Ile Glu Gly Tyr Pro Thr Tyr Lys Glu Lys Val Lys Lys Arg
    370                 375                 380

Pro Gly Gly Arg Pro Glu Val Ile Tyr Asn Tyr Val Gln Arg Pro Phe
385                 390                 395                 400

Ile Arg Met Ser Trp Glu Lys Glu Glu Gly Lys Ser Arg His Val Asp
                405                 410                 415

Phe Gln Cys Val Lys Ser Lys Ser Ile Thr Asn Leu Ala Ala Ala Ala
            420                 425                 430
```

```
Ala Asp Ile Pro Gln Asp Gln Leu Val Val Met His Pro Thr Pro Gln
        435                 440                 445

Val Asp Glu Leu Asp Ile Leu Pro Ile His Pro Pro Ser Gly Asn Ser
    450                 455                 460

Asp Leu Asp Pro Asp Ala Gln Asn Pro Met Leu
465                 470                 475


<210> 9926
<211> 483
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1994; "

<220>
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<223> /note="Gene Symbol: BTBD10; "

<220>
<221> source
<223> /note="Gene Name:
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      domain containing 10; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BSF8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431186"

<400> 9926
Met Pro Lys Asp Ala Asp Leu Ala Phe Ser Ala Ser Leu Phe Glu Arg
1               5                   10                  15

Ala Glu Ser Leu Tyr Thr Leu Ile Ser Lys Phe Phe Ser Cys Phe Cys
            20                  25                  30

Val Ser Thr Leu Ala Tyr Thr Lys Gly Ser Thr Ser Ser Arg Ile Ala
        35                  40                  45

Lys Gly Gly Val Asp His Thr Lys Met Ser Leu His Gly Ala Ser Gly
    50                  55                  60
```

```
Gly His Glu Arg Ser Arg Asp Arg Arg Arg Ser Ser Asp Arg Ser Arg
65                  70                  75                  80

Asp Ser Ser His Glu Arg Thr Glu Ser Gln Leu Thr Pro Cys Ile Arg
                85                  90                  95

Asn Val Thr Ser Pro Thr Arg Gln His His Val Glu Arg Glu Lys Asp
            100                 105                 110

His Ser Ser Ser Arg Pro Ser Ser Pro Arg Pro Gln Lys Ala Ser Pro
        115                 120                 125

Asn Gly Ser Ile Ser Ser Ala Gly Asn Ser Ser Arg Asn Ser Ser Gln
    130                 135                 140

Ser Ser Ser Asp Gly Ser Cys Lys Thr Ala Gly Glu Met Val Phe Val
145                 150                 155                 160

Tyr Glu Asn Ala Lys Glu Gly Ala Arg Asn Ile Arg Thr Ser Glu Arg
                165                 170                 175

Val Thr Leu Ile Val Asp Asn Thr Arg Phe Val Val Asp Pro Ser Ile
            180                 185                 190

Phe Thr Ala Gln Pro Asn Thr Met Leu Gly Arg Met Phe Gly Ser Gly
        195                 200                 205

Arg Glu His Asn Phe Thr Arg Pro Asn Glu Lys Gly Glu Tyr Glu Val
    210                 215                 220

Ala Glu Gly Ile Gly Ser Thr Val Phe Arg Ala Ile Leu Asp Tyr Tyr
225                 230                 235                 240

Lys Thr Gly Ile Ile Arg Cys Pro Asp Gly Ile Ser Ile Pro Glu Leu
                245                 250                 255

Arg Glu Ala Cys Asp Tyr Leu Cys Ile Ser Phe Glu Tyr Ser Thr Ile
            260                 265                 270

Lys Cys Arg Asp Leu Ser Ala Leu Met His Glu Leu Ser Asn Asp Gly
        275                 280                 285
```

```
Ala Arg Arg Gln Phe Glu Phe Tyr Leu Glu Glu Met Ile Leu Pro Leu
    290                 295                 300

Met Val Ala Ser Ala Gln Ser Gly Glu Arg Glu Cys His Ile Val Val
305                 310                 315                 320

Leu Thr Asp Asp Asp Val Val Asp Trp Asp Glu Glu Tyr Pro Pro Gln
                325                 330                 335

Met Gly Glu Glu Tyr Ser Gln Ile Ile Tyr Ser Thr Lys Leu Tyr Arg
            340                 345                 350

Phe Phe Lys Tyr Ile Glu Asn Arg Asp Val Ala Lys Ser Val Leu Lys
        355                 360                 365

Glu Arg Gly Leu Lys Lys Ile Arg Leu Gly Ile Glu Gly Tyr Pro Thr
    370                 375                 380

Tyr Lys Glu Lys Val Lys Lys Arg Pro Gly Gly Arg Pro Glu Val Ile
385                 390                 395                 400

Tyr Asn Tyr Val Gln Arg Pro Phe Ile Arg Met Ser Trp Glu Lys Glu
                405                 410                 415

Glu Gly Lys Ser Arg His Val Asp Phe Gln Cys Val Lys Ser Lys Ser
            420                 425                 430

Ile Thr Asn Leu Ala Ala Ala Ala Ala Asp Ile Pro Gln Asp Gln Leu
        435                 440                 445

Val Val Met His Pro Thr Pro Gln Val Asp Glu Leu Asp Ile Leu Pro
    450                 455                 460

Ile His Pro Pro Ser Gly Asn Ser Asp Leu Asp Pro Asp Ala Gln Asn
465                 470                 475                 480

Pro Met Leu
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<210> 9927
<211> 64
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 1994; "

<220>
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<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 10; "

<220>
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<223> /note="ENSP ID: ENSP00000431572"

<400> 9927
Met Ala Gly Arg Pro His Pro Tyr Asp Gly Asn Ser Ser Asp Pro Glu
1 5 10 15

Asn Trp Asp Arg Lys Leu His Ser Arg Pro Arg Lys Leu Tyr Lys His
20 25 30

Ser Ser Thr Ser Ser Arg Ile Ala Lys Gly Gly Val Asp His Thr Lys
35 40 45

Met Ser Leu His Gly Ala Ser Gly Gly His Glu Arg Ser Arg Asp Arg
50 55 60

<210> 9928
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1994; "

<220>
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<223> /note="Gene Symbol: BTBD10; "

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<223> /note="Gene Name:
BTB (POZ)
domain containing 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434579"

<400> 9928
Met Ala Gly Arg Pro His Pro Tyr Asp Gly Asn Ser Ser Asp Pro Glu
1 5 10 15

Asn Trp Asp Arg Lys Leu His Ser Arg Pro Arg Lys Leu Tyr Lys His
20 25 30

Ser Ser Thr Ser Ser Arg Ile Ala Lys Gly Gly Val Asp His Thr Lys
35 40 45

Met Ser Leu His Gly Ala Ser Gly Gly His Glu Arg Ser Arg Asp Arg
50 55 60

Arg Arg
65

<210> 9929
<211> 36
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1994; "

<220>
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<223> /note="Gene Name:
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domain containing 10; "

<220>
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<223> /note="ENSP ID: ENSP00000434857"

<400> 9929
Met Ala Gly Arg Pro His Pro Tyr Asp Gly Asn Ser Ser Asp Pro Glu
1 5 10 15

Asn Trp Asp Arg Lys Leu His Ser Arg Pro Arg Lys Leu Tyr Lys His
20 25 30

Ser Arg Arg Ser
35

<210> 9930
<211> 427
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
BTB (POZ)
domain containing 10; "

<220>
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<223> /note="ENSP ID: ENSP00000435257"

<400> 9930
Met Ser Leu His Gly Ala Ser Gly Gly His Glu Arg Ser Arg Asp Arg
1 5 10 15

Arg Arg Ser Ser Asp Arg Ser Arg Asp Ser Ser His Glu Arg Thr Glu
20 25 30

Ser Gln Leu Thr Pro Cys Ile Arg Asn Val Thr Ser Pro Thr Arg Gln
35 40 45

His His Val Glu Arg Glu Lys Asp His Ser Ser Ser Arg Pro Ser Ser
50 55 60

Pro Arg Pro Gln Lys Ala Ser Pro Asn Gly Ser Ile Ser Ser Ala Gly
65 70 75 80

Asn Ser Ser Arg Asn Ser Ser Gln Ser Ser Ser Asp Gly Ser Cys Lys
85 90 95

Thr Ala Gly Glu Met Val Phe Val Tyr Glu Asn Ala Lys Glu Gly Ala
100 105 110

Arg Asn Ile Arg Thr Ser Glu Arg Val Thr Leu Ile Val Asp Asn Thr
115 120 125

```
Arg Phe Val Val Asp Pro Ser Ile Phe Thr Ala Gln Pro Asn Thr Met
    130                 135                 140

Leu Gly Arg Met Phe Gly Ser Gly Arg Glu His Asn Phe Thr Arg Pro
145                 150                 155                 160

Asn Glu Lys Gly Glu Tyr Glu Val Ala Glu Gly Ile Gly Ser Thr Val
                165                 170                 175

Phe Arg Ala Ile Leu Asp Tyr Tyr Lys Thr Gly Ile Ile Arg Cys Pro
            180                 185                 190

Asp Gly Ile Ser Ile Pro Glu Leu Arg Glu Ala Cys Asp Tyr Leu Cys
        195                 200                 205

Ile Ser Phe Glu Tyr Ser Thr Ile Lys Cys Arg Asp Leu Ser Ala Leu
    210                 215                 220

Met His Glu Leu Ser Asn Asp Gly Ala Arg Arg Gln Phe Glu Phe Tyr
225                 230                 235                 240

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

Glu Arg Glu Cys His Ile Val Val Leu Thr Asp Asp Asp Val Val Asp
            260                 265                 270

Trp Asp Glu Glu Tyr Pro Pro Gln Met Gly Glu Glu Tyr Ser Gln Ile
        275                 280                 285

Ile Tyr Ser Thr Lys Leu Tyr Arg Phe Phe Lys Tyr Ile Glu Asn Arg
    290                 295                 300

Asp Val Ala Lys Ser Val Leu Lys Glu Arg Gly Leu Lys Lys Ile Arg
305                 310                 315                 320

Leu Gly Ile Glu Gly Tyr Pro Thr Tyr Lys Glu Lys Val Lys Lys Arg
                325                 330                 335

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

Ile Arg Met Ser Trp Glu Lys Glu Glu Gly Lys Ser Arg His Val Asp
```

```
        355                 360                 365

Phe Gln Cys Val Lys Ser Lys Ser Ile Thr Asn Leu Ala Ala Ala Ala
    370                 375                 380

Ala Asp Ile Pro Gln Asp Gln Leu Val Val Met His Pro Thr Pro Gln
385                 390                 395                 400

Val Asp Glu Leu Asp Ile Leu Pro Ile His Pro Pro Ser Gly Asn Ser
                405                 410                 415

Asp Leu Asp Pro Asp Ala Gln Asn Pro Met Leu
            420                 425


<210> 9931
<211> 202
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BTBD10; "

<220>
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<223> /note="Gene Name:
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      domain containing 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435303"

<400> 9931
Met Ala Gly Arg Pro His Pro Tyr Asp Gly Asn Ser Ser Asp Pro Glu
1               5                   10                  15

Asn Trp Asp Arg Lys Leu His Ser Arg Pro Arg Lys Leu Tyr Lys His
            20                  25                  30

Ser Ser Thr Ser Ser Arg Ile Ala Lys Gly Gly Val Asp His Thr Lys
        35                  40                  45

Met Ser Leu His Gly Ala Ser Gly Gly His Glu Arg Ser Arg Asp Arg
    50                  55                  60
```

```
Arg Arg Ser Ser Asp Arg Ser Arg Asp Ser Ser His Glu Arg Thr Glu
65                  70                  75                  80

Ser Gln Leu Thr Pro Cys Ile Arg Asn Val Thr Ser Pro Thr Arg Gln
                85                  90                  95

His His Val Glu Arg Glu Lys Asp His Ser Ser Ser Arg Pro Ser Ser
            100                 105                 110

Pro Arg Pro Gln Lys Ala Ser Pro Asn Gly Ser Ile Ser Ser Ala Gly
        115                 120                 125

Asn Ser Ser Arg Asn Ser Ser Gln Ser Ser Ser Asp Gly Ser Cys Lys
    130                 135                 140

Thr Ala Gly Glu Met Val Phe Val Tyr Glu Asn Ala Lys Glu Gly Ala
145                 150                 155                 160

Arg Asn Ile Arg Thr Ser Glu Arg Val Thr Leu Ile Val Asp Asn Thr
                165                 170                 175

Arg Phe Val Val Asp Pro Ser Ile Phe Thr Ala Gln Pro Asn Thr Met
            180                 185                 190

Leu Gly Arg Met Phe Gly Ser Gly Leu Leu
        195                 200
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<210> 9932
<211> 1104
<212> PRT
<213> Homo sapiens

<220>
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<220>
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BTB (POZ)
domain containing 11; "

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<400> 9932
Met Ala Arg Arg Gly Lys Lys Pro Val Val Arg Thr Leu Glu Asp Leu
1   5   10   15

Thr Leu Asp Ser Gly Tyr Gly Gly Ala Ala Asp Ser Val Arg Ser Ser
            20   25   30

Asn Leu Ser Leu Cys Cys Ser Asp Ser His Pro Ala Ser Pro Tyr Gly
        35   40   45

Gly Ser Cys Trp Pro Pro Leu Ala Asp Ser Met His Ser Arg His Asn
    50   55   60

Ser Phe Asp Thr Val Asn Thr Ala Leu Val Glu Asp Ser Glu Gly Leu
65   70   75   80

Asp Cys Ala Gly Gln His Cys Ser Arg Leu Leu Pro Asp Leu Asp Glu
                85   90   95

Val Pro Trp Thr Leu Gln Glu Leu Glu Ala Leu Leu Leu Arg Ser Arg
            100   105   110

Asp Pro Arg Ala Gly Pro Ala Val Pro Gly Gly Leu Pro Lys Asp Ala
        115   120   125

Leu Ala Lys Leu Ser Thr Leu Val Ser Arg Ala Leu Val Arg Ile Ala
    130   135   140

Lys Glu Ala Gln Arg Leu Ser Leu Arg Phe Ala Lys Cys Thr Lys Tyr
145   150   155   160

Glu Ile Gln Ser Ala Met Glu Ile Val Leu Ser Trp Gly Leu Ala Ala
                165   170   175

His Cys Thr Ala Ala Ala Leu Ala Ala Leu Ser Leu Tyr Asn Met Ser
            180   185   190

```
Ser Ala Gly Gly Asp Arg Leu Gly Arg Gly Lys Ser Ala Arg Cys Gly
        195                 200                 205

Leu Thr Phe Ser Val Gly Arg Val Tyr Arg Trp Met Val Asp Ser Arg
    210                 215                 220

Val Ala Leu Arg Ile His Glu His Ala Ala Ile Tyr Leu Thr Ala Cys
225                 230                 235                 240

Met Glu Ser Leu Phe Arg Asp Ile Tyr Ser Arg Val Val Ala Ser Gly
                245                 250                 255

Val Pro Arg Ser Cys Ser Gly Pro Gly Ser Gly Ser Gly Ser Gly Pro
            260                 265                 270

Gly Pro Ser Ser Gly Pro Gly Ala Ala Pro Ala Ala Asp Lys Glu Arg
        275                 280                 285

Glu Ala Pro Gly Gly Gly Ala Ala Ser Gly Gly Ala Cys Ser Ala Ala
    290                 295                 300

Ser Ser Ala Ser Gly Gly Ser Ser Cys Cys Ala Pro Pro Ala Ala Ala
305                 310                 315                 320

Ala Ala Ala Val Pro Pro Ala Ala Ala Ala Asn His His His His His
                325                 330                 335

His His Ala Leu His Glu Ala Pro Lys Phe Thr Val Glu Thr Leu Glu
            340                 345                 350

His Thr Val Asn Asn Asp Ser Glu Ile Trp Gly Leu Leu Gln Pro Tyr
        355                 360                 365

Gln His Leu Ile Cys Gly Lys Asn Ala Ser Gly Val Leu Cys Leu Pro
    370                 375                 380

Asp Ser Leu Asn Leu His Arg Asp Pro Gln Arg Ser Asn Lys Pro Gly
385                 390                 395                 400

Glu Leu Pro Met Phe Ser Gln Ser Glu Leu Arg Thr Ile Glu Gln Ser
                405                 410                 415

Leu Leu Ala Thr Arg Val Gly Ser Ile Ala Glu Leu Ser Asp Leu Val
```

420 425 430

Ser Arg Ala Met His His Leu Gln Pro Leu Asn Ala Lys His His Gly
435 440 445

Asn Gly Thr Pro Leu His His Lys Gln Gly Ala Leu Tyr Trp Glu Pro
450 455 460

Glu Ala Leu Tyr Thr Leu Cys Tyr Phe Met His Cys Pro Gln Met Glu
465 470 475 480

Trp Glu Asn Pro Asn Val Glu Pro Ser Lys Val Asn Leu Gln Val Glu
485 490 495

Arg Pro Phe Leu Val Leu Pro Pro Leu Met Glu Trp Ile Arg Val Ala
500 505 510

Val Ala His Ala Gly His Arg Arg Ser Phe Ser Met Asp Ser Asp Asp
515 520 525

Val Arg Gln Ala Ala Arg Leu Leu Leu Pro Gly Val Asp Cys Glu Pro
530 535 540

Arg Gln Leu Arg Ala Asp Asp Cys Phe Cys Ala Ser Arg Lys Leu Asp
545 550 555 560

Ala Val Ala Ile Glu Ala Lys Phe Lys Gln Asp Leu Gly Phe Arg Met
565 570 575

Leu Asn Cys Gly Arg Thr Asp Leu Val Lys Gln Ala Val Ser Leu Leu
580 585 590

Gly Pro Asp Gly Ile Asn Thr Met Ser Glu Gln Gly Met Thr Pro Leu
595 600 605

Met Tyr Ala Cys Val Arg Gly Asp Glu Ala Met Val Gln Met Leu Leu
610 615 620

Asp Ala Gly Ala Asp Leu Asn Val Glu Val Val Ser Thr Pro His Lys
625 630 635 640

Tyr Pro Ser Val His Pro Glu Thr Arg His Trp Thr Ala Leu Thr Phe
645 650 655

Ala Val Leu His Gly His Ile Pro Val Val Gln Leu Leu Leu Asp Ala
660 665 670

Gly Ala Lys Val Glu Gly Ser Val Glu His Gly Glu Glu Asn Tyr Ser
675 680 685

Glu Thr Pro Leu Gln Leu Ala Ala Ala Val Gly Asn Phe Glu Leu Val
690 695 700

Ser Leu Leu Leu Glu Arg Gly Ala Asp Pro Leu Ile Gly Thr Met Tyr
705 710 715 720

Arg Asn Gly Ile Ser Thr Thr Pro Gln Gly Asp Met Asn Ser Phe Ser
725 730 735

Gln Ala Ala Ala His Gly His Arg Asn Val Phe Arg Lys Leu Leu Ala
740 745 750

Gln Pro Glu Lys Glu Lys Ser Asp Ile Leu Ser Leu Glu Glu Ile Leu
755 760 765

Ala Glu Gly Thr Asp Leu Ala Glu Thr Ala Pro Pro Pro Leu Cys Ala
770 775 780

Ser Arg Asn Ser Lys Ala Lys Leu Arg Ala Leu Arg Glu Ala Met Tyr
785 790 795 800

His Ser Ala Glu His Gly Tyr Val Asp Val Thr Ile Asp Ile Arg Ser
805 810 815

Ile Gly Val Pro Trp Thr Leu His Thr Trp Leu Glu Ser Leu Arg Ile
820 825 830

Ala Phe Gln Gln His Arg Arg Pro Leu Ile Gln Cys Leu Leu Lys Glu
835 840 845

Phe Lys Thr Ile Gln Glu Glu Glu Tyr Thr Glu Glu Leu Val Thr Gln
850 855 860

Gly Leu Pro Leu Met Phe Glu Ile Leu Lys Ala Ser Lys Asn Glu Val
865 870 875 880

```
Ile Ser Gln Gln Leu Cys Val Ile Phe Thr His Cys Tyr Gly Pro Tyr
                885                 890                 895

Pro Ile Pro Lys Leu Thr Glu Ile Lys Arg Lys Gln Thr Ser Arg Leu
            900                 905                 910

Asp Pro His Phe Leu Asn Asn Lys Glu Met Ser Asp Val Thr Phe Leu
        915                 920                 925

Val Glu Gly Arg Pro Phe Tyr Ala His Lys Val Leu Leu Phe Thr Ala
    930                 935                 940

Ser Pro Arg Phe Lys Ala Leu Leu Ser Ser Lys Pro Thr Asn Asp Gly
945                 950                 955                 960

Thr Cys Ile Glu Ile Gly Tyr Val Lys Tyr Ser Ile Phe Gln Leu Val
                965                 970                 975

Met Gln Tyr Leu Tyr Tyr Gly Gly Pro Glu Ser Leu Leu Ile Lys Asn
            980                 985                 990

Asn Glu Ile Met Glu Leu Leu Ser  Ala Ala Lys Phe Phe  Gln Leu
Glu
        995                 1000                1005

Ala Leu  Gln Arg His Cys Glu  Ile Ile Cys Ala Lys  Ser Ile Asn
    1010                1015                1020

Thr Asp  Asn Cys Val Asp Ile  Tyr Asn His Ala Lys  Phe Leu Gly
    1025                1030                1035

Val Thr  Glu Leu Ser Ala Tyr  Cys Glu Gly Tyr Phe  Leu Lys Asn
    1040                1045                1050

Met Met  Val Leu Ile Glu Asn  Glu Ala Phe Lys Gln  Leu Leu Tyr
    1055                1060                1065

Asp Lys  Asn Gly Glu Gly Thr  Gly Gln Asp Val Leu  Gln Asp Leu
    1070                1075                1080

Gln Arg  Thr Leu Ala Ile Arg  Ile Gln Ser Ile His  Leu Ser Ser
    1085                1090                1095
```

Ser Lys Gly Ser Val Val
1100

<210> 9933
<211> 641
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1995; "

<220>
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<223> /note="Gene Symbol: BTBD11; "

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BTB (POZ)
domain containing 11; "

<220>
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<400> 9933
Met Arg Lys Leu Arg Pro Lys Asp Ser Arg Glu Pro Ala Pro Gly Ser
1 5 10 15

Pro Val Arg Ser Gly Cys Leu Gln Arg Leu Ser His Tyr Ser Gly Ile
20 25 30

Gln Arg Pro Phe Leu Val Leu Pro Pro Leu Met Glu Trp Ile Arg Val
35 40 45

Ala Val Ala His Ala Gly His Arg Arg Ser Phe Ser Met Asp Ser Asp
50 55 60

Asp Val Arg Gln Ala Ala Arg Leu Leu Leu Pro Gly Val Asp Cys Glu
65 70 75 80

Pro Arg Gln Leu Arg Ala Asp Asp Cys Phe Cys Ala Ser Arg Lys Leu
85 90 95

```
Asp Ala Val Ala Ile Glu Ala Lys Phe Lys Gln Asp Leu Gly Phe Arg
            100                 105                 110

Met Leu Asn Cys Gly Arg Thr Asp Leu Val Lys Gln Ala Val Ser Leu
        115                 120                 125

Leu Gly Pro Asp Gly Ile Asn Thr Met Ser Glu Gln Gly Met Thr Pro
    130                 135                 140

Leu Met Tyr Ala Cys Val Arg Gly Asp Glu Ala Met Val Gln Met Leu
145                 150                 155                 160

Leu Asp Ala Gly Ala Asp Leu Asn Val Glu Val Val Ser Thr Pro His
                165                 170                 175

Lys Tyr Pro Ser Val His Pro Glu Thr Arg His Trp Thr Ala Leu Thr
            180                 185                 190

Phe Ala Val Leu His Gly His Ile Pro Val Val Gln Leu Leu Leu Asp
        195                 200                 205

Ala Gly Ala Lys Val Glu Gly Ser Val Glu His Gly Glu Glu Asn Tyr
    210                 215                 220

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

Val Ser Leu Leu Leu Glu Arg Gly Ala Asp Pro Leu Ile Gly Thr Met
                245                 250                 255

Tyr Arg Asn Gly Ile Ser Thr Thr Pro Gln Gly Asp Met Asn Ser Phe
            260                 265                 270

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

Ala Gln Pro Glu Lys Glu Lys Ser Asp Ile Leu Ser Leu Glu Glu Ile
    290                 295                 300

Leu Ala Glu Gly Thr Asp Leu Ala Glu Thr Ala Pro Pro Pro Leu Cys
305                 310                 315                 320

Ala Ser Arg Asn Ser Lys Ala Lys Leu Arg Ala Leu Arg Glu Ala Met
```

```
                325                 330                 335

Tyr His Ser Ala Glu His Gly Tyr Val Asp Val Thr Ile Asp Ile Arg
            340                 345                 350

Ser Ile Gly Val Pro Trp Thr Leu His Thr Trp Leu Glu Ser Leu Arg
        355                 360                 365

Ile Ala Phe Gln Gln His Arg Arg Pro Leu Ile Gln Cys Leu Leu Lys
    370                 375                 380

Glu Phe Lys Thr Ile Gln Glu Glu Glu Tyr Thr Glu Glu Leu Val Thr
385                 390                 395                 400

Gln Gly Leu Pro Leu Met Phe Glu Ile Leu Lys Ala Ser Lys Asn Glu
                405                 410                 415

Val Ile Ser Gln Gln Leu Cys Val Ile Phe Thr His Cys Tyr Gly Pro
            420                 425                 430

Tyr Pro Ile Pro Lys Leu Thr Glu Ile Lys Arg Lys Gln Thr Ser Arg
        435                 440                 445

Leu Asp Pro His Phe Leu Asn Asn Lys Glu Met Ser Asp Val Thr Phe
    450                 455                 460

Leu Val Glu Gly Arg Pro Phe Tyr Ala His Lys Val Leu Leu Phe Thr
465                 470                 475                 480

Ala Ser Pro Arg Phe Lys Ala Leu Leu Ser Ser Lys Pro Thr Asn Asp
                485                 490                 495

Gly Thr Cys Ile Glu Ile Gly Tyr Val Lys Tyr Ser Ile Phe Gln Leu
            500                 505                 510

Val Met Gln Tyr Leu Tyr Tyr Gly Gly Pro Glu Ser Leu Leu Ile Lys
        515                 520                 525

Asn Asn Glu Ile Met Glu Leu Leu Ser Ala Ala Lys Phe Phe Gln Leu
    530                 535                 540

Glu Ala Leu Gln Arg His Cys Glu Ile Ile Cys Ala Lys Ser Ile Asn
545                 550                 555                 560
```

```
Thr Asp Asn Cys Val Asp Ile Tyr Asn His Ala Lys Phe Leu Gly Val
                565                 570                 575

Thr Glu Leu Ser Ala Tyr Cys Glu Gly Tyr Phe Leu Lys Asn Met Met
            580                 585                 590

Val Leu Ile Glu Asn Glu Ala Phe Lys Gln Leu Leu Tyr Asp Lys Asn
        595                 600                 605

Gly Glu Gly Thr Gly Gln Asp Val Leu Gln Asp Leu Gln Arg Thr Leu
    610                 615                 620

Ala Ile Arg Ile Gln Ser Ile His Leu Ser Ser Ser Lys Gly Ser Val
625                 630                 635                 640

Val
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<210> 9934
<211> 237
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Symbol: BTBD11; "

<220>
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<223> /note="Gene Name:
BTB (POZ)
domain containing 11; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407416"

<400> 9934

```
Met Val Glu Ser Leu His Gly Leu Asp Ser Arg Lys Gly Val Leu Cys
1               5                   10                  15

Leu Pro Asp Ser Leu Asn Leu His Arg Asp Pro Gln Arg Ser Asn Lys
            20                  25                  30
```

```
Pro Gly Glu Leu Pro Met Phe Ser Gln Ser Glu Leu Arg Thr Ile Glu
        35                  40                  45

Gln Ser Leu Leu Ala Thr Arg Val Gly Ser Ile Ala Glu Leu Ser Asp
    50                  55                  60

Leu Val Ser Arg Ala Met His His Leu Gln Pro Leu Asn Ala Lys His
65                  70                  75                  80

His Gly Asn Gly Thr Pro Leu His His Lys Gln Gly Ala Leu Tyr Trp
                85                  90                  95

Glu Pro Glu Ala Leu Tyr Thr Leu Cys Tyr Phe Met His Cys Pro Gln
            100                 105                 110

Met Glu Trp Glu Asn Pro Asn Val Glu Pro Ser Lys Val Asn Leu Gln
        115                 120                 125

Val Glu Arg Pro Phe Leu Val Leu Pro Pro Leu Met Glu Trp Ile Arg
    130                 135                 140

Val Ala Val Ala His Ala Gly His Arg Arg Ser Phe Ser Met Asp Ser
145                 150                 155                 160

Asp Asp Val Arg Gln Ala Ala Arg Leu Leu Leu Pro Gly Val Asp Cys
                165                 170                 175

Glu Pro Arg Gln Leu Arg Ala Asp Asp Cys Phe Cys Ala Ser Arg Lys
            180                 185                 190

Leu Asp Ala Val Ala Ile Glu Ala Lys Phe Lys Gln Asp Leu Gly Phe
        195                 200                 205

Arg Met Leu Asn Cys Gly Arg Thr Asp Leu Val Lys Gln Ala Val Ser
    210                 215                 220

Leu Leu Gly Pro Asp Gly Ile Asn Thr Met Ser Glu Gln
225                 230                 235
```

<210> 9935
<211> 985
<212> PRT
<213> Homo sapiens

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domain containing 11; "

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<400> 9935

```
Met Ala Arg Arg Gly Lys Lys Pro Val Val Arg Thr Leu Glu Asp Leu
1               5                  10                  15

Thr Leu Asp Ser Gly Tyr Gly Gly Ala Ala Asp Ser Val Arg Ser Ser
            20                  25                  30

Asn Leu Ser Leu Cys Cys Ser Asp Ser His Pro Ala Ser Pro Tyr Gly
        35                  40                  45

Gly Ser Cys Trp Pro Pro Leu Ala Asp Ser Met His Ser Arg His Asn
    50                  55                  60

Ser Phe Asp Thr Val Asn Thr Ala Leu Val Glu Asp Ser Glu Gly Leu
65                  70                  75                  80

Asp Cys Ala Gly Gln His Cys Ser Arg Leu Leu Pro Asp Leu Asp Glu
                85                  90                  95

Val Pro Trp Thr Leu Gln Glu Leu Glu Ala Leu Leu Leu Arg Ser Arg
            100                 105                 110

Asp Pro Arg Ala Gly Pro Ala Val Pro Gly Gly Leu Pro Lys Asp Ala
        115                 120                 125

Leu Ala Lys Leu Ser Thr Leu Val Ser Arg Ala Leu Val Arg Ile Ala
```

```
    130                 135                 140

Lys Glu Ala Gln Arg Leu Ser Leu Arg Phe Ala Lys Cys Thr Lys Tyr
145                 150                 155                 160

Glu Ile Gln Ser Ala Met Glu Ile Val Leu Ser Trp Gly Leu Ala Ala
                165                 170                 175

His Cys Thr Ala Ala Ala Leu Ala Ala Leu Ser Leu Tyr Asn Met Ser
            180                 185                 190

Ser Ala Gly Gly Asp Arg Leu Gly Arg Gly Lys Ser Ala Arg Cys Gly
        195                 200                 205

Leu Thr Phe Ser Val Gly Arg Val Tyr Arg Trp Met Val Asp Ser Arg
    210                 215                 220

Val Ala Leu Arg Ile His Glu His Ala Ala Ile Tyr Leu Thr Ala Cys
225                 230                 235                 240

Met Glu Ser Leu Phe Arg Asp Ile Tyr Ser Arg Val Val Ala Ser Gly
                245                 250                 255

Val Pro Arg Ser Cys Ser Gly Pro Gly Ser Gly Ser Gly Ser Gly Pro
            260                 265                 270

Gly Pro Ser Ser Gly Pro Gly Ala Ala Pro Ala Ala Asp Lys Glu Arg
        275                 280                 285

Glu Ala Pro Gly Gly Gly Ala Ala Ser Gly Gly Ala Cys Ser Ala Ala
    290                 295                 300

Ser Ser Ala Ser Gly Gly Ser Ser Cys Cys Ala Pro Pro Ala Ala Ala
305                 310                 315                 320

Ala Ala Ala Val Pro Pro Ala Ala Ala Ala Asn His His His His His
                325                 330                 335

His His Ala Leu His Glu Ala Pro Lys Phe Thr Val Glu Thr Leu Glu
            340                 345                 350

His Thr Val Asn Asn Asp Ser Glu Ile Trp Gly Leu Leu Gln Pro Tyr
        355                 360                 365
```

```
Gln His Leu Ile Cys Gly Lys Asn Ala Ser Gly Val Leu Cys Leu Pro
    370                 375                 380

Asp Ser Leu Asn Leu His Arg Asp Pro Gln Arg Ser Asn Lys Pro Gly
385                 390                 395                 400

Glu Leu Pro Met Phe Ser Gln Ser Glu Leu Arg Thr Ile Glu Gln Ser
                405                 410                 415

Leu Leu Ala Thr Arg Val Gly Ser Ile Ala Glu Leu Ser Asp Leu Val
            420                 425                 430

Ser Arg Ala Met His His Leu Gln Pro Leu Asn Ala Lys His His Gly
        435                 440                 445

Asn Gly Thr Pro Leu His His Lys Gln Gly Ala Leu Tyr Trp Glu Pro
    450                 455                 460

Glu Ala Leu Tyr Thr Leu Cys Tyr Phe Met His Cys Pro Gln Met Glu
465                 470                 475                 480

Trp Glu Asn Pro Asn Val Glu Pro Ser Lys Val Asn Leu Gln Val Glu
                485                 490                 495

Arg Pro Phe Leu Val Leu Pro Pro Leu Met Glu Trp Ile Arg Val Ala
            500                 505                 510

Val Ala His Ala Gly His Arg Arg Ser Phe Ser Met Asp Ser Asp Asp
        515                 520                 525

Val Arg Gln Ala Ala Arg Leu Leu Leu Pro Gly Val Asp Cys Glu Pro
    530                 535                 540

Arg Gln Leu Arg Ala Asp Asp Cys Phe Cys Ala Ser Arg Lys Leu Asp
545                 550                 555                 560

Ala Val Ala Ile Glu Ala Lys Phe Lys Gln Asp Leu Gly Phe Arg Met
                565                 570                 575

Leu Asn Cys Gly Arg Thr Asp Leu Val Lys Gln Ala Val Ser Leu Leu
            580                 585                 590
```

```
Gly Pro Asp Gly Ile Asn Thr Met Ser Glu Gln Gly Met Thr Pro Leu
        595                 600                 605

Met Tyr Ala Cys Val Arg Gly Asp Glu Ala Met Val Gln Met Leu Leu
    610                 615                 620

Asp Ala Gly Ala Asp Leu Asn Val Glu Val Val Ser Thr Pro His Lys
625                 630                 635                 640

Tyr Pro Ser Val His Pro Glu Thr Arg His Trp Thr Ala Leu Thr Phe
                645                 650                 655

Ala Val Leu His Gly His Ile Pro Val Val Gln Leu Leu Leu Asp Ala
            660                 665                 670

Gly Ala Lys Val Glu Gly Ser Val Glu His Gly Glu Glu Asn Tyr Ser
        675                 680                 685

Glu Thr Pro Leu Gln Leu Ala Ala Ala Val Gly Val Pro Trp Thr Leu
    690                 695                 700

His Thr Trp Leu Glu Ser Leu Arg Ile Ala Phe Gln Gln His Arg Arg
705                 710                 715                 720

Pro Leu Ile Gln Cys Leu Leu Lys Glu Phe Lys Thr Ile Gln Glu Glu
                725                 730                 735

Glu Tyr Thr Glu Glu Leu Val Thr Gln Gly Leu Pro Leu Met Phe Glu
            740                 745                 750

Ile Leu Lys Ala Ser Lys Asn Glu Val Ile Ser Gln Gln Leu Cys Val
        755                 760                 765

Ile Phe Thr His Cys Tyr Gly Pro Tyr Pro Ile Pro Lys Leu Thr Glu
    770                 775                 780

Ile Lys Arg Lys Gln Thr Ser Arg Leu Asp Pro His Phe Leu Asn Asn
785                 790                 795                 800

Lys Glu Met Ser Asp Val Thr Phe Leu Val Glu Gly Arg Pro Phe Tyr
                805                 810                 815
```

```
Ala His Lys Val Leu Leu Phe Thr Ala Ser Pro Arg Phe Lys Ala Leu
            820                 825                 830

Leu Ser Ser Lys Pro Thr Asn Asp Gly Thr Cys Ile Glu Ile Gly Tyr
        835                 840                 845

Val Lys Tyr Ser Ile Phe Gln Leu Val Met Gln Tyr Leu Tyr Tyr Gly
    850                 855                 860

Gly Pro Glu Ser Leu Leu Ile Lys Asn Asn Glu Ile Met Glu Leu Leu
865                 870                 875                 880

Ser Ala Ala Lys Phe Phe Gln Leu Glu Ala Leu Gln Arg His Cys Glu
                885                 890                 895

Ile Ile Cys Ala Lys Ser Ile Asn Thr Asp Asn Cys Val Asp Ile Tyr
            900                 905                 910

Asn His Ala Lys Phe Leu Gly Val Thr Glu Leu Ser Ala Tyr Cys Glu
        915                 920                 925

Gly Tyr Phe Leu Lys Asn Met Met Val Leu Ile Glu Asn Glu Ala Phe
    930                 935                 940

Lys Gln Leu Leu Tyr Asp Lys Asn Gly Glu Gly Thr Gly Gln Asp Val
945                 950                 955                 960

Leu Gln Asp Leu Gln Arg Thr Leu Ala Ile Arg Ile Gln Ser Ile His
                965                 970                 975

Leu Ser Ser Ser Lys Gly Ser Val Val
            980                 985


<210> 9936
<211> 1007
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1995; "

<220>
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<223> /note="Gene Symbol: BTBD11; "
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<220>
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BTB (POZ)
domain containing 11; "

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<223> /note="Uniprot ID: A6QL63; "

<220>
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<223> /note="ENSP ID: ENSP00000447319"

<400> 9936

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Met Ala Arg Arg Gly Lys Lys Pro Val Val Arg Thr Leu Glu Asp Leu
1               5                   10                  15

Thr Leu Asp Ser Gly Tyr Gly Gly Ala Ala Asp Ser Val Arg Ser Ser
            20                  25                  30

Asn Leu Ser Leu Cys Cys Ser Asp Ser His Pro Ala Ser Pro Tyr Gly
        35                  40                  45

Gly Ser Cys Trp Pro Pro Leu Ala Asp Ser Met His Ser Arg His Asn
    50                  55                  60

Ser Phe Asp Thr Val Asn Thr Ala Leu Val Glu Asp Ser Glu Gly Leu
65                  70                  75                  80

Asp Cys Ala Gly Gln His Cys Ser Arg Leu Leu Pro Asp Leu Asp Glu
                85                  90                  95

Val Pro Trp Thr Leu Gln Glu Leu Glu Ala Leu Leu Leu Arg Ser Arg
            100                 105                 110

Asp Pro Arg Ala Gly Pro Ala Val Pro Gly Gly Leu Pro Lys Asp Ala
        115                 120                 125

Leu Ala Lys Leu Ser Thr Leu Val Ser Arg Ala Leu Val Arg Ile Ala
    130                 135                 140

Lys Glu Ala Gln Arg Leu Ser Leu Arg Phe Ala Lys Cys Thr Lys Tyr
145                 150                 155                 160

Glu Ile Gln Ser Ala Met Glu Ile Val Leu Ser Trp Gly Leu Ala Ala
                165                 170                 175
```

```
His Cys Thr Ala Ala Ala Leu Ala Ala Leu Ser Leu Tyr Asn Met Ser
            180                 185                 190

Ser Ala Gly Gly Asp Arg Leu Gly Arg Gly Lys Ser Ala Arg Cys Gly
        195                 200                 205

Leu Thr Phe Ser Val Gly Arg Val Tyr Arg Trp Met Val Asp Ser Arg
    210                 215                 220

Val Ala Leu Arg Ile His Glu His Ala Ala Ile Tyr Leu Thr Ala Cys
225                 230                 235                 240

Met Glu Ser Leu Phe Arg Asp Ile Tyr Ser Arg Val Val Ala Ser Gly
                245                 250                 255

Val Pro Arg Ser Cys Ser Gly Pro Gly Ser Gly Ser Gly Ser Gly Pro
            260                 265                 270

Gly Pro Ser Ser Gly Pro Gly Ala Ala Pro Ala Ala Asp Lys Glu Arg
        275                 280                 285

Glu Ala Pro Gly Gly Gly Ala Ala Ser Gly Gly Ala Cys Ser Ala Ala
    290                 295                 300

Ser Ser Ala Ser Gly Gly Ser Ser Cys Cys Ala Pro Pro Ala Ala Ala
305                 310                 315                 320

Ala Ala Ala Val Pro Pro Ala Ala Ala Ala Asn His His His His His
                325                 330                 335

His His Ala Leu His Glu Ala Pro Lys Phe Thr Val Glu Thr Leu Glu
            340                 345                 350

His Thr Val Asn Asn Asp Ser Glu Ile Trp Gly Leu Leu Gln Pro Tyr
        355                 360                 365

Gln His Leu Ile Cys Gly Lys Asn Ala Ser Gly Val Leu Cys Leu Pro
    370                 375                 380

Asp Ser Leu Asn Leu His Arg Asp Pro Gln Arg Ser Asn Lys Pro Gly
385                 390                 395                 400
```

```
Glu Leu Pro Met Phe Ser Gln Ser Glu Leu Arg Thr Ile Glu Gln Ser
                405                 410                 415

Leu Leu Ala Thr Arg Val Gly Ser Ile Ala Glu Leu Ser Asp Leu Val
            420                 425                 430

Ser Arg Ala Met His His Leu Gln Pro Leu Asn Ala Lys His His Gly
        435                 440                 445

Asn Gly Thr Pro Leu His His Lys Gln Gly Ala Leu Tyr Trp Glu Pro
    450                 455                 460

Glu Ala Leu Tyr Thr Leu Cys Tyr Phe Met His Cys Pro Gln Met Glu
465                 470                 475                 480

Trp Glu Asn Pro Asn Val Glu Pro Ser Lys Val Asn Leu Gln Val Glu
                485                 490                 495

Arg Pro Phe Leu Val Leu Pro Pro Leu Met Glu Trp Ile Arg Val Ala
            500                 505                 510

Val Ala His Ala Gly His Arg Arg Ser Phe Ser Met Asp Ser Asp Asp
        515                 520                 525

Val Arg Gln Ala Ala Arg Leu Leu Leu Pro Gly Val Asp Cys Glu Pro
    530                 535                 540

Arg Gln Leu Arg Ala Asp Asp Cys Phe Cys Ala Ser Arg Lys Leu Asp
545                 550                 555                 560

Ala Val Ala Ile Glu Ala Lys Phe Lys Gln Asp Leu Gly Phe Arg Met
                565                 570                 575

Leu Asn Cys Gly Arg Thr Asp Leu Val Lys Gln Ala Val Ser Leu Leu
            580                 585                 590

Gly Pro Asp Gly Ile Asn Thr Met Ser Glu Gln Gly Met Thr Pro Leu
        595                 600                 605

Met Tyr Ala Cys Val Arg Gly Asp Glu Ala Met Val Gln Met Leu Leu
    610                 615                 620
```

```
Asp Ala Gly Ala Asp Leu Asn Val Glu Val Val Ser Thr Pro His Lys
625                 630                 635                 640

Tyr Pro Ser Val His Pro Glu Thr Arg His Trp Thr Ala Leu Thr Phe
                645                 650                 655

Ala Val Leu His Gly His Ile Pro Val Val Gln Leu Leu Leu Asp Ala
            660                 665                 670

Gly Ala Lys Val Glu Gly Ser Val Glu His Gly Glu Glu Asn Tyr Ser
        675                 680                 685

Glu Thr Pro Leu Gln Leu Ala Ala Ala Val Gly Asn Phe Glu Leu Val
    690                 695                 700

Ser Leu Leu Leu Glu Arg Gly Ala Asp Pro Leu Ile Gly Thr Met Tyr
705                 710                 715                 720

Arg Asn Gly Ile Ser Thr Thr Pro Gln Gly Asp Met Asn Ser Phe Ser
                725                 730                 735

Gln Ala Ala Ala His Gly His Arg Asn Val Phe Arg Lys Leu Leu Ala
            740                 745                 750

Gln Pro Glu Lys Glu Lys Ser Asp Ile Leu Ser Leu Glu Glu Ile Leu
        755                 760                 765

Ala Glu Gly Thr Asp Leu Ala Glu Thr Ala Pro Pro Pro Leu Cys Ala
    770                 775                 780

Ser Arg Asn Ser Lys Ala Lys Leu Arg Ala Leu Arg Glu Ala Met Tyr
785                 790                 795                 800

His Ser Ala Glu His Gly Tyr Val Asp Val Thr Ile Asp Ile Arg Ser
                805                 810                 815

Ile Gly Val Pro Trp Thr Leu His Thr Trp Leu Glu Ser Leu Arg Ile
            820                 825                 830

Ala Phe Gln Gln His Arg Arg Pro Leu Ile Gln Cys Leu Leu Lys Glu
        835                 840                 845

Phe Lys Thr Ile Gln Glu Glu Glu Tyr Thr Glu Glu Leu Val Thr Gln
```

```
    850                 855                 860

Gly Leu Pro Leu Met Phe Glu Ile Leu Lys Ala Ser Lys Asn Glu Val
865                 870                 875                 880

Ile Ser Gln Gln Leu Cys Val Ile Phe Thr His Cys Tyr Gly Pro Tyr
                885                 890                 895

Pro Ile Pro Lys Leu Thr Glu Ile Lys Arg Lys Gln Thr Ser Arg Leu
            900                 905                 910

Asp Pro His Phe Leu Asn Asn Lys Glu Met Ser Asp Val Thr Phe Leu
        915                 920                 925

Val Glu Gly Arg Pro Phe Tyr Ala His Lys Val Leu Leu Phe Thr Ala
    930                 935                 940

Ser Pro Arg Phe Lys Ala Leu Leu Ser Ser Lys Pro Thr Asn Asp Gly
945                 950                 955                 960

Thr Cys Ile Glu Ile Gly Tyr Val Lys Tyr Ser Ile Phe Gln Leu Val
                965                 970                 975

Met Gln Tyr Leu Tyr Tyr Gly Gly Pro Glu Ser Leu Leu Ile Lys Asn
            980                 985                 990

Asn Glu Ile Met Glu Val Arg Asp  Pro Leu Trp Cys Trp  Leu Ser
        995                 1000                1005


<210> 9937
<211> 222
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1995; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD11; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 11; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000447606"

<400> 9937
Ala Ala Ala Ala Val Pro Pro Ala Ala Ala Ala Asn His His His His
1   5   10   15

His His His Ala Leu His Glu Ala Pro Lys Phe Thr Val Glu Thr Leu
            20   25   30

Glu His Thr Val Asn Asn Asp Ser Glu Ile Trp Gly Leu Leu Gln Pro
        35   40   45

Tyr Gln His Leu Ile Cys Gly Lys Asn Ala Ser Gly Asp Leu Val Ser
    50   55   60

Arg Ala Met His His Leu Gln Pro Leu Asn Ala Lys His His Gly Asn
65   70   75   80

Gly Thr Pro Leu His His Lys Gln Gly Ala Leu Tyr Trp Glu Pro Glu
                85   90   95

Ala Leu Tyr Thr Leu Cys Tyr Phe Met His Cys Pro Gln Met Glu Trp
            100   105   110

Glu Asn Pro Asn Val Glu Pro Ser Lys Val Asn Leu Gln Val Glu Arg
        115   120   125

Pro Phe Leu Val Leu Pro Pro Leu Met Glu Trp Ile Arg Val Ala Val
    130   135   140

Ala His Ala Gly His Arg Arg Ser Phe Ser Met Asp Ser Asp Asp Val
145   150   155   160

Arg Gln Ala Ala Arg Leu Leu Leu Pro Gly Val Asp Cys Glu Pro Arg
                165   170   175

Gln Leu Arg Ala Asp Asp Cys Phe Cys Ala Ser Arg Lys Leu Asp Ala
            180   185   190

Val Ala Ile Glu Ala Lys Phe Lys Gln Asp Leu Gly Phe Arg Met Leu
        195   200   205

```
Asn Cys Gly Arg Thr Asp Leu Val Lys Gln Ala Val Ser Leu
    210                 215                 220


<210> 9938
<211> 183
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 9938
Met Ser Asp Val Thr Phe Leu Val Glu Gly Arg Pro Phe Tyr Ala His
1               5                   10                  15


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


Ser Lys Pro Thr Asn Asp Gly Thr Cys Ile Glu Ile Gly Tyr Val Lys
        35                  40                  45


Tyr Ser Ile Phe Gln Leu Val Met Gln Tyr Leu Tyr Tyr Gly Gly Pro
    50                  55                  60


Glu Ser Leu Leu Ile Lys Asn Asn Glu Ile Met Glu Leu Leu Ser Ala
65                  70                  75                  80


Ala Lys Phe Phe Gln Leu Glu Ala Leu Gln Arg His Cys Glu Ile Ile
                85                  90                  95
```

```
Cys Ala Lys Ser Ile Asn Thr Asp Asn Cys Val Asp Ile Tyr Asn His
            100                 105                 110

Ala Lys Phe Leu Gly Val Thr Glu Leu Ser Ala Tyr Cys Glu Gly Tyr
        115                 120                 125

Phe Leu Lys Asn Met Met Val Leu Ile Glu Asn Glu Ala Phe Lys Gln
    130                 135                 140

Leu Leu Tyr Asp Lys Asn Gly Glu Gly Thr Gly Gln Asp Val Leu Gln
145                 150                 155                 160

Asp Leu Gln Arg Thr Leu Ala Ile Arg Ile Gln Ser Ile His Leu Ser
                165                 170                 175

Ser Ser Lys Gly Ser Val Val
            180


<210> 9939
<211> 506
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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      domain containing 16; "

<220>
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<223> /note="Uniprot ID:  Q32M84; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260723"

<400> 9939
Met Ile Met Ser Asn Thr His Lys Ala Arg Leu Glu Arg Arg Val Thr
1               5                   10                  15

Gly Ser Thr Asn Arg Trp Arg Leu Pro Lys Gln Pro Phe Ser Gly Asp
```

20 25 30

Leu Leu Ser Leu Ser Gln Met Cys Lys Ala Leu Ser Ile Asp Phe Glu
35 40 45

Glu Ala Leu Arg Asn Pro Asp Arg Leu Cys Ile Ser Gln Ile Gln Lys
50 55 60

Phe Phe Phe Glu Asn Phe Lys Asn Lys Asp Ile Gln Ser Gly Glu Ala
65 70 75 80

Asp Val Ile Leu Glu Cys Leu Gly Phe Lys Trp Glu Leu His Gln Pro
85 90 95

Gln Leu Phe Gln Ser Glu Thr Leu Ala Lys Leu Tyr Leu Lys Ala Leu
100 105 110

Ala Gln Gly Thr Thr His Pro Leu Arg Glu Leu Glu Glu Leu Leu Arg
115 120 125

Ala Gln Ser Pro Lys Lys Thr Lys Glu Lys Ser Pro Ala Lys Arg Ile
130 135 140

Ile Ile Ser Leu Lys Ile Asn Asp Pro Leu Val Thr Lys Val Ala Phe
145 150 155 160

Ala Thr Ala Leu Lys Asn Leu Tyr Met Ser Glu Val Glu Ile Asn Leu
165 170 175

Glu Asp Leu Leu Gly Val Leu Ala Ser Ala His Ile Leu Gln Phe Ser
180 185 190

Gly Leu Phe Gln Arg Cys Val Asp Val Met Ile Ala Arg Leu Lys Pro
195 200 205

Ser Thr Ile Lys Lys Phe Tyr Glu Ala Gly Cys Lys Tyr Lys Glu Glu
210 215 220

Gln Leu Thr Thr Gly Cys Glu Lys Trp Leu Glu Met Asn Leu Val Pro
225 230 235 240

Leu Gly Gly Thr Gln Ile His Leu His Lys Ile Pro Gln Asp Leu Leu
245 250 255

```
His Lys Val Leu Lys Ser Pro Arg Leu Phe Thr Phe Ser Glu Phe His
            260                 265                 270

Leu Leu Lys Thr Met Leu Leu Trp Val Phe Leu Gln Leu Asn Tyr Lys
        275                 280                 285

Ile Gln Ala Ile Pro Thr Tyr Glu Thr Val Met Thr Phe Phe Lys Ser
    290                 295                 300

Phe Pro Glu Asn Cys Cys Phe Leu Asp Arg Asp Ile Gly Arg Ser Leu
305                 310                 315                 320

Arg Pro Leu Phe Leu Cys Leu Arg Leu His Gly Ile Thr Lys Gly Lys
                325                 330                 335

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

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

Met Val His Leu Lys Asp Leu Asn Thr Gln Ala Val Arg Phe Gly Leu
    370                 375                 380

Leu Phe Asn Gln Glu Asn Thr Thr Tyr Ser Lys Thr Ile Ala Leu Tyr
385                 390                 395                 400

Gly Phe Phe Phe Lys Ile Lys Gly Leu Lys His Asp Thr Thr Ser Tyr
                405                 410                 415

Ser Phe Tyr Met Gln Arg Ile Lys His Thr Asp Leu Glu Ser Pro Ser
            420                 425                 430

Ala Val Tyr Glu His Asn His Val Ser Leu Arg Ala Ala Arg Leu Val
        435                 440                 445

Lys Tyr Glu Ile Arg Ala Glu Ala Leu Val Asp Gly Lys Trp Gln Glu
    450                 455                 460

Phe Arg Thr Asn Gln Ile Lys Gln Lys Phe Gly Leu Thr Thr Ser Ser
465                 470                 475                 480
```

```
Cys Lys Ser His Thr Leu Lys Ile Gln Thr Val Gly Ile Pro Ile Tyr
                485                 490                 495


Val Ser Phe Ala Phe Ile Phe Pro Ala Ser
            500                 505


<210> 9940
<211> 478
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1997; "

<220>
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<223> /note="Gene Symbol: BTBD17; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 17; "

<220>
<221> source
<223> /note="Uniprot ID:  A6NE02; "

<220>
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<223> /note="ENSP ID: ENSP00000364515"

<400> 9940
Met Pro Arg Arg Gly Tyr Ser Lys Pro Gly Ser Trp Gly Ser Phe Trp
1               5                   10                  15


Ala Met Leu Thr Leu Val Gly Leu Val Thr His Ala Ala Gln Arg Ala
            20                  25                  30


Asp Val Gly Gly Glu Ala Ala Gly Thr Ser Ile Asn His Ser Gln Ala
        35                  40                  45


Val Leu Gln Arg Leu Gln Glu Leu Leu Arg Gln Gly Asn Ala Ser Asp
    50                  55                  60


Val Val Leu Arg Val Gln Ala Ala Gly Thr Asp Glu Val Arg Val Phe
65                  70                  75                  80
```

```
His Ala His Arg Leu Leu Leu Gly Leu His Ser Glu Leu Phe Leu Glu
                85                  90                  95

Leu Leu Ser Asn Gln Ser Glu Ala Val Leu Gln Glu Pro Gln Asp Cys
            100                 105                 110

Ala Ala Val Phe Asp Lys Phe Ile Arg Tyr Leu Tyr Cys Gly Glu Leu
        115                 120                 125

Thr Val Leu Leu Thr Gln Ala Ile Pro Leu His Arg Leu Ala Thr Lys
    130                 135                 140

Tyr Gly Val Ser Ser Leu Gln Arg Gly Val Ala Asp Tyr Met Arg Ala
145                 150                 155                 160

His Leu Ala Gly Gly Ala Gly Pro Ala Val Gly Trp Tyr His Tyr Ala
                165                 170                 175

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

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

Ser Pro Glu Leu Leu Trp Gln Leu Leu Gln Arg Ser Asp Leu Val Leu
    210                 215                 220

Gln Asp Glu Leu Glu Leu Phe His Ala Leu Glu Ala Trp Leu Gly Arg
225                 230                 235                 240

Ala Arg Pro Pro Pro Ala Val Ala Glu Arg Ala Leu Arg Ala Ile Arg
                245                 250                 255

Tyr Pro Met Ile Pro Pro Ala Gln Leu Phe Gln Leu Gln Ala Arg Ser
            260                 265                 270

Ala Ala Leu Ala Arg His Gly Pro Ala Val Ala Asp Leu Leu Leu Gln
        275                 280                 285

Ala Tyr Gln Phe His Ala Ala Ser Pro Leu His Tyr Ala Lys Phe Phe
    290                 295                 300

Asp Val Asn Gly Ser Ala Phe Leu Pro Arg Asn Tyr Leu Ala Pro Ala
```

```
305                 310                 315                 320

Trp Gly Ala Pro Trp Val Ile Asn Asn Pro Ala Arg Asp Asp Arg Ser
                325                 330                 335

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

Arg Val Thr Trp Asn Val Leu Phe Ser Pro Arg Trp Leu Pro Val Ser
        355                 360                 365

Leu Arg Pro Val Tyr Ala Asp Ala Ala Gly Thr Ala Leu Pro Ala Ala
    370                 375                 380

Arg Pro Glu Asp Gly Arg Pro Arg Leu Val Val Thr Pro Ala Ser Ser
385                 390                 395                 400

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

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

Gln Ser Ser Glu Glu Ala Gly Asp Phe Leu Ala His Ala Asp Leu Gln
        435                 440                 445

Arg Arg Asn Ser Glu Tyr Leu Val Glu Asn Ala Leu His Leu His Leu
    450                 455                 460

Ile Val Lys Pro Val Tyr His Thr Leu Ile Arg Thr Pro Lys
465                 470                 475


<210> 9941
<211> 712
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 18; "

<220>
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<223> /note="Uniprot ID: B2RXH4; "

<220>
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<223> /note="ENSP ID: ENSP00000394472"

<400> 9941

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Met Cys Ser Pro Ala Ser Pro Lys Ile Leu Tyr Arg Asn Pro Arg Phe
1               5                  10                  15

Leu Arg Leu Ala Phe Leu Gln Leu His His Gln Gln Gln Ser Asp Val
            20                  25                  30

Phe Cys Asp Val Leu Leu Gln Ala Glu Gly Glu Ala Val Pro Ala His
        35                  40                  45

Cys Cys Ile Leu Ser Ala Cys Ser Pro Phe Phe Thr Glu Arg Leu Glu
    50                  55                  60

Arg Glu Arg Pro Ala Gln Gly Gly Lys Val Val Leu Glu Leu Gly Gly
65                  70                  75                  80

Leu Lys Ile Ser Thr Leu Arg Lys Leu Val Asp Phe Leu Tyr Thr Ser
                85                  90                  95

Glu Met Glu Val Ser Gln Glu Glu Ala Gln Asp Val Leu Ser Ala Ala
            100                 105                 110

Arg Gln Leu Arg Val Ser Glu Leu Glu Ser Leu Gln Leu Glu Gly Gly
        115                 120                 125

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

Gln Pro Thr Ser Ala Ala Pro Ile Ser Ala Arg Val Val Thr Pro Ser
145                 150                 155                 160

His His Pro His Thr Pro Leu Pro Thr Asn Gln Thr Pro Cys Pro Leu
                165                 170                 175
```

```
Gly Ala Ile Arg Leu Lys Ser Leu Gly Lys Glu Glu Gly Pro Gln Glu
            180                 185                 190

Asn Asn Arg Gln Asn Ala Asp Asn Leu Ser Gly Thr Leu Leu Leu Lys
        195                 200                 205

Arg Lys Ala Arg Ala Cys Pro Thr Pro Gln Glu Lys Asn Ser Ser Pro
    210                 215                 220

Ser Ser His Ser Gln Glu Pro Arg Glu Asn Lys Asn Asp Thr Ala Leu
225                 230                 235                 240

Asp Pro Thr Val Leu Ser Pro Pro Ser Leu Tyr Pro Ser Val Asp Lys
                245                 250                 255

His Leu Leu Pro Arg Lys Ile Arg Leu Ser Arg Ser Lys Pro Ser Pro
            260                 265                 270

Gly Ile Cys Thr Ser Lys Pro Ser Ser Ile Leu Ser Gly Ser Ser Ser
        275                 280                 285

Val Pro Ala Thr Pro Gly Arg Arg Leu Trp Arg Gln Arg Ser Val Asn
    290                 295                 300

Lys Glu Thr Pro Glu Asp Lys Pro Lys Pro Gly Arg Ala Ser Pro Leu
305                 310                 315                 320

Gln Ser Thr Pro Asn Pro Ser Gly Leu Gly Lys Thr Gly Gly Ser Arg
                325                 330                 335

Lys Arg Ser Pro Glu Val Arg Ala Pro Asn Ser Asp Ser Ala Glu Glu
            340                 345                 350

Gly Gln Val Gly Arg Val Lys Leu Arg Lys Ile Val Asn Gly Thr Cys
        355                 360                 365

Trp Glu Val Val Gln Glu Thr Pro Leu Lys Asn Thr Gln Asp Ser Pro
    370                 375                 380

Gln Ile Pro Asp Pro Gly Gly Asp Phe Gln Glu Pro Ser Gly Thr Gln
385                 390                 395                 400
```

```
Pro Phe Ser Ser Asn Glu Gln Glu Met Ser Pro Thr Arg Thr Glu Leu
                405                 410                 415

Cys Gln Asp Ser Pro Met Cys Thr Lys Leu Gln Asp Ile Leu Val Ser
            420                 425                 430

Ala Ser His Ser Pro Asp His Pro Val Val Lys Ser Glu Phe Glu Ser
        435                 440                 445

Ser Pro Glu Leu Val Glu Lys Glu Pro Met Leu Ala Ile Asp Cys Arg
    450                 455                 460

Glu Pro Tyr Ala Phe Asp Thr Ala Leu Leu Glu Gln Pro Cys Glu Ala
465                 470                 475                 480

Glu Glu Tyr Arg Ile Thr Ser Ala Ala Ala Thr Ser Glu Leu Glu Glu
                485                 490                 495

Ile Leu Asp Phe Met Leu Cys Gly Ser Asp Ile Glu Pro Pro Ile Gly
            500                 505                 510

Ser Leu Glu Ser Pro Gly Ala Glu Gly Cys Arg Thr Pro Thr Tyr His
        515                 520                 525

Leu Thr Glu Thr Gly Lys Asn Trp Ile Glu Gly Glu Glu Trp Cys Leu
    530                 535                 540

Pro Asp Met Glu Leu Trp Pro Arg Glu Leu Thr Glu Leu Glu Lys Glu
545                 550                 555                 560

Pro Ala Gly Glu Asn Arg Gly Pro Thr Glu Leu Leu Ser Pro Leu Val
                565                 570                 575

Met Pro Ser Glu Val Ser Glu Val Leu Ser Val Gly Gly Arg Trp Thr
            580                 585                 590

Pro Asp Leu Glu Ile Thr Ser Ser Gln Pro Leu Asp Gly Gln Glu Asp
        595                 600                 605

Lys Leu Leu His Val Ser Ser Leu Asp Thr Pro Gln Arg Ser Tyr Gly
    610                 615                 620

Asp Leu Ser Pro Pro Cys Ser Asn Trp Val Glu Thr Gly Leu Glu Val
```

625 630 635 640

Ser Leu Thr Thr Asp Glu Leu Leu Tyr Pro Ser Pro Lys Ala Gly Lys
645 650 655

Glu Val Ser Gly His Ser Glu Leu Leu Gly Ser Leu Pro Ala Ser Ser
660 665 670

Glu Glu Glu Glu Ile Asp Val Val Asp Trp Thr Ala Glu Gly Arg Leu
675 680 685

Val Pro Thr Thr Val Pro Ser Val Trp Pro Asp Pro Ser Ser Glu Ser
690 695 700

Glu Thr Glu Val Asp Ile Leu Thr
705 710

<210> 9942
<211> 712
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1998; "

<220>
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<223> /note="Gene Symbol: BTBD18; "

<220>
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<223> /note="Gene Name:
BTB (POZ)
domain containing 18; "

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<223> /note="Uniprot ID: B2RXH4; "

<220>
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<223> /note="ENSP ID: ENSP00000397020"

<400> 9942
Met Cys Ser Pro Ala Ser Pro Lys Ile Leu Tyr Arg Asn Pro Arg Phe
1 5 10 15

Leu Arg Leu Ala Phe Leu Gln Leu His His Gln Gln Gln Ser Asp Val
20 25 30

```
Phe Cys Asp Val Leu Leu Gln Ala Glu Gly Glu Ala Val Pro Ala His
        35                  40                  45

Cys Cys Ile Leu Ser Ala Cys Ser Pro Phe Phe Thr Glu Arg Leu Glu
    50                  55                  60

Arg Glu Arg Pro Ala Gln Gly Gly Lys Val Val Leu Glu Leu Gly Gly
65                  70                  75                  80

Leu Lys Ile Ser Thr Leu Arg Lys Leu Val Asp Phe Leu Tyr Thr Ser
                85                  90                  95

Glu Met Glu Val Ser Gln Glu Glu Ala Gln Asp Val Leu Ser Ala Ala
            100                 105                 110

Arg Gln Leu Arg Val Ser Glu Leu Glu Ser Leu Gln Leu Glu Gly Gly
        115                 120                 125

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

Gln Pro Thr Ser Ala Ala Pro Ile Ser Ala Arg Val Val Thr Pro Ser
145                 150                 155                 160

His His Pro His Thr Pro Leu Pro Thr Asn Gln Thr Pro Cys Pro Leu
                165                 170                 175

Gly Ala Ile Arg Leu Lys Ser Leu Gly Lys Glu Glu Gly Pro Gln Glu
            180                 185                 190

Asn Asn Arg Gln Asn Ala Asp Asn Leu Ser Gly Thr Leu Leu Leu Lys
        195                 200                 205

Arg Lys Ala Arg Ala Cys Pro Thr Pro Gln Glu Lys Asn Ser Ser Pro
    210                 215                 220

Ser Ser His Ser Gln Glu Pro Arg Glu Asn Lys Asn Asp Thr Ala Leu
225                 230                 235                 240

Asp Pro Thr Val Leu Ser Pro Pro Ser Leu Tyr Pro Ser Val Asp Lys
                245                 250                 255
```

```
His Leu Leu Pro Arg Lys Ile Arg Leu Ser Arg Ser Lys Pro Ser Pro
            260                 265                 270

Gly Ile Cys Thr Ser Lys Pro Ser Ser Ile Leu Ser Gly Ser Ser Ser
        275                 280                 285

Val Pro Ala Thr Pro Gly Arg Arg Leu Trp Arg Gln Arg Ser Val Asn
    290                 295                 300

Lys Glu Thr Pro Glu Asp Lys Pro Lys Pro Gly Arg Ala Ser Pro Leu
305                 310                 315                 320

Gln Ser Thr Pro Asn Pro Ser Gly Leu Gly Lys Thr Gly Gly Ser Arg
                325                 330                 335

Lys Arg Ser Pro Glu Val Arg Ala Pro Asn Ser Asp Ser Ala Glu Glu
            340                 345                 350

Gly Gln Val Gly Arg Val Lys Leu Arg Lys Ile Val Asn Gly Thr Cys
        355                 360                 365

Trp Glu Val Val Gln Glu Thr Pro Leu Lys Asn Thr Gln Asp Ser Pro
    370                 375                 380

Gln Ile Pro Asp Pro Gly Gly Asp Phe Gln Glu Pro Ser Gly Thr Gln
385                 390                 395                 400

Pro Phe Ser Ser Asn Glu Gln Glu Met Ser Pro Thr Arg Thr Glu Leu
                405                 410                 415

Cys Gln Asp Ser Pro Met Cys Thr Lys Leu Gln Asp Ile Leu Val Ser
            420                 425                 430

Ala Ser His Ser Pro Asp His Pro Val Val Lys Ser Glu Phe Glu Ser
        435                 440                 445

Ser Pro Glu Leu Val Glu Lys Glu Pro Met Leu Ala Ile Asp Cys Arg
    450                 455                 460

Glu Pro Tyr Ala Phe Asp Thr Ala Leu Leu Glu Gln Pro Cys Glu Ala
465                 470                 475                 480
```

```
Glu Glu Tyr Arg Ile Thr Ser Ala Ala Ala Thr Ser Glu Leu Glu Glu
                485                 490                 495

Ile Leu Asp Phe Met Leu Cys Gly Ser Asp Ile Glu Pro Pro Ile Gly
            500                 505                 510

Ser Leu Glu Ser Pro Gly Ala Glu Gly Cys Arg Thr Pro Thr Tyr His
        515                 520                 525

Leu Thr Glu Thr Gly Lys Asn Trp Ile Glu Gly Glu Glu Trp Cys Leu
    530                 535                 540

Pro Asp Met Glu Leu Trp Pro Arg Glu Leu Thr Glu Leu Glu Lys Glu
545                 550                 555                 560

Pro Ala Gly Glu Asn Arg Gly Pro Thr Glu Leu Leu Ser Pro Leu Val
                565                 570                 575

Met Pro Ser Glu Val Ser Glu Val Leu Ser Val Gly Gly Arg Trp Thr
            580                 585                 590

Pro Asp Leu Glu Ile Thr Ser Ser Gln Pro Leu Asp Gly Gln Glu Asp
        595                 600                 605

Lys Leu Leu His Val Ser Ser Leu Asp Thr Pro Gln Arg Ser Tyr Gly
    610                 615                 620

Asp Leu Ser Pro Pro Cys Ser Asn Trp Val Glu Thr Gly Leu Glu Val
625                 630                 635                 640

Ser Leu Thr Thr Asp Glu Leu Leu Tyr Pro Ser Pro Lys Ala Gly Lys
                645                 650                 655

Glu Val Ser Gly His Ser Glu Leu Leu Gly Ser Leu Pro Ala Ser Ser
            660                 665                 670

Glu Glu Glu Glu Ile Asp Val Val Asp Trp Thr Ala Glu Gly Arg Leu
        675                 680                 685

Val Pro Thr Thr Val Pro Ser Val Trp Pro Asp Pro Ser Ser Glu Ser
    690                 695                 700

Glu Thr Glu Val Asp Ile Leu Thr
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705 710

<210> 9943
<211> 89
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1998; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD18; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 18; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432341"

<400> 9943
Met Cys Ser Pro Ala Ser Pro Lys Ile Leu Tyr Arg Asn Pro Arg Phe
1 5 10 15

Leu Arg Leu Ala Phe Leu Gln Leu His His Gln Gln Gln Ser Asp Val
20 25 30

Phe Cys Asp Val Leu Leu Gln Ala Glu Gly Glu Ala Val Pro Ala His
35 40 45

Cys Cys Ile Leu Ser Ala Cys Ser Pro Phe Phe Thr Glu Arg Leu Glu
50 55 60

Arg Glu Arg Pro Ala Gln Gly Gly Lys Val Val Leu Glu Leu Gly Gly
65 70 75 80

Leu Lys Ile Ser Thr Leu Arg Lys Leu
85

<210> 9944
<211> 253
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 1999; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD19; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 19; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386506"

<400> 9944

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Met Glu Pro Leu Gly Leu Val Val His Gly Lys Ala Glu Pro Phe Ser
1               5                  10                  15

Ala Ala Leu Arg Ser Leu Val Asn Asn Pro Arg Tyr Ser Asp Val Cys
            20                  25                  30

Phe Val Val Gly Gln Glu Arg Gln Glu Val Phe Ala His Arg Cys Leu
        35                  40                  45

Leu Ala Cys Arg Cys Asn Phe Phe Gln Arg Leu Leu Gly Thr Glu Pro
    50                  55                  60

Gly Pro Gly Val Pro Ser Pro Val Val Leu Ser Thr Val Pro Thr Glu
65                  70                  75                  80

Ala Phe Leu Ala Val Leu Glu Phe Leu Tyr Thr Asn Ser Val Lys Leu
                85                  90                  95

Tyr Arg His Ser Val Ala Val Thr Phe Gly Leu Gly Gln Leu Gln Glu
            100                 105                 110

Arg Cys Val Ala Phe Ile Glu Ala His Ser Gln Glu Ala Leu Arg Thr
        115                 120                 125

Arg Gly Phe Leu Glu Leu Ser Ala Ala Ala Leu Leu Pro Leu Leu Arg
    130                 135                 140

Ser Asp Lys Leu Cys Val Asp Glu Ala Glu Leu Val Arg Ala Ala Arg
145                 150                 155                 160
```

```
Ser Trp Ala Arg Val Gly Ala Ala Val Leu Glu Arg Pro Val Ala Glu
                165                 170                 175

Val Ala Ala Pro Val Val Lys Glu Leu Arg Leu Ala Leu Leu Ala Pro
            180                 185                 190

Ala Glu Leu Ser Ala Leu Glu Glu Gln Asn Arg Gln Glu Pro Leu Ile
        195                 200                 205

Pro Val Glu Gln Ile Val Glu Ala Trp Lys Cys His Ala Leu Arg Arg
    210                 215                 220

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

Pro Arg Glu His His Arg Phe Leu Asp Leu Ser Phe Lys
                245                 250


<210> 9945
<211> 291
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 1999; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD19; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 19; "

<220>
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<223> /note="Uniprot ID:  C9JJ37; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395461"

<400> 9945
Met Glu Pro Leu Gly Leu Val Val His Gly Lys Ala Glu Pro Phe Ser
1               5                   10                  15
```

```
Ala Ala Leu Arg Ser Leu Val Asn Asn Pro Arg Tyr Ser Asp Val Cys
            20                  25                  30

Phe Val Val Gly Gln Glu Arg Gln Glu Val Phe Ala His Arg Cys Leu
        35                  40                  45

Leu Ala Cys Arg Cys Asn Phe Phe Gln Arg Leu Leu Gly Thr Glu Pro
    50                  55                  60

Gly Pro Gly Val Pro Ser Pro Val Val Leu Ser Thr Val Pro Thr Glu
65                  70                  75                  80

Ala Phe Leu Ala Val Leu Glu Phe Leu Tyr Thr Asn Ser Val Lys Leu
                85                  90                  95

Tyr Arg His Ser Val Leu Glu Val Leu Thr Ala Ala Val Glu Tyr Gly
            100                 105                 110

Leu Glu Glu Leu Arg Glu Leu Cys Leu Gln Phe Val Val Lys Val Leu
        115                 120                 125

Asp Val Asp Leu Val Cys Glu Ala Leu Gln Val Ala Val Thr Phe Gly
    130                 135                 140

Leu Gly Gln Leu Gln Glu Arg Cys Val Ala Phe Ile Glu Ala His Ser
145                 150                 155                 160

Gln Glu Ala Leu Arg Thr Arg Gly Phe Leu Glu Leu Ser Ala Ala Ala
                165                 170                 175

Leu Leu Pro Leu Leu Arg Ser Asp Lys Leu Cys Val Asp Glu Ala Glu
            180                 185                 190

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

Glu Arg Pro Val Ala Glu Val Ala Ala Pro Val Val Lys Glu Leu Arg
    210                 215                 220

Leu Ala Leu Leu Ala Pro Ala Glu Leu Ser Ala Leu Glu Glu Gln Asn
225                 230                 235                 240

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

245 250 255

Cys His Ala Leu Arg Arg Gly Asp Glu Ala Arg Gly Ala Pro Cys Arg
260 265 270

Arg Arg Arg Gly Thr Leu Pro Arg Glu His His Arg Phe Leu Asp Leu
275 280 285

Ser Phe Lys
290

<210> 9946
<211> 162
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 1999; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD19; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 19; "

<220>
<221> source
<223> /note="Uniprot ID: C9JJ37; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410162"

<400> 9946
Met Glu Pro Leu Gly Leu Val Val His Gly Lys Ala Glu Pro Phe Ser
1 5 10 15

Ala Ala Leu Arg Ser Leu Val Asn Asn Pro Arg Tyr Ser Asp Val Cys
20 25 30

Phe Val Val Gly Gln Glu Arg Gln Glu Val Phe Ala His Arg Cys Leu
35 40 45

Leu Ala Cys Arg Cys Asn Phe Phe Gln Arg Leu Leu Gly Thr Glu Pro
50 55 60

```
Gly Pro Gly Val Pro Ser Pro Val Val Leu Ser Thr Val Pro Thr Glu
65                  70                  75                  80

Ala Phe Leu Ala Val Leu Glu Phe Leu Tyr Thr Asn Ser Val Lys Leu
                85                  90                  95

Tyr Arg His Ser Val Leu Glu Val Leu Thr Ala Ala Val Glu Tyr Gly
            100                 105                 110

Leu Glu Glu Leu Arg Glu Leu Cys Leu Gln Phe Val Val Lys Val Leu
        115                 120                 125

Asp Val Asp Leu Val Cys Glu Ala Leu Gln His Phe Trp Arg Pro Arg
    130                 135                 140

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

Trp Pro
```

<210> 9947
<211> 525
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2000; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD2; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BX70; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000255608"

<400> 9947
Met Ala Ala Gly Gly Ser Gly Gly Arg Ala Ser Cys Pro Pro Gly Val
1 5 10 15

Gly Val Gly Pro Gly Thr Gly Gly Ser Pro Gly Pro Ser Ala Asn Ala
20 25 30

Ala Ala Thr Pro Ala Pro Gly Asn Ala Ala Ala Ala Ala Ala Ala Ala
35 40 45

Ala Ala Ala Ala Ala Ala Pro Gly Pro Thr Pro Pro Ala Pro Pro Gly
50 55 60

Pro Gly Thr Asp Ala Gln Ala Ala Gly Ala Glu Arg Ala Glu Glu Ala
65 70 75 80

Ala Gly Pro Gly Ala Ala Ala Leu Gln Arg Glu Ala Ala Tyr Asn Trp
85 90 95

Gln Ala Ser Lys Pro Thr Val Gln Glu Arg Phe Ala Phe Leu Phe Asn
100 105 110

Asn Glu Val Leu Cys Asp Val His Phe Leu Val Gly Lys Gly Leu Ser
115 120 125

Ser Gln Arg Ile Pro Ala His Arg Phe Val Leu Ala Val Gly Ser Ala
130 135 140

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

Ile Glu Leu Pro Asp Val Glu Pro Ala Ala Phe Leu Ala Leu Leu Lys
165 170 175

Phe Leu Tyr Ser Asp Glu Val Gln Ile Gly Pro Glu Thr Val Met Thr
180 185 190

Thr Leu Tyr Thr Ala Lys Lys Tyr Ala Val Pro Ala Leu Glu Ala His
195 200 205

Cys Val Glu Phe Leu Lys Lys Asn Leu Arg Ala Asp Asn Ala Phe Met
210 215 220

```
Leu Leu Thr Gln Ala Arg Leu Phe Asp Glu Pro Gln Leu Ala Ser Leu
225                 230                 235                 240

Cys Leu Glu Asn Ile Asp Lys Asn Thr Ala Asp Ala Ile Thr Ala Glu
                245                 250                 255

Gly Phe Thr Asp Ile Asp Leu Asp Thr Leu Val Ala Val Leu Glu Arg
            260                 265                 270

Asp Thr Leu Gly Ile Arg Glu Val Arg Leu Phe Asn Ala Val Val Arg
        275                 280                 285

Trp Ser Glu Ala Glu Cys Gln Arg Gln Gln Leu Gln Val Thr Pro Glu
    290                 295                 300

Asn Arg Arg Lys Val Leu Gly Lys Ala Leu Gly Leu Ile Arg Phe Pro
305                 310                 315                 320

Leu Met Thr Ile Glu Glu Phe Ala Ala Gly Pro Ala Gln Ser Gly Ile
                325                 330                 335

Leu Val Asp Arg Glu Val Val Ser Leu Phe Leu His Phe Thr Val Asn
            340                 345                 350

Pro Lys Pro Arg Val Glu Phe Ile Asp Arg Pro Arg Cys Cys Leu Arg
        355                 360                 365

Gly Lys Glu Cys Ser Ile Asn Arg Phe Gln Gln Val Glu Ser Arg Trp
    370                 375                 380

Gly Tyr Ser Gly Thr Ser Asp Arg Ile Arg Phe Ser Val Asn Lys Arg
385                 390                 395                 400

Ile Phe Val Val Gly Phe Gly Leu Tyr Gly Ser Ile His Gly Pro Thr
                405                 410                 415

Asp Tyr Gln Val Asn Ile Gln Ile Ile His Thr Asp Ser Asn Thr Val
            420                 425                 430

Leu Gly Gln Asn Asp Thr Gly Phe Ser Cys Asp Gly Ser Ala Ser Thr
        435                 440                 445

Phe Arg Val Met Phe Lys Glu Pro Val Glu Val Leu Pro Asn Val Asn
```

```
    450                 455                 460

Tyr Thr Ala Cys Ala Thr Leu Lys Gly Pro Asp Ser His Tyr Gly Thr
465                 470                 475                 480

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

Thr Cys Phe Thr Phe Cys Tyr Ala Ala Gly Asn Asn Asn Gly Thr Ser
            500                 505                 510

Val Glu Asp Gly Gln Ile Pro Glu Val Ile Phe Tyr Thr
        515                 520                 525


<210> 9948
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2000; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD2; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466686"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9948
Xaa Leu Gly Arg Arg Arg Pro Pro Arg Arg Ala Pro Gly Gln Thr Arg
1               5                   10                  15

Arg Pro Arg Ala Arg Ser Gly Arg Arg Arg Arg Arg Ala Arg Gly Arg
            20                  25                  30
```

```
Arg Arg Cys Ser Ala Arg Pro Arg Thr Thr Gly Arg Pro Ala Ser Pro
        35                  40                  45

Pro Cys Arg Ser Ala Ser Pro Ser Ser Ser Thr Thr Arg Cys Cys Ala
    50                  55                  60

Thr Cys Thr Ser Trp Trp Ala Arg Gly Ser Ala Arg Ser Ala Ser Pro
65                  70                  75                  80

Arg Thr Gly Thr Leu Pro Leu Pro Pro Ala Pro Leu Cys Ala Lys Thr
                85                  90                  95

Pro Arg Pro Cys Ser Leu Arg Pro Pro Cys Cys Leu Gln Thr Gln
            100                 105                 110


<210> 9949
<211> 321
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2000; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD2; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467113"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9949
Xaa Phe Asn Gly Gly Met Ala Thr Thr Ser Thr Glu Ile Glu Leu Pro
1               5                   10                  15

Asp Val Glu Pro Ala Ala Phe Leu Ala Leu Leu Lys Phe Leu Tyr Ser
            20                  25                  30
```

```
Asp Glu Val Gln Ile Gly Pro Glu Thr Val Met Thr Thr Leu Tyr Thr
        35                  40                  45

Ala Lys Lys Tyr Ala Val Pro Ala Leu Glu Ala His Cys Val Glu Phe
    50                  55                  60

Leu Lys Lys Asn Leu Arg Ala Asp Asn Ala Phe Met Leu Leu Thr Gln
65                  70                  75                  80

Ala Gly Val Gln Trp His Asp Leu Ser Ser Leu Gln Pro Pro Pro Pro
                85                  90                  95

Ala Phe Lys Arg Phe Ser Cys Leu Ser Leu His Ser Ser Trp Asp Tyr
            100                 105                 110

Arg Pro Pro Pro Pro Arg Leu Ala Lys Lys Lys Glu Lys Lys Lys Pro
        115                 120                 125

Glu Arg Thr Phe Ser Leu Ser Leu Arg Lys Cys Gln Ala Arg Leu Phe
    130                 135                 140

Asp Glu Pro Gln Leu Ala Ser Leu Cys Leu Glu Asn Ile Asp Lys Asn
145                 150                 155                 160

Thr Ala Asp Ala Ile Thr Ala Glu Gly Phe Thr Asp Ile Asp Leu Asp
                165                 170                 175

Thr Leu Val Ala Val Leu Glu Arg Asp Thr Leu Gly Ile Arg Glu Val
            180                 185                 190

Arg Leu Phe Asn Ala Val Val Arg Trp Ser Glu Ala Glu Cys Gln Arg
        195                 200                 205

Gln Gln Leu Gln Val Thr Pro Glu Asn Arg Arg Lys Val Leu Gly Lys
    210                 215                 220

Ala Leu Gly Leu Ile Arg Phe Pro Leu Met Thr Ile Glu Glu Phe Ala
225                 230                 235                 240

Ala Gly Pro Ala Gln Ser Gly Ile Leu Val Asp Arg Glu Val Val Ser
                245                 250                 255
```

```
Leu Phe Leu His Phe Thr Val Asn Pro Lys Pro Arg Val Glu Phe Ile
            260                 265                 270

Asp Arg Pro Arg Cys Cys Leu Arg Gly Lys Glu Cys Ser Ile Asn Arg
        275                 280                 285

Phe Gln Gln Val Glu Ser Arg Trp Gly Tyr Ser Gly Thr Ser Asp Arg
    290                 295                 300

Ile Arg Phe Ser Val Asn Lys Arg Ile Phe Val Val Gly Phe Gly Leu
305                 310                 315                 320

Tyr
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<210> 9950
<211> 25
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2000; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD2; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478992"

<400> 9950

```
Met Phe Asn Gly Gly Met Ala Thr Thr Ser Thr Glu Ile Glu Leu Pro
1               5                   10                  15

Asp Val Glu Pro Ala Ala Phe Leu Ala
            20                  25
```

<210> 9951
<211> 116
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2000; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD2; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481163"

<400> 9951
Val Gln Cys Arg Cys Pro Leu Val Arg Gly Arg Val Ser Ala Ala Ala
1 5 10 15

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

Ser Leu Phe Leu His Phe Thr Val Asn Pro Lys Pro Arg Val Glu Phe
35 40 45

Ile Asp Arg Pro Arg Cys Cys Leu Arg Gly Lys Glu Cys Ser Ile Asn
50 55 60

Arg Phe Gln Gln Val Glu Ser Arg Trp Gly Tyr Ser Gly Thr Ser Asp
65 70 75 80

Arg Ile Arg Phe Ser Val Asn Lys Arg Ile Phe Val Val Gly Phe Gly
85 90 95

Leu Tyr Gly Ser Ile His Gly Pro Thr Asp Tyr Gln Val Asn Ile Gln
100 105 110

Ile Ile His Thr
115

<210> 9952
<211> 53
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2000; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD2; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481529"

<400> 9952
Met Phe Asn Gly Gly Met Ala Thr Thr Ser Thr Glu Ile Glu Leu Pro
1 5 10 15

Asp Val Glu Pro Ala Ala Phe Leu Ala Leu Leu Lys Phe Leu Tyr Ser
20 25 30

Asp Glu Val Gln Ile Gly Pro Glu Thr Val Met Thr Thr Leu Tyr Thr
35 40 45

Ala Lys Lys Tyr Ala
50

<210> 9953
<211> 35
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2000; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD2; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483892"

<400> 9953
Met Phe Asn Gly Gly Met Ala Thr Thr Ser Thr Glu Ile Glu Leu Pro
1   5   10   15

Asp Val Glu Pro Ala Ala Phe Leu Ala Leu Leu Lys Phe Leu Tyr Ser
            20   25   30

Asp Glu Val
        35

<210> 9954
<211> 461
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2001; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD3; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2F9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000254977"

<400> 9954
Met Ala Ala Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser
1   5   10   15

Thr Ser Val Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu
            20   25   30

Ile Pro Ala Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Arg
        35   40   45

Asn Ala Met Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val
    50   55   60

```
Val Gly Pro Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val
65                  70                  75                  80

Leu Ala Val Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu
                85                  90                  95

Ala Glu Asp Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala
            100                 105                 110

Phe Leu Ala Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala
        115                 120                 125

Ala Asp Thr Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val
    130                 135                 140

Pro His Leu Ala Arg Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Ser
145                 150                 155                 160

Ala Lys Asn Ala Cys Val Leu Leu Ser Gln Ser Cys Leu Phe Glu Glu
                165                 170                 175

Pro Asp Leu Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu
            180                 185                 190

Leu Ala Leu Lys Ser Glu Gly Phe Cys Asp Ile Asp Phe Gln Thr Leu
        195                 200                 205

Glu Ser Ile Leu Arg Arg Glu Thr Leu Asn Ala Lys Glu Ile Val Val
    210                 215                 220

Phe Glu Ala Ala Leu Asn Trp Ala Glu Val Glu Cys Gln Arg Gln Asp
225                 230                 235                 240

Leu Ala Leu Ser Ile Glu Asn Lys Arg Lys Val Leu Gly Lys Ala Leu
                245                 250                 255

Tyr Leu Ile Arg Ile Pro Thr Met Ala Leu Asp Asp Phe Ala Asn Gly
            260                 265                 270

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

Leu Trp Tyr Thr Ala Ala Lys Lys Pro Glu Leu Gln Phe Val Ser Lys
```

```
    290                 295                 300

Ala Arg Lys Gly Leu Val Pro Gln Arg Cys His Arg Phe Gln Ser Cys
305                 310                 315                 320

Ala Tyr Arg Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile
                325                 330                 335

Gln Phe Ala Val Asp Lys Arg Val Phe Ile Ala Gly Phe Gly Leu Tyr
            340                 345                 350

Gly Ser Ser Cys Gly Ser Ala Glu Tyr Ser Ala Lys Ile Glu Leu Lys
        355                 360                 365

Arg Gln Gly Val Val Leu Gly Gln Asn Leu Ser Lys Tyr Phe Ser Asp
    370                 375                 380

Gly Ser Ser Asn Thr Phe Pro Val Trp Phe Glu Tyr Pro Val Gln Ile
385                 390                 395                 400

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

Leu Ser Tyr Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys
            420                 425                 430

Val Thr Val Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly
        435                 440                 445

Val Gln Gly Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
    450                 455                 460


<210> 9955
<211> 522
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2001; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD3; "

<220>
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<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2F9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367471"

<400> 9955

```
Met Val Asp Asp Lys Glu Lys Asn Met Lys Cys Leu Thr Phe Phe Leu
1               5                  10                  15

Met Leu Pro Glu Thr Val Lys Asn Arg Ser Lys Lys Ser Ser Lys Lys
            20                  25                  30

Ala Asn Thr Ser Ser Ser Ser Ser Asn Ser Ser Lys Leu Pro Pro Val
        35                  40                  45

Cys Tyr Glu Ile Ile Thr Leu Lys Thr Lys Lys Lys Lys Met Ala Ala
    50                  55                  60

Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser Thr Ser Val
65                  70                  75                  80

Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu Ile Pro Ala
                85                  90                  95

Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Arg Asn Ala Met
            100                 105                 110

Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val Val Gly Pro
        115                 120                 125

Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val Leu Ala Val
    130                 135                 140

Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu Ala Glu Asp
145                 150                 155                 160

Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala Phe Leu Ala
                165                 170                 175
```

```
Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala Ala Asp Thr
            180                 185                 190

Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val Pro His Leu
        195                 200                 205

Ala Arg Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Ser Ala Lys Asn
    210                 215                 220

Ala Cys Val Leu Leu Ser Gln Ser Cys Leu Phe Glu Glu Pro Asp Leu
225                 230                 235                 240

Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu Leu Ala Leu
                245                 250                 255

Lys Ser Glu Gly Phe Cys Asp Ile Asp Phe Gln Thr Leu Glu Ser Ile
            260                 265                 270

Leu Arg Arg Glu Thr Leu Asn Ala Lys Glu Ile Val Val Phe Glu Ala
        275                 280                 285

Ala Leu Asn Trp Ala Glu Val Glu Cys Gln Arg Gln Asp Leu Ala Leu
    290                 295                 300

Ser Ile Glu Asn Lys Arg Lys Val Leu Gly Lys Ala Leu Tyr Leu Ile
305                 310                 315                 320

Arg Ile Pro Thr Met Ala Leu Asp Asp Phe Ala Asn Gly Ala Ala Gln
                325                 330                 335

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

Thr Ala Ala Lys Lys Pro Glu Leu Gln Phe Val Ser Lys Ala Arg Lys
        355                 360                 365

Gly Leu Val Pro Gln Arg Cys His Arg Phe Gln Ser Cys Ala Tyr Arg
    370                 375                 380

Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile Gln Phe Ala
385                 390                 395                 400
```

```
Val Asp Lys Arg Val Phe Ile Ala Gly Phe Gly Leu Tyr Gly Ser Ser
                405                 410                 415

Cys Gly Ser Ala Glu Tyr Ser Ala Lys Ile Glu Leu Lys Arg Gln Gly
            420                 425                 430

Val Val Leu Gly Gln Asn Leu Ser Lys Tyr Phe Ser Asp Gly Ser Ser
        435                 440                 445

Asn Thr Phe Pro Val Trp Phe Glu Tyr Pro Val Gln Ile Glu Pro Asp
    450                 455                 460

Thr Phe Tyr Thr Ala Ser Val Ile Leu Asp Gly Asn Glu Leu Ser Tyr
465                 470                 475                 480

Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys Val Thr Val
                485                 490                 495

Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly Val Gln Gly
            500                 505                 510

Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
        515                 520


<210> 9956
<211> 461
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2001; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD3; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 3; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2F9; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000381971"

<400> 9956

```
Met Ala Ala Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser
1               5                  10                  15

Thr Ser Val Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu
            20                  25                  30

Ile Pro Ala Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Arg
        35                  40                  45

Asn Ala Met Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val
    50                  55                  60

Val Gly Pro Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val
65                  70                  75                  80

Leu Ala Val Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu
                85                  90                  95

Ala Glu Asp Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala
            100                 105                 110

Phe Leu Ala Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala
        115                 120                 125

Ala Asp Thr Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val
    130                 135                 140

Pro His Leu Ala Arg Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Ser
145                 150                 155                 160

Ala Lys Asn Ala Cys Val Leu Leu Ser Gln Ser Cys Leu Phe Glu Glu
                165                 170                 175

Pro Asp Leu Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu
            180                 185                 190

Leu Ala Leu Lys Ser Glu Gly Phe Cys Asp Ile Asp Phe Gln Thr Leu
        195                 200                 205

Glu Ser Ile Leu Arg Arg Glu Thr Leu Asn Ala Lys Glu Ile Val Val
    210                 215                 220
```

```
Phe Glu Ala Ala Leu Asn Trp Ala Glu Val Glu Cys Gln Arg Gln Asp
225                 230                 235                 240

Leu Ala Leu Ser Ile Glu Asn Lys Arg Lys Val Leu Gly Lys Ala Leu
                245                 250                 255

Tyr Leu Ile Arg Ile Pro Thr Met Ala Leu Asp Asp Phe Ala Asn Gly
            260                 265                 270

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

Leu Trp Tyr Thr Ala Ala Lys Lys Pro Glu Leu Gln Phe Val Ser Lys
    290                 295                 300

Ala Arg Lys Gly Leu Val Pro Gln Arg Cys His Arg Phe Gln Ser Cys
305                 310                 315                 320

Ala Tyr Arg Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile
                325                 330                 335

Gln Phe Ala Val Asp Lys Arg Val Phe Ile Ala Gly Phe Gly Leu Tyr
            340                 345                 350

Gly Ser Ser Cys Gly Ser Ala Glu Tyr Ser Ala Lys Ile Glu Leu Lys
        355                 360                 365

Arg Gln Gly Val Val Leu Gly Gln Asn Leu Ser Lys Tyr Phe Ser Asp
    370                 375                 380

Gly Ser Ser Asn Thr Phe Pro Val Trp Phe Glu Tyr Pro Val Gln Ile
385                 390                 395                 400

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

Leu Ser Tyr Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys
            420                 425                 430

Val Thr Val Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly
        435                 440                 445
```

```
Val Gln Gly Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
    450                 455                 460


<210> 9957
<211> 522
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2001; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD3; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 3; "

<220>
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<223> /note="Uniprot ID:  Q9Y2F9; "

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<400> 9957
Met Val Asp Asp Lys Glu Lys Asn Met Lys Cys Leu Thr Phe Phe Leu
1               5                  10                  15


Met Leu Pro Glu Thr Val Lys Asn Arg Ser Lys Lys Ser Ser Lys Lys
            20                  25                  30


Ala Asn Thr Ser Ser Ser Ser Ser Asn Ser Ser Lys Leu Pro Pro Val
        35                  40                  45


Cys Tyr Glu Ile Ile Thr Leu Lys Thr Lys Lys Lys Lys Met Ala Ala
    50                  55                  60


Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser Thr Ser Val
65                  70                  75                  80


Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu Ile Pro Ala
                85                  90                  95
```

```
Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Arg Asn Ala Met
            100                 105                 110

Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val Val Gly Pro
        115                 120                 125

Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val Leu Ala Val
    130                 135                 140

Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu Ala Glu Asp
145                 150                 155                 160

Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala Phe Leu Ala
                165                 170                 175

Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala Ala Asp Thr
            180                 185                 190

Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val Pro His Leu
        195                 200                 205

Ala Arg Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Ser Ala Lys Asn
    210                 215                 220

Ala Cys Val Leu Leu Ser Gln Ser Cys Leu Phe Glu Glu Pro Asp Leu
225                 230                 235                 240

Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu Leu Ala Leu
                245                 250                 255

Lys Ser Glu Gly Phe Cys Asp Ile Asp Phe Gln Thr Leu Glu Ser Ile
            260                 265                 270

Leu Arg Arg Glu Thr Leu Asn Ala Lys Glu Ile Val Val Phe Glu Ala
        275                 280                 285

Ala Leu Asn Trp Ala Glu Val Glu Cys Gln Arg Gln Asp Leu Ala Leu
    290                 295                 300

Ser Ile Glu Asn Lys Arg Lys Val Leu Gly Lys Ala Leu Tyr Leu Ile
305                 310                 315                 320

Arg Ile Pro Thr Met Ala Leu Asp Asp Phe Ala Asn Gly Ala Ala Gln
```

325 330 335

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

Thr Ala Ala Lys Lys Pro Glu Leu Gln Phe Val Ser Lys Ala Arg Lys
355 360 365

Gly Leu Val Pro Gln Arg Cys His Arg Phe Gln Ser Cys Ala Tyr Arg
370 375 380

Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile Gln Phe Ala
385 390 395 400

Val Asp Lys Arg Val Phe Ile Ala Gly Phe Gly Leu Tyr Gly Ser Ser
405 410 415

Cys Gly Ser Ala Glu Tyr Ser Ala Lys Ile Glu Leu Lys Arg Gln Gly
420 425 430

Val Val Leu Gly Gln Asn Leu Ser Lys Tyr Phe Ser Asp Gly Ser Ser
435 440 445

Asn Thr Phe Pro Val Trp Phe Glu Tyr Pro Val Gln Ile Glu Pro Asp
450 455 460

Thr Phe Tyr Thr Ala Ser Val Ile Leu Asp Gly Asn Glu Leu Ser Tyr
465 470 475 480

Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys Val Thr Val
485 490 495

Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly Val Gln Gly
500 505 510

Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
515 520

<210> 9958
<211> 135
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 2001; "

<220>
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<223> /note="Gene Symbol: BTBD3; "

<220>
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<223> /note="Gene Name:
BTB (POZ)
domain containing 3; "

<220>
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<400> 9958
Met Ala Ala Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser
1 5 10 15

Thr Ser Val Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu
20 25 30

Ile Pro Ala Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Arg
35 40 45

Asn Ala Met Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val
50 55 60

Val Gly Pro Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val
65 70 75 80

Leu Ala Val Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu
85 90 95

Ala Glu Asp Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala
100 105 110

Phe Leu Ala Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala
115 120 125

Ala Asp Thr Val Leu Ala Thr
130 135

<210> 9959
<211> 1
<212> PRT

<213> Homo sapiens

<220>
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<220>
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domain containing 3; "

<220>
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<400> 9959
Met
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<210> 9960
<211> 99
<212> PRT
<213> Homo sapiens

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<220>
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domain containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404582"

<400> 9960
Met Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val Val Gly
1 5 10 15

Pro Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val Leu Ala
20 25 30

Val Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu Ala Glu
35 40 45

Asp Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala Phe Leu
50 55 60

Ala Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala Ala Asp
65 70 75 80

Thr Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val Pro His
85 90 95

Leu Ala Arg

<210> 9961
<211> 139
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000408817"

<400> 9961
Met Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val Val Gly
1 5 10 15

Pro Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val Leu Ala
20 25 30

Val Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu Ala Glu
35 40 45

Asp Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala Phe Leu

```
    50                  55                  60

Ala Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala Ala Asp
65                  70                  75                  80

Thr Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val Pro His
                85                  90                  95

Leu Ala Arg Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Ser Ala Lys
            100                 105                 110

Asn Ala Cys Val Leu Leu Ser Gln Ser Cys Leu Phe Glu Glu Pro Asp
        115                 120                 125

Leu Thr Gln Arg Cys Trp Glu Val Ile Asp Ala
    130                 135


<210> 9962
<211> 50
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      domain containing 3; "

<220>
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<223> /note="ENSP ID: ENSP00000410502"

<400> 9962
Met Ala Ala Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser
1               5                   10                  15

Thr Ser Val Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu
            20                  25                  30

Ile Pro Ala Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Ser
        35                  40                  45
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Met Phe
50

<210> 9963
<211> 461
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BTBD3; "

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<223> /note="Gene Name:
BTB (POZ)
domain containing 3; "

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<223> /note="Uniprot ID: Q9Y2F9; "

<220>
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<223> /note="ENSP ID: ENSP00000477589"

<400> 9963
Met Ala Ala Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser
1 5 10 15

Thr Ser Val Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu
20 25 30

Ile Pro Ala Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Arg
35 40 45

Asn Ala Met Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val
50 55 60

Val Gly Pro Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val
65 70 75 80

Leu Ala Val Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu
85 90 95

```
Ala Glu Asp Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala
            100                 105                 110

Phe Leu Ala Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala
        115                 120                 125

Ala Asp Thr Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val
    130                 135                 140

Pro His Leu Ala Arg Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Ser
145                 150                 155                 160

Ala Lys Asn Ala Cys Val Leu Leu Ser Gln Ser Cys Leu Phe Glu Glu
                165                 170                 175

Pro Asp Leu Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu
            180                 185                 190

Leu Ala Leu Lys Ser Glu Gly Phe Cys Asp Ile Asp Phe Gln Thr Leu
        195                 200                 205

Glu Ser Ile Leu Arg Arg Glu Thr Leu Asn Ala Lys Glu Ile Val Val
    210                 215                 220

Phe Glu Ala Ala Leu Asn Trp Ala Glu Val Glu Cys Gln Arg Gln Asp
225                 230                 235                 240

Leu Ala Leu Ser Ile Glu Asn Lys Arg Lys Val Leu Gly Lys Ala Leu
                245                 250                 255

Tyr Leu Ile Arg Ile Pro Thr Met Ala Leu Asp Asp Phe Ala Asn Gly
            260                 265                 270

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

Leu Trp Tyr Thr Ala Ala Lys Lys Pro Glu Leu Gln Phe Val Ser Lys
    290                 295                 300

Ala Arg Lys Gly Leu Val Pro Gln Arg Cys His Arg Phe Gln Ser Cys
305                 310                 315                 320
```

```
Ala Tyr Arg Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile
                325                 330                 335

Gln Phe Ala Val Asp Lys Arg Val Phe Ile Ala Gly Phe Gly Leu Tyr
            340                 345                 350

Gly Ser Ser Cys Gly Ser Ala Glu Tyr Ser Ala Lys Ile Glu Leu Lys
        355                 360                 365

Arg Gln Gly Val Val Leu Gly Gln Asn Leu Ser Lys Tyr Phe Ser Asp
    370                 375                 380

Gly Ser Ser Asn Thr Phe Pro Val Trp Phe Glu Tyr Pro Val Gln Ile
385                 390                 395                 400

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

Leu Ser Tyr Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys
            420                 425                 430

Val Thr Val Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly
        435                 440                 445

Val Gln Gly Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
    450                 455                 460


<210> 9964
<211> 461
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2001; "

<220>
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<220>
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      domain containing 3; "

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<221> source
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<223> /note="Uniprot ID: Q9Y2F9; "

<220>
<221> source
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<400> 9964

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Met Ala Ala Asp Ile Phe Pro Arg Lys Lys Pro Ala Asn Ser Ser Ser
1               5                  10                  15

Thr Ser Val Gln Gln Tyr His Gln Gln Asn Leu Ser Asn Asn Asn Leu
            20                  25                  30

Ile Pro Ala Pro Asn Trp Gln Gly Leu Tyr Pro Thr Ile Arg Glu Arg
        35                  40                  45

Asn Ala Met Met Phe Asn Asn Asp Leu Met Ala Asp Val His Phe Val
    50                  55                  60

Val Gly Pro Pro Gly Gly Thr Gln Arg Leu Pro Gly His Lys Tyr Val
65                  70                  75                  80

Leu Ala Val Gly Ser Ser Val Phe His Ala Met Phe Tyr Gly Glu Leu
                85                  90                  95

Ala Glu Asp Lys Asp Glu Ile Arg Ile Pro Asp Val Glu Pro Ala Ala
            100                 105                 110

Phe Leu Ala Met Leu Lys Tyr Ile Tyr Cys Asp Glu Ile Asp Leu Ala
        115                 120                 125

Ala Asp Thr Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val
    130                 135                 140

Pro His Leu Ala Arg Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Ser
145                 150                 155                 160

Ala Lys Asn Ala Cys Val Leu Leu Ser Gln Ser Cys Leu Phe Glu Glu
                165                 170                 175

Pro Asp Leu Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu
            180                 185                 190

Leu Ala Leu Lys Ser Glu Gly Phe Cys Asp Ile Asp Phe Gln Thr Leu
        195                 200                 205
```

```
Glu Ser Ile Leu Arg Arg Glu Thr Leu Asn Ala Lys Glu Ile Val Val
    210                 215                 220

Phe Glu Ala Ala Leu Asn Trp Ala Glu Val Glu Cys Gln Arg Gln Asp
225                 230                 235                 240

Leu Ala Leu Ser Ile Glu Asn Lys Arg Lys Val Leu Gly Lys Ala Leu
                245                 250                 255

Tyr Leu Ile Arg Ile Pro Thr Met Ala Leu Asp Asp Phe Ala Asn Gly
            260                 265                 270

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

Leu Trp Tyr Thr Ala Ala Lys Lys Pro Glu Leu Gln Phe Val Ser Lys
    290                 295                 300

Ala Arg Lys Gly Leu Val Pro Gln Arg Cys His Arg Phe Gln Ser Cys
305                 310                 315                 320

Ala Tyr Arg Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile
                325                 330                 335

Gln Phe Ala Val Asp Lys Arg Val Phe Ile Ala Gly Phe Gly Leu Tyr
            340                 345                 350

Gly Ser Ser Cys Gly Ser Ala Glu Tyr Ser Ala Lys Ile Glu Leu Lys
        355                 360                 365

Arg Gln Gly Val Val Leu Gly Gln Asn Leu Ser Lys Tyr Phe Ser Asp
    370                 375                 380

Gly Ser Ser Asn Thr Phe Pro Val Trp Phe Glu Tyr Pro Val Gln Ile
385                 390                 395                 400

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

Leu Ser Tyr Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys
            420                 425                 430
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Val Thr Val Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly
435 440 445

Val Gln Gly Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
450 455 460

<210> 9965
<211> 410
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2002; "

<220>
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<223> /note="Gene Symbol: BTBD6; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 6; "

<220>
<221> source
<223> /note="Uniprot ID: Q96KE9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000329361"

<400> 9965
Met Phe Asn Asn Glu Leu Met Ala Asp Val His Phe Val Val Gly Pro
1 5 10 15

Pro Gly Ala Thr Arg Thr Val Pro Ala His Lys Tyr Val Leu Ala Val
20 25 30

Gly Ser Ser Val Phe Tyr Ala Met Phe Tyr Gly Asp Leu Ala Glu Val
35 40 45

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

Leu Leu Lys Tyr Met Tyr Ser Asp Glu Ile Asp Leu Glu Ala Asp Thr
65 70 75 80

```
Val Leu Ala Thr Leu Tyr Ala Ala Lys Lys Tyr Ile Val Pro Ala Leu
                85                  90                  95

Ala Lys Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Glu Ala Lys Asn
            100                 105                 110

Ala Cys Val Leu Leu Ser Gln Ser Arg Leu Phe Glu Glu Pro Glu Leu
        115                 120                 125

Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu Met Ala Leu
    130                 135                 140

Arg Ser Glu Gly Phe Cys Glu Ile Asp Arg Gln Thr Leu Glu Ile Ile
145                 150                 155                 160

Val Thr Arg Glu Ala Leu Asn Thr Lys Glu Ala Val Val Phe Glu Ala
                165                 170                 175

Val Leu Asn Trp Ala Glu Ala Glu Cys Lys Arg Gln Gly Leu Pro Ile
            180                 185                 190

Thr Pro Arg Asn Lys Arg His Val Leu Gly Arg Ala Leu Tyr Leu Val
        195                 200                 205

Arg Ile Pro Thr Met Thr Leu Glu Glu Phe Ala Asn Gly Ala Ala Gln
    210                 215                 220

Ser Asp Ile Leu Thr Leu Glu Glu Thr His Ser Ile Phe Leu Trp Tyr
225                 230                 235                 240

Thr Ala Thr Asn Lys Pro Arg Leu Asp Phe Pro Leu Thr Lys Arg Lys
                245                 250                 255

Gly Leu Ala Pro Gln Arg Cys His Arg Phe Gln Ser Ser Ala Tyr Arg
            260                 265                 270

Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile Gln Phe Ala
        275                 280                 285

Val Asp Arg Arg Val Phe Ile Ala Gly Leu Gly Leu Tyr Gly Ser Ser
    290                 295                 300

Ser Gly Lys Ala Glu Tyr Ser Val Lys Ile Glu Leu Lys Arg Leu Gly
```

```
305                 310                 315                 320

Val Val Leu Ala Gln Asn Leu Thr Lys Phe Met Ser Asp Gly Ser Ser
                325                 330                 335

Asn Thr Phe Pro Val Trp Phe Glu His Pro Val Gln Val Glu Gln Asp
            340                 345                 350

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

Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys Val Ala Phe
    370                 375                 380

Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly Val Gln Gly
385                 390                 395                 400

Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
                405                 410


<210> 9966
<211> 485
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2002; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD6; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 6; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96KE9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376337"

<400> 9966
Met Ala Ala Glu Leu Tyr Ala Pro Ala Ser Ala Ala Ala Ala Asp Leu
1               5                   10                  15
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Ala Asn Ser Asn Ala Gly Ala Ala Val Gly Arg Lys Ala Gly Pro Arg
            20                  25                  30

Ser Pro Pro Ser Ala Pro Ala Pro Ala Pro Pro Pro Pro Ala Pro Ala
        35                  40                  45

Pro Pro Thr Leu Gly Asn Asn His Gln Glu Ser Pro Gly Trp Arg Cys
    50                  55                  60

Cys Arg Pro Thr Leu Arg Glu Arg Asn Ala Leu Met Phe Asn Asn Glu
65                  70                  75                  80

Leu Met Ala Asp Val His Phe Val Val Gly Pro Pro Gly Ala Thr Arg
                85                  90                  95

Thr Val Pro Ala His Lys Tyr Val Leu Ala Val Gly Ser Ser Val Phe
            100                 105                 110

Tyr Ala Met Phe Tyr Gly Asp Leu Ala Glu Val Lys Ser Glu Ile His
        115                 120                 125

Ile Pro Asp Val Glu Pro Ala Ala Phe Leu Ile Leu Leu Lys Tyr Met
    130                 135                 140

Tyr Ser Asp Glu Ile Asp Leu Glu Ala Asp Thr Val Leu Ala Thr Leu
145                 150                 155                 160

Tyr Ala Ala Lys Lys Tyr Ile Val Pro Ala Leu Ala Lys Ala Cys Val
                165                 170                 175

Asn Phe Leu Glu Thr Ser Leu Glu Ala Lys Asn Ala Cys Val Leu Leu
            180                 185                 190

Ser Gln Ser Arg Leu Phe Glu Glu Pro Glu Leu Thr Gln Arg Cys Trp
        195                 200                 205

Glu Val Ile Asp Ala Gln Ala Glu Met Ala Leu Arg Ser Glu Gly Phe
    210                 215                 220

Cys Glu Ile Asp Arg Gln Thr Leu Glu Ile Ile Val Thr Arg Glu Ala
225                 230                 235                 240
```

```
Leu Asn Thr Lys Glu Ala Val Val Phe Glu Ala Val Leu Asn Trp Ala
                245                 250                 255

Glu Ala Glu Cys Lys Arg Gln Gly Leu Pro Ile Thr Pro Arg Asn Lys
            260                 265                 270

Arg His Val Leu Gly Arg Ala Leu Tyr Leu Val Arg Ile Pro Thr Met
        275                 280                 285

Thr Leu Glu Glu Phe Ala Asn Gly Ala Ala Gln Ser Asp Ile Leu Thr
    290                 295                 300

Leu Glu Glu Thr His Ser Ile Phe Leu Trp Tyr Thr Ala Thr Asn Lys
305                 310                 315                 320

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

Arg Cys His Arg Phe Gln Ser Ser Ala Tyr Arg Ser Asn Gln Trp Arg
            340                 345                 350

Tyr Arg Gly Arg Cys Asp Ser Ile Gln Phe Ala Val Asp Arg Arg Val
        355                 360                 365

Phe Ile Ala Gly Leu Gly Leu Tyr Gly Ser Ser Ser Gly Lys Ala Glu
    370                 375                 380

Tyr Ser Val Lys Ile Glu Leu Lys Arg Leu Gly Val Val Leu Ala Gln
385                 390                 395                 400

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

Trp Phe Glu His Pro Val Gln Val Glu Gln Asp Thr Phe Tyr Thr Ala
            420                 425                 430

Ser Ala Val Leu Asp Gly Ser Glu Leu Ser Tyr Phe Gly Gln Glu Gly
        435                 440                 445

Met Thr Glu Val Gln Cys Gly Lys Val Ala Phe Gln Phe Gln Cys Ser
    450                 455                 460
```

Ser Asp Ser Thr Asn Gly Thr Gly Val Gln Gly Gly Gln Ile Pro Glu
465 470 475 480

Leu Ile Phe Tyr Ala
485

<210> 9967
<211> 410
<212> PRT
<213> Homo sapiens

<220>
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<220>
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BTB (POZ)
domain containing 6; "

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<220>
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<223> /note="ENSP ID: ENSP00000418150"

<400> 9967
Met Phe Asn Asn Glu Leu Met Ala Asp Val His Phe Val Val Gly Pro
1 5 10 15

Pro Gly Ala Thr Arg Thr Val Pro Ala His Lys Tyr Val Leu Ala Val
20 25 30

Gly Ser Ser Val Phe Tyr Ala Met Phe Tyr Gly Asp Leu Ala Glu Val
35 40 45

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

Leu Leu Lys Tyr Met Tyr Ser Asp Glu Ile Asp Leu Glu Ala Asp Thr
65 70 75 80

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

```
                85                  90                  95

Ala Lys Ala Cys Val Asn Phe Leu Glu Thr Ser Leu Glu Ala Lys Asn
            100                 105                 110

Ala Cys Val Leu Leu Ser Gln Ser Arg Leu Phe Glu Glu Pro Glu Leu
        115                 120                 125

Thr Gln Arg Cys Trp Glu Val Ile Asp Ala Gln Ala Glu Met Ala Leu
    130                 135                 140

Arg Ser Glu Gly Phe Cys Glu Ile Asp Arg Gln Thr Leu Glu Ile Ile
145                 150                 155                 160

Val Thr Arg Glu Ala Leu Asn Thr Lys Glu Ala Val Val Phe Glu Ala
                165                 170                 175

Val Leu Asn Trp Ala Glu Ala Glu Cys Lys Arg Gln Gly Leu Pro Ile
            180                 185                 190

Thr Pro Arg Asn Lys Arg His Val Leu Gly Arg Ala Leu Tyr Leu Val
        195                 200                 205

Arg Ile Pro Thr Met Thr Leu Glu Glu Phe Ala Asn Gly Ala Ala Gln
    210                 215                 220

Ser Asp Ile Leu Thr Leu Glu Glu Thr His Ser Ile Phe Leu Trp Tyr
225                 230                 235                 240

Thr Ala Thr Asn Lys Pro Arg Leu Asp Phe Pro Leu Thr Lys Arg Lys
                245                 250                 255

Gly Leu Ala Pro Gln Arg Cys His Arg Phe Gln Ser Ser Ala Tyr Arg
            260                 265                 270

Ser Asn Gln Trp Arg Tyr Arg Gly Arg Cys Asp Ser Ile Gln Phe Ala
        275                 280                 285

Val Asp Arg Arg Val Phe Ile Ala Gly Leu Gly Leu Tyr Gly Ser Ser
    290                 295                 300

Ser Gly Lys Ala Glu Tyr Ser Val Lys Ile Glu Leu Lys Arg Leu Gly
305                 310                 315                 320
```

```
Val Val Leu Ala Gln Asn Leu Thr Lys Phe Met Ser Asp Gly Ser Ser
                325                 330                 335

Asn Thr Phe Pro Val Trp Phe Glu His Pro Val Gln Val Glu Gln Asp
            340                 345                 350

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

Phe Gly Gln Glu Gly Met Thr Glu Val Gln Cys Gly Lys Val Ala Phe
    370                 375                 380

Gln Phe Gln Cys Ser Ser Asp Ser Thr Asn Gly Thr Gly Val Gln Gly
385                 390                 395                 400

Gly Gln Ile Pro Glu Leu Ile Phe Tyr Ala
                405                 410


<210> 9968
<211> 485
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: BTBD6; "

<220>
<221> source
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      BTB (POZ)
      domain containing 6; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96KE9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443091"

<400> 9968
Met Ala Ala Glu Leu Tyr Ala Pro Ala Ser Ala Ala Ala Ala Asp Leu
1               5                   10                  15
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Ala Asn Ser Asn Ala Gly Ala Ala Val Gly Arg Lys Ala Gly Pro Arg
            20                  25                  30

Ser Pro Pro Ser Ala Pro Ala Pro Ala Pro Pro Pro Pro Ala Pro Ala
        35                  40                  45

Pro Pro Thr Leu Gly Asn Asn His Gln Glu Ser Pro Gly Trp Arg Cys
    50                  55                  60

Cys Arg Pro Thr Leu Arg Glu Arg Asn Ala Leu Met Phe Asn Asn Glu
65                  70                  75                  80

Leu Met Ala Asp Val His Phe Val Val Gly Pro Pro Gly Ala Thr Arg
                85                  90                  95

Thr Val Pro Ala His Lys Tyr Val Leu Ala Val Gly Ser Ser Val Phe
            100                 105                 110

Tyr Ala Met Phe Tyr Gly Asp Leu Ala Glu Val Lys Ser Glu Ile His
        115                 120                 125

Ile Pro Asp Val Glu Pro Ala Ala Phe Leu Ile Leu Leu Lys Tyr Met
    130                 135                 140

Tyr Ser Asp Glu Ile Asp Leu Glu Ala Asp Thr Val Leu Ala Thr Leu
145                 150                 155                 160

Tyr Ala Ala Lys Lys Tyr Ile Val Pro Ala Leu Ala Lys Ala Cys Val
                165                 170                 175

Asn Phe Leu Glu Thr Ser Leu Glu Ala Lys Asn Ala Cys Val Leu Leu
            180                 185                 190

Ser Gln Ser Arg Leu Phe Glu Glu Pro Glu Leu Thr Gln Arg Cys Trp
        195                 200                 205

Glu Val Ile Asp Ala Gln Ala Glu Met Ala Leu Arg Ser Glu Gly Phe
    210                 215                 220

Cys Glu Ile Asp Arg Gln Thr Leu Glu Ile Ile Val Thr Arg Glu Ala
225                 230                 235                 240
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```
Leu Asn Thr Lys Glu Ala Val Val Phe Glu Ala Val Leu Asn Trp Ala
                245                 250                 255

Glu Ala Glu Cys Lys Arg Gln Gly Leu Pro Ile Thr Pro Arg Asn Lys
            260                 265                 270

Arg His Val Leu Gly Arg Ala Leu Tyr Leu Val Arg Ile Pro Thr Met
        275                 280                 285

Thr Leu Glu Glu Phe Ala Asn Gly Ala Ala Gln Ser Asp Ile Leu Thr
    290                 295                 300

Leu Glu Glu Thr His Ser Ile Phe Leu Trp Tyr Thr Ala Thr Asn Lys
305                 310                 315                 320

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

Arg Cys His Arg Phe Gln Ser Ser Ala Tyr Arg Ser Asn Gln Trp Arg
            340                 345                 350

Tyr Arg Gly Arg Cys Asp Ser Ile Gln Phe Ala Val Asp Arg Arg Val
        355                 360                 365

Phe Ile Ala Gly Leu Gly Leu Tyr Gly Ser Ser Ser Gly Lys Ala Glu
    370                 375                 380

Tyr Ser Val Lys Ile Glu Leu Lys Arg Leu Gly Val Val Leu Ala Gln
385                 390                 395                 400

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

Trp Phe Glu His Pro Val Gln Val Glu Gln Asp Thr Phe Tyr Thr Ala
            420                 425                 430

Ser Ala Val Leu Asp Gly Ser Glu Leu Ser Tyr Phe Gly Gln Glu Gly
        435                 440                 445

Met Thr Glu Val Gln Cys Gly Lys Val Ala Phe Gln Phe Gln Cys Ser
    450                 455                 460

Ser Asp Ser Thr Asn Gly Thr Gly Val Gln Gly Gly Gln Ile Pro Glu
```

```
465                 470                 475                 480

Leu Ile Phe Tyr Ala
                485


<210> 9969
<211> 407
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2002; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD6; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446223"

<400> 9969
Met Ala Ala Glu Leu Tyr Ala Pro Ala Ser Ala Ala Ala Ala Asp Leu
1               5                   10                  15


Ala Asn Ser Asn Ala Gly Ala Ala Val Gly Arg Lys Ala Gly Pro Arg
            20                  25                  30


Ser Pro Pro Ser Ala Pro Ala Pro Ala Pro Pro Pro Pro Ala Pro Ala
        35                  40                  45


Pro Pro Thr Leu Gly Asn Asn His Gln Glu Ser Pro Gly Trp Arg Cys
    50                  55                  60


Cys Arg Pro Thr Leu Arg Glu Arg Asn Ala Leu Met Phe Asn Asn Glu
65                  70                  75                  80


Leu Met Ala Asp Val His Phe Val Val Gly Pro Pro Gly Ala Thr Arg
                85                  90                  95


Thr Val Pro Ala His Lys Tyr Val Leu Ala Val Gly Ser Ser Val Phe
            100                 105                 110
```

```
Tyr Ala Met Phe Tyr Gly Asp Leu Ala Glu Val Lys Ser Glu Ile His
        115                 120                 125

Ile Pro Asp Val Glu Pro Ala Ala Phe Leu Ile Leu Leu Lys Tyr Met
    130                 135                 140

Tyr Ser Asp Glu Ile Asp Leu Glu Ala Asp Thr Val Leu Ala Thr Leu
145                 150                 155                 160

Tyr Ala Ala Lys Lys Tyr Ile Val Pro Ala Leu Ala Lys Ala Cys Val
                165                 170                 175

Asn Phe Leu Glu Thr Ser Leu Glu Ala Lys Asn Ala Cys Val Leu Leu
            180                 185                 190

Ser Gln Ser Arg Leu Phe Glu Glu Pro Glu Leu Thr Gln Arg Cys Trp
        195                 200                 205

Glu Val Ile Asp Ala Gln Ala Glu Met Ala Leu Arg Ser Glu Gly Phe
    210                 215                 220

Cys Glu Ile Asp Arg Gln Thr Leu Glu Ile Ile Val Thr Arg Glu Ala
225                 230                 235                 240

Leu Asn Thr Lys Glu Ala Val Val Phe Glu Ala Val Leu Asn Trp Ala
                245                 250                 255

Glu Ala Glu Cys Lys Arg Gln Gly Leu Pro Ile Thr Pro Arg Asn Lys
            260                 265                 270

Arg His Val Leu Gly Arg Ala Leu Tyr Leu Val Arg Ile Pro Thr Met
        275                 280                 285

Thr Leu Glu Glu Phe Ala Asn Gly Ala Ala Gln Ser Asp Ile Leu Thr
    290                 295                 300

Leu Glu Glu Thr His Ser Ile Phe Leu Trp Tyr Thr Ala Thr Asn Lys
305                 310                 315                 320

Pro Arg Leu Asp Phe Pro Leu Thr Lys Arg Lys Gly Leu Ala Pro Gln
                325                 330                 335
```

Arg Cys His Arg Phe Gln Ser Ser Ala Tyr Arg Ser Asn Gln Trp Arg
340 345 350

Tyr Arg Gly Arg Cys Asp Ser Ile Gln Phe Ala Val Asp Arg Arg Val
355 360 365

Phe Ile Ala Gly Leu Gly Leu Tyr Gly Ser Ser Ser Gly Lys Ala Glu
370 375 380

Tyr Ser Val Lys Ile Glu Leu Lys Arg Leu Gly Val Val Leu Ala Gln
385 390 395 400

Asn Leu Thr Lys Phe Met Ser
405

<210> 9970
<211> 410
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P203; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000298896"

<400> 9970
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1 5 10 15

Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
20 25 30

```
Ser Gln Gln Gly Tyr Gly Cys Glu Ser Lys Leu Tyr Ser Leu Asp His
        35                  40                  45

Gly His Glu Lys Pro Gln Asp Lys Lys Lys Arg Thr Ser Gly Leu Ala
    50                  55                  60

Thr Leu Lys Lys Lys Phe Ile Lys Arg Arg Lys Ser Asn Arg Ser Ala
65                  70                  75                  80

Asp His Ala Lys Gln Met Arg Glu Leu Leu Ser Gly Trp Asp Val Arg
                85                  90                  95

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

Glu Leu Ser Leu Gln Ala Ser Leu Ala Arg Pro Glu Ala Arg Thr Leu
        115                 120                 125

Gln Lys Asp Met Ala Asp Leu Tyr Glu Tyr Lys Tyr Cys Thr Asp Val
    130                 135                 140

Asp Leu Ile Phe Gln Glu Thr Cys Phe Pro Val His Arg Ala Ile Leu
145                 150                 155                 160

Ala Ala Arg Cys Pro Phe Phe Lys Thr Leu Leu Ser Ser Ser Pro Glu
                165                 170                 175

Tyr Gly Ala Glu Ile Ile Met Asp Ile Asn Thr Ala Gly Ile Asp Met
            180                 185                 190

Pro Met Phe Ser Ala Leu Leu His Tyr Leu Tyr Thr Gly Glu Phe Gly
        195                 200                 205

Met Glu Asp Ser Arg Phe Gln Asn Val Asp Ile Leu Val Gln Leu Ser
    210                 215                 220

Glu Glu Phe Gly Thr Pro Asn Ser Leu Asp Val Asp Met Arg Gly Leu
225                 230                 235                 240

Phe Asp Tyr Met Cys Tyr Tyr Asp Val Val Leu Ser Phe Ser Ser Asp
                245                 250                 255

Ser Glu Leu Val Glu Ala Phe Gly Gly Asn Gln Asn Cys Leu Asp Glu
```

```
            260                 265                 270

Glu Leu Lys Ala His Lys Ala Val Ile Ser Ala Arg Ser Pro Phe Phe
        275                 280                 285

Arg Asn Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp
    290                 295                 300

Arg Thr Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile
305                 310                 315                 320

Pro Lys Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val
                325                 330                 335

Val Asp Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser
            340                 345                 350

Glu Val Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu
        355                 360                 365

Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met
    370                 375                 380

Leu Ala Gln Glu Glu Thr Thr Val Ile Arg Pro Ala Cys Ala Ala Glu
385                 390                 395                 400

Leu Ser Asn Ser Cys Leu Leu Pro Gln Ser
                405                 410


<210> 9971
<211> 1132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 7; "
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<220>
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<223> /note="Uniprot ID: Q9P203; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000335615"

<400> 9971
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1   5   10   15

Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
            20   25   30

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

Gly His Glu Lys Pro Gln Asp Lys Lys Lys Arg Thr Ser Gly Leu Ala
    50   55   60

Thr Leu Lys Lys Lys Phe Ile Lys Arg Arg Lys Ser Asn Arg Ser Ala
65   70   75   80

Asp His Ala Lys Gln Met Arg Glu Leu Leu Ser Gly Trp Asp Val Arg
                85   90   95

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

Glu Leu Ser Leu Gln Ala Ser Leu Ala Arg Pro Glu Ala Arg Thr Leu
        115   120   125

Gln Lys Asp Met Ala Asp Leu Tyr Glu Tyr Lys Tyr Cys Thr Asp Val
    130   135   140

Asp Leu Ile Phe Gln Glu Thr Cys Phe Pro Val His Arg Ala Ile Leu
145   150   155   160

Ala Ala Arg Cys Pro Phe Phe Lys Thr Leu Leu Ser Ser Ser Pro Glu
                165   170   175

Tyr Gly Ala Glu Ile Ile Met Asp Ile Asn Thr Ala Gly Ile Asp Met
            180   185   190

```
Pro Met Phe Ser Ala Leu Leu His Tyr Leu Tyr Thr Gly Glu Phe Gly
        195                 200                 205

Met Glu Asp Ser Arg Phe Gln Asn Val Asp Ile Leu Val Gln Leu Ser
    210                 215                 220

Glu Glu Phe Gly Thr Pro Asn Ser Leu Asp Val Asp Met Arg Gly Leu
225                 230                 235                 240

Phe Asp Tyr Met Cys Tyr Tyr Asp Val Val Leu Ser Phe Ser Ser Asp
                245                 250                 255

Ser Glu Leu Val Glu Ala Phe Gly Gly Asn Gln Asn Cys Leu Asp Glu
            260                 265                 270

Glu Leu Lys Ala His Lys Ala Val Ile Ser Ala Arg Ser Pro Phe Phe
        275                 280                 285

Arg Asn Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp
    290                 295                 300

Arg Thr Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile
305                 310                 315                 320

Pro Lys Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val
                325                 330                 335

Val Asp Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser
            340                 345                 350

Glu Val Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu
        355                 360                 365

Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met
    370                 375                 380

Leu Ala Gln Gly Cys Glu Asp Ile Ile Ala Glu Ser Ile Ser Leu Asp
385                 390                 395                 400

Thr Leu Ile Ala Ile Leu Lys Trp Ser Ser His Pro Tyr Gly Ser Lys
                405                 410                 415
```

```
Trp Val His Arg Gln Ala Leu His Phe Leu Cys Glu Glu Phe Ser Gln
            420                 425                 430

Val Met Thr Ser Asp Val Phe Tyr Glu Leu Ser Lys Asp His Leu Leu
        435                 440                 445

Thr Ala Ile Gln Ser Asp Tyr Leu Gln Ala Ser Glu Gln Asp Ile Leu
    450                 455                 460

Lys Tyr Leu Ile Lys Trp Gly Glu His Gln Leu Met Lys Arg Ile Ala
465                 470                 475                 480

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

Arg Gly Val Lys Arg Arg Asp Leu Asp Met Glu Glu Leu Arg Glu Ile
            500                 505                 510

Leu Ser Ser Leu Leu Pro Phe Val Arg Ile Glu His Ile Leu Pro Ile
        515                 520                 525

Asn Ser Glu Val Leu Ser Asp Ala Met Lys Arg Gly Leu Ile Ser Thr
    530                 535                 540

Pro Pro Ser Asp Met Leu Pro Thr Thr Glu Gly Gly Lys Ser Asn Ala
545                 550                 555                 560

Trp Leu Arg Gln Lys Asn Ala Gly Ile Tyr Val Arg Pro Arg Leu Phe
                565                 570                 575

Ser Pro Tyr Val Glu Glu Ala Lys Ser Val Leu Asp Glu Met Met Val
            580                 585                 590

Glu Gln Thr Asp Leu Val Arg Leu Arg Met Val Arg Met Ser Asn Val
        595                 600                 605

Pro Asp Thr Leu Tyr Met Val Asn Asn Ala Val Pro Gln Cys Cys His
    610                 615                 620

Met Ile Ser His Gln Gln Ile Ser Ser Asn Gln Ser Ser Pro Pro Ser
625                 630                 635                 640

Val Val Ala Asn Glu Ile Pro Val Pro Arg Leu Leu Ile Met Lys Asp
```

645 650 655

Met Val Arg Arg Leu Gln Glu Leu Arg His Thr Glu Gln Val Gln Arg
660 665 670

Ala Tyr Ala Leu Asn Cys Gly Glu Gly Ala Thr Val Ser Tyr Glu Ile
675 680 685

Gln Ile Arg Val Leu Arg Glu Phe Gly Leu Ala Asp Ala Ala Ala Glu
690 695 700

Leu Leu Gln Asn Pro His Lys Phe Phe Pro Asp Glu Arg Phe Gly Asp
705 710 715 720

Glu Ser Pro Leu Leu Thr Met Arg Gln Pro Gly Arg Cys Arg Val Asn
725 730 735

Ser Thr Pro Pro Ala Glu Thr Met Phe Thr Asp Leu Asp Ser Phe Val
740 745 750

Ala Phe His Pro Pro Leu Pro Pro Pro Pro Pro Pro Tyr His Pro Pro
755 760 765

Ala Thr Pro Ile His Asn Gln Leu Lys Ala Gly Trp Lys Gln Arg Pro
770 775 780

Pro Ser Gln His Pro Ser Arg Ser Phe Ser Tyr Pro Cys Asn His Ser
785 790 795 800

Leu Phe His Ser Arg Thr Ala Pro Lys Ala Gly Pro Pro Pro Val Tyr
805 810 815

Leu Pro Ser Val Lys Ala Ala Pro Pro Asp Cys Thr Ser Thr Ala Gly
820 825 830

Leu Gly Arg Gln Thr Val Ala Ala Ala Ala Ala Thr Thr Thr Ser Thr
835 840 845

Ala Thr Ala Ala Ala Ala Ala Ala Ser Glu Lys Gln Val Arg Thr Gln
850 855 860

Pro Val Leu Asn Asp Leu Met Pro Asp Ile Ala Val Gly Val Ser Thr
865 870 875 880

```
Leu Ser Leu Lys Asp Arg Arg Leu Pro Glu Leu Ala Val Asp Thr Glu
                885                 890                 895

Leu Ser Gln Ser Val Ser Glu Ala Gly Pro Gly Pro Pro Gln His Leu
            900                 905                 910

Ser Cys Ile Pro Gln Arg His Thr His Thr Ser Arg Lys Lys His Thr
        915                 920                 925

Leu Glu Gln Lys Thr Asp Thr Arg Glu Asn Pro Gln Glu Tyr Pro Asp
    930                 935                 940

Phe Tyr Asp Phe Ser Asn Ala Ala Cys Arg Pro Ser Thr Pro Ala Leu
945                 950                 955                 960

Ser Arg Arg Thr Pro Ser Pro Ser Gln Gly Gly Tyr Phe Gly Pro Asp
                965                 970                 975

Leu Tyr Ser His Asn Lys Ala Ser Pro Ser Gly Leu Lys Ser Ala Tyr
            980                 985                 990

Leu Pro Gly Gln Thr Ser Pro Lys  Lys Gln Glu Glu Ala  Arg Arg
Glu
        995                 1000                1005

Tyr Pro  Leu Ser Pro Asp Gly  His Leu His Arg Gln  Lys Asn Glu
    1010                1015                1020

Pro Ile  His Leu Asp Val Val  Glu Gln Pro Pro Gln  Arg Ser Asp
    1025                1030                1035

Phe Pro  Leu Ala Ala Pro Glu  Asn Ala Ser Thr Gly  Pro Ala His
    1040                1045                1050

Val Arg  Gly Arg Thr Ala Val  Glu Thr Asp Leu Thr  Phe Gly Leu
    1055                1060                1065

Thr Pro  Asn Arg Pro Ser Leu  Ser Ala Cys Ser Ser  Glu Ala Pro
    1070                1075                1080

Glu Glu  Arg Ser Gly Arg Arg  Leu Ala Asp Ser Glu  Ser Leu Gly
    1085                1090                1095
```

His Gly Ala Gln Arg Asn Thr Asp Leu Glu Arg Glu Asp Ser Ile
    1100   1105   1110

Ser Arg Gly Arg Arg Ser Pro Ser Lys Pro Asp Phe Leu Tyr Lys
    1115   1120   1125

Lys Ser Ala Leu
    1130

<210> 9972
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000347246"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9972
Xaa Thr Arg Ala Glu Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe
1   5   10   15

Leu Glu Phe Asn Met Leu Ala Gln Gly Lys
            20   25

<210> 9973
<211> 55
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
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<220>
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<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450704"

<400> 9973
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1 5 10 15

Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
20 25 30

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

Gly His Glu Lys Pro Gln Asp
50 55

<210> 9974
<211> 747
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450778"

<400> 9974
Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp Arg Thr
1 5 10 15

Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile Pro Lys
20 25 30

Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val Val Asp
35 40 45

Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser Glu Val
50 55 60

Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu Glu Ala
65 70 75 80

Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met Leu Ala
85 90 95

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

Gly Val Lys Arg Arg Asp Leu Asp Met Glu Glu Leu Arg Glu Ile Leu
115 120 125

Ser Ser Leu Leu Pro Phe Val Arg Ile Glu His Ile Leu Pro Ile Asn
130 135 140

Ser Glu Val Leu Ser Asp Ala Met Lys Arg Gly Leu Ile Ser Thr Pro
145 150 155 160

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

Leu Arg Gln Lys Asn Ala Gly Ile Tyr Val Arg Pro Arg Leu Phe Ser
180 185 190

Pro Tyr Val Glu Glu Ala Lys Ser Val Leu Asp Glu Met Met Val Glu
195 200 205

Gln Thr Asp Leu Val Arg Leu Arg Met Val Arg Met Ser Asn Val Pro
210 215 220

```
Asp Thr Leu Tyr Met Val Asn Asn Ala Val Pro Gln Cys Cys His Met
225                 230                 235                 240

Ile Ser His Gln Gln Ile Ser Ser Asn Gln Ser Ser Pro Pro Ser Val
                245                 250                 255

Val Ala Asn Glu Ile Pro Val Pro Arg Leu Leu Ile Met Lys Asp Met
            260                 265                 270

Val Arg Arg Leu Gln Glu Leu Arg His Thr Glu Gln Val Gln Arg Ala
        275                 280                 285

Tyr Ala Leu Asn Cys Gly Glu Gly Ala Thr Val Ser Tyr Glu Ile Gln
    290                 295                 300

Ile Arg Val Leu Arg Glu Phe Gly Leu Ala Asp Ala Ala Ala Glu Leu
305                 310                 315                 320

Leu Gln Asn Pro His Lys Phe Phe Pro Asp Glu Arg Phe Gly Asp Glu
                325                 330                 335

Ser Pro Leu Leu Thr Met Arg Gln Pro Gly Arg Cys Arg Val Asn Ser
            340                 345                 350

Thr Pro Pro Ala Glu Thr Met Phe Thr Asp Leu Asp Ser Phe Val Ala
        355                 360                 365

Phe His Pro Pro Leu Pro Pro Pro Pro Pro Pro Tyr His Pro Pro Ala
    370                 375                 380

Thr Pro Ile His Asn Gln Leu Lys Ala Gly Trp Lys Gln Arg Pro Pro
385                 390                 395                 400

Ser Gln His Pro Ser Arg Ser Phe Ser Tyr Pro Cys Asn His Ser Leu
                405                 410                 415

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

Pro Ser Val Lys Ala Ala Pro Pro Asp Cys Thr Ser Thr Ala Gly Leu
        435                 440                 445
```

```
Gly Arg Gln Thr Val Ala Ala Ala Ala Ala Thr Thr Thr Ser Thr Ala
    450                 455                 460

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

Val Leu Asn Asp Leu Met Pro Asp Ile Ala Val Gly Val Ser Thr Leu
                485                 490                 495

Ser Leu Lys Asp Arg Arg Leu Pro Glu Leu Ala Val Asp Thr Glu Leu
            500                 505                 510

Ser Gln Ser Val Ser Glu Ala Gly Pro Gly Pro Pro Gln His Leu Ser
        515                 520                 525

Cys Ile Pro Gln Arg His Thr His Thr Ser Arg Lys Lys His Thr Leu
    530                 535                 540

Glu Gln Lys Thr Asp Thr Arg Glu Asn Pro Gln Glu Tyr Pro Asp Phe
545                 550                 555                 560

Tyr Asp Phe Ser Asn Ala Ala Cys Arg Pro Ser Thr Pro Ala Leu Ser
                565                 570                 575

Arg Arg Thr Pro Ser Pro Ser Gln Gly Gly Tyr Phe Gly Pro Asp Leu
            580                 585                 590

Tyr Ser His Asn Lys Ala Ser Pro Ser Gly Leu Lys Ser Ala Tyr Leu
        595                 600                 605

Pro Gly Gln Thr Ser Pro Lys Lys Gln Glu Glu Ala Arg Arg Glu Tyr
    610                 615                 620

Pro Leu Ser Pro Asp Gly His Leu His Arg Gln Lys Asn Glu Pro Ile
625                 630                 635                 640

His Leu Asp Val Val Glu Gln Pro Pro Gln Arg Ser Asp Phe Pro Leu
                645                 650                 655

Ala Ala Pro Glu Asn Ala Ser Thr Gly Pro Ala His Val Arg Gly Arg
            660                 665                 670

Thr Ala Val Glu Thr Asp Leu Thr Phe Gly Leu Thr Pro Asn Arg Pro
```

675 680 685

Ser Leu Ser Ala Cys Ser Ser Glu Ala Pro Glu Glu Arg Ser Gly Arg
690 695 700

Arg Leu Ala Asp Ser Glu Ser Leu Gly His Gly Ala Gln Arg Asn Thr
705 710 715 720

Asp Leu Glu Arg Glu Asp Ser Ile Ser Arg Gly Arg Arg Ser Pro Ser
725 730 735

Lys Pro Asp Phe Leu Tyr Lys Lys Ser Ala Leu
740 745

<210> 9975
<211> 781
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P203; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451010"

<400> 9975
Met Ala Gly Gly Ala Gly Ala Gly Ala Asp Gly Gly Ala Gly Gly Gly
1 5 10 15

Gly Gly Gly Gly Asp Gly Ser Gly Pro Ser Gly Ser Ser Ser Gly Gly
20 25 30

Arg Ser Leu Arg Gly Cys Glu Asp Ile Ile Ala Glu Ser Ile Ser Leu
35 40 45

```
Asp Thr Leu Ile Ala Ile Leu Lys Trp Ser Ser His Pro Tyr Gly Ser
    50                  55                  60

Lys Trp Val His Arg Gln Ala Leu His Phe Leu Cys Glu Glu Phe Ser
65                  70                  75                  80

Gln Val Met Thr Ser Asp Val Phe Tyr Glu Leu Ser Lys Asp His Leu
                85                  90                  95

Leu Thr Ala Ile Gln Ser Asp Tyr Leu Gln Ala Ser Glu Gln Asp Ile
            100                 105                 110

Leu Lys Tyr Leu Ile Lys Trp Gly Glu His Gln Leu Met Lys Arg Ile
        115                 120                 125

Ala Asp Arg Glu Pro Asn Leu Leu Ser Gly Thr Ala His Ser Val Asn
    130                 135                 140

Lys Arg Gly Val Lys Arg Arg Asp Leu Asp Met Glu Glu Leu Arg Glu
145                 150                 155                 160

Ile Leu Ser Ser Leu Leu Pro Phe Val Arg Ile Glu His Ile Leu Pro
                165                 170                 175

Ile Asn Ser Glu Val Leu Ser Asp Ala Met Lys Arg Gly Leu Ile Ser
            180                 185                 190

Thr Pro Pro Ser Asp Met Leu Pro Thr Thr Glu Gly Gly Lys Ser Asn
        195                 200                 205

Ala Trp Leu Arg Gln Lys Asn Ala Gly Ile Tyr Val Arg Pro Arg Leu
    210                 215                 220

Phe Ser Pro Tyr Val Glu Glu Ala Lys Ser Val Leu Asp Glu Met Met
225                 230                 235                 240

Val Glu Gln Thr Asp Leu Val Arg Leu Arg Met Val Arg Met Ser Asn
                245                 250                 255

Val Pro Asp Thr Leu Tyr Met Val Asn Asn Ala Val Pro Gln Cys Cys
            260                 265                 270
```

```
His Met Ile Ser His Gln Gln Ile Ser Ser Asn Gln Ser Ser Pro Pro
        275                 280                 285

Ser Val Val Ala Asn Glu Ile Pro Val Pro Arg Leu Leu Ile Met Lys
    290                 295                 300

Asp Met Val Arg Arg Leu Gln Glu Leu Arg His Thr Glu Gln Val Gln
305                 310                 315                 320

Arg Ala Tyr Ala Leu Asn Cys Gly Glu Gly Ala Thr Val Ser Tyr Glu
                325                 330                 335

Ile Gln Ile Arg Val Leu Arg Glu Phe Gly Leu Ala Asp Ala Ala Ala
            340                 345                 350

Glu Leu Leu Gln Asn Pro His Lys Phe Phe Pro Asp Glu Arg Phe Gly
        355                 360                 365

Asp Glu Ser Pro Leu Leu Thr Met Arg Gln Pro Gly Arg Cys Arg Val
    370                 375                 380

Asn Ser Thr Pro Pro Ala Glu Thr Met Phe Thr Asp Leu Asp Ser Phe
385                 390                 395                 400

Val Ala Phe His Pro Pro Leu Pro Pro Pro Pro Pro Pro Tyr His Pro
                405                 410                 415

Pro Ala Thr Pro Ile His Asn Gln Leu Lys Ala Gly Trp Lys Gln Arg
            420                 425                 430

Pro Pro Ser Gln His Pro Ser Arg Ser Phe Ser Tyr Pro Cys Asn His
        435                 440                 445

Ser Leu Phe His Ser Arg Thr Ala Pro Lys Ala Gly Pro Pro Pro Val
    450                 455                 460

Tyr Leu Pro Ser Val Lys Ala Ala Pro Pro Asp Cys Thr Ser Thr Ala
465                 470                 475                 480

Gly Leu Gly Arg Gln Thr Val Ala Ala Ala Ala Ala Thr Thr Thr Ser
                485                 490                 495
```

```
Thr Ala Thr Ala Ala Ala Ala Ala Ala Ser Glu Lys Gln Val Arg Thr
            500                 505                 510

Gln Pro Val Leu Asn Asp Leu Met Pro Asp Ile Ala Val Gly Val Ser
        515                 520                 525

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

Glu Leu Ser Gln Ser Val Ser Glu Ala Gly Pro Gly Pro Pro Gln His
545                 550                 555                 560

Leu Ser Cys Ile Pro Gln Arg His Thr His Thr Ser Arg Lys Lys His
                565                 570                 575

Thr Leu Glu Gln Lys Thr Asp Thr Arg Glu Asn Pro Gln Glu Tyr Pro
            580                 585                 590

Asp Phe Tyr Asp Phe Ser Asn Ala Ala Cys Arg Pro Ser Thr Pro Ala
        595                 600                 605

Leu Ser Arg Arg Thr Pro Ser Pro Ser Gln Gly Gly Tyr Phe Gly Pro
    610                 615                 620

Asp Leu Tyr Ser His Asn Lys Ala Ser Pro Ser Gly Leu Lys Ser Ala
625                 630                 635                 640

Tyr Leu Pro Gly Gln Thr Ser Pro Lys Lys Gln Glu Glu Ala Arg Arg
                645                 650                 655

Glu Tyr Pro Leu Ser Pro Asp Gly His Leu His Arg Gln Lys Asn Glu
            660                 665                 670

Pro Ile His Leu Asp Val Val Glu Gln Pro Pro Gln Arg Ser Asp Phe
        675                 680                 685

Pro Leu Ala Ala Pro Glu Asn Ala Ser Thr Gly Pro Ala His Val Arg
    690                 695                 700

Gly Arg Thr Ala Val Glu Thr Asp Leu Thr Phe Gly Leu Thr Pro Asn
705                 710                 715                 720

Arg Pro Ser Leu Ser Ala Cys Ser Ser Glu Ala Pro Glu Glu Arg Ser
```

```
                725                 730                 735

Gly Arg Arg Leu Ala Asp Ser Glu Ser Leu Gly His Gly Ala Gln Arg
            740                 745                 750

Asn Thr Asp Leu Glu Arg Glu Asp Ser Ile Ser Arg Gly Arg Arg Ser
        755                 760                 765

Pro Ser Lys Pro Asp Phe Leu Tyr Lys Lys Ser Ala Leu
    770                 775                 780


<210> 9976
<211> 478
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451408"

<400> 9976
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1               5                   10                  15

Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
            20                  25                  30

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

Gly His Glu Lys Pro Gln Asp Lys Lys Lys Arg Thr Ser Gly Leu Ala
    50                  55                  60

Thr Leu Lys Lys Lys Phe Ile Lys Arg Arg Lys Ser Asn Arg Ser Ala
65                  70                  75                  80
```

```
Asp His Ala Lys Gln Met Arg Glu Leu Leu Ser Gly Trp Asp Val Arg
                85                  90                  95

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

Glu Leu Ser Leu Gln Ala Ser Leu Ala Arg Pro Glu Ala Arg Thr Leu
        115                 120                 125

Gln Lys Asp Met Ala Asp Leu Tyr Glu Tyr Lys Tyr Cys Thr Asp Val
    130                 135                 140

Asp Leu Ile Phe Gln Glu Thr Cys Phe Pro Val His Arg Ala Ile Leu
145                 150                 155                 160

Ala Ala Arg Cys Pro Phe Phe Lys Thr Leu Leu Ser Ser Ser Pro Glu
                165                 170                 175

Tyr Gly Ala Glu Ile Ile Met Asp Ile Asn Thr Ala Gly Ile Asp Met
            180                 185                 190

Pro Met Phe Ser Ala Leu Leu His Tyr Leu Tyr Thr Gly Glu Phe Gly
        195                 200                 205

Met Glu Asp Ser Arg Phe Gln Asn Val Asp Ile Leu Val Gln Leu Ser
    210                 215                 220

Glu Glu Phe Gly Thr Pro Asn Ser Leu Asp Val Asp Met Arg Gly Leu
225                 230                 235                 240

Phe Asp Tyr Met Cys Tyr Tyr Asp Val Val Leu Ser Phe Ser Ser Asp
                245                 250                 255

Ser Glu Leu Val Glu Ala Phe Gly Gly Asn Gln Asn Cys Leu Asp Glu
            260                 265                 270

Glu Leu Lys Ala His Lys Ala Val Ile Ser Ala Arg Ser Pro Phe Phe
        275                 280                 285

Arg Asn Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp
    290                 295                 300
```

```
Arg Thr Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile
305                 310                 315                 320

Pro Lys Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val
                325                 330                 335

Val Asp Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser
            340                 345                 350

Glu Val Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu
        355                 360                 365

Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met
    370                 375                 380

Leu Ala Gln Ala Cys Leu Pro Phe Val Leu Gln Arg Arg Leu Gln Ser
385                 390                 395                 400

Ser Gly Leu Pro Val Gln Gln Ser Phe Gln Thr Ala Ala Tyr Cys Leu
                405                 410                 415

Asn Leu Lys Tyr Glu Asn Pro Ser Lys Asp Asn Trp Thr Phe Glu Glu
            420                 425                 430

Ser Phe Gln Ile Glu Thr Glu Ile Arg Ala Lys Arg Thr Lys Ser Trp
        435                 440                 445

Arg Lys Gln Thr Met Lys Gly Ala Glu Glu Asn Phe Ser Arg Ile Lys
    450                 455                 460

Ile Ser Leu Tyr Lys Arg Thr Phe Tyr Gly Ile Ser Glu Thr
465                 470                 475


<210> 9977
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "
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<220>
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<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9977
Xaa Thr Arg Ala Glu Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe
1 5 10 15

Leu Glu Phe Asn Met Leu Ala Gln Gly Lys
20 25

<210> 9978
<211> 1132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P203; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479193"

<400> 9978
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1 5 10 15

```
Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
            20                  25                  30

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

Gly His Glu Lys Pro Gln Asp Lys Lys Lys Arg Thr Ser Gly Leu Ala
    50                  55                  60

Thr Leu Lys Lys Lys Phe Ile Lys Arg Arg Lys Ser Asn Arg Ser Ala
65                  70                  75                  80

Asp His Ala Lys Gln Met Arg Glu Leu Leu Ser Gly Trp Asp Val Arg
                85                  90                  95

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

Glu Leu Ser Leu Gln Ala Ser Leu Ala Arg Pro Glu Ala Arg Thr Leu
        115                 120                 125

Gln Lys Asp Met Ala Asp Leu Tyr Glu Tyr Lys Tyr Cys Thr Asp Val
    130                 135                 140

Asp Leu Ile Phe Gln Glu Thr Cys Phe Pro Val His Arg Ala Ile Leu
145                 150                 155                 160

Ala Ala Arg Cys Pro Phe Phe Lys Thr Leu Leu Ser Ser Ser Pro Glu
                165                 170                 175

Tyr Gly Ala Glu Ile Ile Met Asp Ile Asn Thr Ala Gly Ile Asp Met
            180                 185                 190

Pro Met Phe Ser Ala Leu Leu His Tyr Leu Tyr Thr Gly Glu Phe Gly
        195                 200                 205

Met Glu Asp Ser Arg Phe Gln Asn Val Asp Ile Leu Val Gln Leu Ser
    210                 215                 220

Glu Glu Phe Gly Thr Pro Asn Ser Leu Asp Val Asp Met Arg Gly Leu
225                 230                 235                 240
```

```
Phe Asp Tyr Met Cys Tyr Tyr Asp Val Val Leu Ser Phe Ser Ser Asp
                245                 250                 255

Ser Glu Leu Val Glu Ala Phe Gly Gly Asn Gln Asn Cys Leu Asp Glu
            260                 265                 270

Glu Leu Lys Ala His Lys Ala Val Ile Ser Ala Arg Ser Pro Phe Phe
        275                 280                 285

Arg Asn Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp
    290                 295                 300

Arg Thr Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile
305                 310                 315                 320

Pro Lys Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val
                325                 330                 335

Val Asp Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser
            340                 345                 350

Glu Val Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu
        355                 360                 365

Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met
    370                 375                 380

Leu Ala Gln Gly Cys Glu Asp Ile Ile Ala Glu Ser Ile Ser Leu Asp
385                 390                 395                 400

Thr Leu Ile Ala Ile Leu Lys Trp Ser Ser His Pro Tyr Gly Ser Lys
                405                 410                 415

Trp Val His Arg Gln Ala Leu His Phe Leu Cys Glu Glu Phe Ser Gln
            420                 425                 430

Val Met Thr Ser Asp Val Phe Tyr Glu Leu Ser Lys Asp His Leu Leu
        435                 440                 445

Thr Ala Ile Gln Ser Asp Tyr Leu Gln Ala Ser Glu Gln Asp Ile Leu
    450                 455                 460

Lys Tyr Leu Ile Lys Trp Gly Glu His Gln Leu Met Lys Arg Ile Ala
```

```
465                 470                 475                 480

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

Arg Gly Val Lys Arg Arg Asp Leu Asp Met Glu Glu Leu Arg Glu Ile
            500                 505                 510

Leu Ser Ser Leu Leu Pro Phe Val Arg Ile Glu His Ile Leu Pro Ile
        515                 520                 525

Asn Ser Glu Val Leu Ser Asp Ala Met Lys Arg Gly Leu Ile Ser Thr
    530                 535                 540

Pro Pro Ser Asp Met Leu Pro Thr Thr Glu Gly Gly Lys Ser Asn Ala
545                 550                 555                 560

Trp Leu Arg Gln Lys Asn Ala Gly Ile Tyr Val Arg Pro Arg Leu Phe
                565                 570                 575

Ser Pro Tyr Val Glu Glu Ala Lys Ser Val Leu Asp Glu Met Met Val
            580                 585                 590

Glu Gln Thr Asp Leu Val Arg Leu Arg Met Val Arg Met Ser Asn Val
        595                 600                 605

Pro Asp Thr Leu Tyr Met Val Asn Asn Ala Val Pro Gln Cys Cys His
    610                 615                 620

Met Ile Ser His Gln Gln Ile Ser Ser Asn Gln Ser Ser Pro Pro Ser
625                 630                 635                 640

Val Val Ala Asn Glu Ile Pro Val Pro Arg Leu Leu Ile Met Lys Asp
                645                 650                 655

Met Val Arg Arg Leu Gln Glu Leu Arg His Thr Glu Gln Val Gln Arg
            660                 665                 670

Ala Tyr Ala Leu Asn Cys Gly Glu Gly Ala Thr Val Ser Tyr Glu Ile
        675                 680                 685

Gln Ile Arg Val Leu Arg Glu Phe Gly Leu Ala Asp Ala Ala Ala Glu
    690                 695                 700
```

```
Leu Leu Gln Asn Pro His Lys Phe Phe Pro Asp Glu Arg Phe Gly Asp
705                 710                 715                 720

Glu Ser Pro Leu Leu Thr Met Arg Gln Pro Gly Arg Cys Arg Val Asn
                725                 730                 735

Ser Thr Pro Pro Ala Glu Thr Met Phe Thr Asp Leu Asp Ser Phe Val
            740                 745                 750

Ala Phe His Pro Pro Leu Pro Pro Pro Pro Pro Pro Tyr His Pro Pro
        755                 760                 765

Ala Thr Pro Ile His Asn Gln Leu Lys Ala Gly Trp Lys Gln Arg Pro
    770                 775                 780

Pro Ser Gln His Pro Ser Arg Ser Phe Ser Tyr Pro Cys Asn His Ser
785                 790                 795                 800

Leu Phe His Ser Arg Thr Ala Pro Lys Ala Gly Pro Pro Pro Val Tyr
                805                 810                 815

Leu Pro Ser Val Lys Ala Ala Pro Pro Asp Cys Thr Ser Thr Ala Gly
            820                 825                 830

Leu Gly Arg Gln Thr Val Ala Ala Ala Ala Ala Thr Thr Thr Ser Thr
        835                 840                 845

Ala Thr Ala Ala Ala Ala Ala Ala Ser Glu Lys Gln Val Arg Thr Gln
    850                 855                 860

Pro Val Leu Asn Asp Leu Met Pro Asp Ile Ala Val Gly Val Ser Thr
865                 870                 875                 880

Leu Ser Leu Lys Asp Arg Arg Leu Pro Glu Leu Ala Val Asp Thr Glu
                885                 890                 895

Leu Ser Gln Ser Val Ser Glu Ala Gly Pro Gly Pro Pro Gln His Leu
            900                 905                 910

Ser Cys Ile Pro Gln Arg His Thr His Thr Ser Arg Lys Lys His Thr
        915                 920                 925
```

```
Leu Glu Gln Lys Thr Asp Thr Arg Glu Asn Pro Gln Glu Tyr Pro Asp
    930                 935                 940

Phe Tyr Asp Phe Ser Asn Ala Ala Cys Arg Pro Ser Thr Pro Ala Leu
945                 950                 955                 960

Ser Arg Arg Thr Pro Ser Pro Ser Gln Gly Gly Tyr Phe Gly Pro Asp
                965                 970                 975

Leu Tyr Ser His Asn Lys Ala Ser Pro Ser Gly Leu Lys Ser Ala Tyr
            980                 985                 990

Leu Pro Gly Gln Thr Ser Pro Lys  Lys Gln Glu Glu Ala  Arg Arg
Glu
        995                 1000                1005

Tyr Pro  Leu Ser Pro Asp Gly  His Leu His Arg Gln  Lys Asn Glu
    1010                1015                1020

Pro Ile  His Leu Asp Val Val  Glu Gln Pro Pro Gln  Arg Ser Asp
    1025                1030                1035

Phe Pro  Leu Ala Ala Pro Glu  Asn Ala Ser Thr Gly  Pro Ala His
    1040                1045                1050

Val Arg  Gly Arg Thr Ala Val  Glu Thr Asp Leu Thr  Phe Gly Leu
    1055                1060                1065

Thr Pro  Asn Arg Pro Ser Leu  Ser Ala Cys Ser Ser  Glu Ala Pro
    1070                1075                1080

Glu Glu  Arg Ser Gly Arg Arg  Leu Ala Asp Ser Glu  Ser Leu Gly
    1085                1090                1095

His Gly  Ala Gln Arg Asn Thr  Asp Leu Glu Arg Glu  Asp Ser Ile
    1100                1105                1110

Ser Arg  Gly Arg Arg Ser Pro  Ser Lys Pro Asp Phe  Leu Tyr Lys
    1115                1120                1125

Lys Ser  Ala Leu
    1130
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<210> 9979
<211> 410
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P203; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481899"

<400> 9979
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1   5   10   15

Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
            20   25   30

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

Gly His Glu Lys Pro Gln Asp Lys Lys Lys Arg Thr Ser Gly Leu Ala
    50   55   60

Thr Leu Lys Lys Lys Phe Ile Lys Arg Arg Lys Ser Asn Arg Ser Ala
65   70   75   80

Asp His Ala Lys Gln Met Arg Glu Leu Leu Ser Gly Trp Asp Val Arg
                85   90   95

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

```
Glu Leu Ser Leu Gln Ala Ser Leu Ala Arg Pro Glu Ala Arg Thr Leu
        115                 120                 125

Gln Lys Asp Met Ala Asp Leu Tyr Glu Tyr Lys Tyr Cys Thr Asp Val
    130                 135                 140

Asp Leu Ile Phe Gln Glu Thr Cys Phe Pro Val His Arg Ala Ile Leu
145                 150                 155                 160

Ala Ala Arg Cys Pro Phe Phe Lys Thr Leu Leu Ser Ser Ser Pro Glu
                165                 170                 175

Tyr Gly Ala Glu Ile Ile Met Asp Ile Asn Thr Ala Gly Ile Asp Met
            180                 185                 190

Pro Met Phe Ser Ala Leu Leu His Tyr Leu Tyr Thr Gly Glu Phe Gly
        195                 200                 205

Met Glu Asp Ser Arg Phe Gln Asn Val Asp Ile Leu Val Gln Leu Ser
    210                 215                 220

Glu Glu Phe Gly Thr Pro Asn Ser Leu Asp Val Asp Met Arg Gly Leu
225                 230                 235                 240

Phe Asp Tyr Met Cys Tyr Tyr Asp Val Val Leu Ser Phe Ser Ser Asp
                245                 250                 255

Ser Glu Leu Val Glu Ala Phe Gly Gly Asn Gln Asn Cys Leu Asp Glu
            260                 265                 270

Glu Leu Lys Ala His Lys Ala Val Ile Ser Ala Arg Ser Pro Phe Phe
        275                 280                 285

Arg Asn Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp
    290                 295                 300

Arg Thr Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile
305                 310                 315                 320

Pro Lys Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val
                325                 330                 335

Val Asp Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser
```

340 345 350

Glu Val Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu
355 360 365

Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met
370 375 380

Leu Ala Gln Glu Glu Thr Thr Val Ile Arg Pro Ala Cys Ala Ala Glu
385 390 395 400

Leu Ser Asn Ser Cys Leu Leu Pro Gln Ser
405 410

<210> 9980
<211> 747
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486038"

<400> 9980
Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp Arg Thr
1 5 10 15

Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile Pro Lys
20 25 30

Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val Val Asp
35 40 45

Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser Glu Val
50 55 60

```
Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu Glu Ala
65                  70                  75                  80

Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met Leu Ala
                85                  90                  95

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

Gly Val Lys Arg Arg Asp Leu Asp Met Glu Glu Leu Arg Glu Ile Leu
        115                 120                 125

Ser Ser Leu Leu Pro Phe Val Arg Ile Glu His Ile Leu Pro Ile Asn
    130                 135                 140

Ser Glu Val Leu Ser Asp Ala Met Lys Arg Gly Leu Ile Ser Thr Pro
145                 150                 155                 160

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

Leu Arg Gln Lys Asn Ala Gly Ile Tyr Val Arg Pro Arg Leu Phe Ser
            180                 185                 190

Pro Tyr Val Glu Glu Ala Lys Ser Val Leu Asp Glu Met Met Val Glu
        195                 200                 205

Gln Thr Asp Leu Val Arg Leu Arg Met Val Arg Met Ser Asn Val Pro
    210                 215                 220

Asp Thr Leu Tyr Met Val Asn Asn Ala Val Pro Gln Cys Cys His Met
225                 230                 235                 240

Ile Ser His Gln Gln Ile Ser Ser Asn Gln Ser Ser Pro Pro Ser Val
                245                 250                 255

Val Ala Asn Glu Ile Pro Val Pro Arg Leu Leu Ile Met Lys Asp Met
            260                 265                 270

Val Arg Arg Leu Gln Glu Leu Arg His Thr Glu Gln Val Gln Arg Ala
        275                 280                 285
```

```
Tyr Ala Leu Asn Cys Gly Glu Gly Ala Thr Val Ser Tyr Glu Ile Gln
    290                 295                 300

Ile Arg Val Leu Arg Glu Phe Gly Leu Ala Asp Ala Ala Ala Glu Leu
305                 310                 315                 320

Leu Gln Asn Pro His Lys Phe Phe Pro Asp Glu Arg Phe Gly Asp Glu
                325                 330                 335

Ser Pro Leu Leu Thr Met Arg Gln Pro Gly Arg Cys Arg Val Asn Ser
            340                 345                 350

Thr Pro Pro Ala Glu Thr Met Phe Thr Asp Leu Asp Ser Phe Val Ala
        355                 360                 365

Phe His Pro Pro Leu Pro Pro Pro Pro Pro Pro Tyr His Pro Pro Ala
    370                 375                 380

Thr Pro Ile His Asn Gln Leu Lys Ala Gly Trp Lys Gln Arg Pro Pro
385                 390                 395                 400

Ser Gln His Pro Ser Arg Ser Phe Ser Tyr Pro Cys Asn His Ser Leu
                405                 410                 415

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

Pro Ser Val Lys Ala Ala Pro Pro Asp Cys Thr Ser Thr Ala Gly Leu
        435                 440                 445

Gly Arg Gln Thr Val Ala Ala Ala Ala Ala Thr Thr Thr Ser Thr Ala
    450                 455                 460

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

Val Leu Asn Asp Leu Met Pro Asp Ile Ala Val Gly Val Ser Thr Leu
                485                 490                 495

Ser Leu Lys Asp Arg Arg Leu Pro Glu Leu Ala Val Asp Thr Glu Leu
            500                 505                 510
```

```
Ser Gln Ser Val Ser Glu Ala Gly Pro Gly Pro Pro Gln His Leu Ser
        515                 520                 525

Cys Ile Pro Gln Arg His Thr His Thr Ser Arg Lys Lys His Thr Leu
    530                 535                 540

Glu Gln Lys Thr Asp Thr Arg Glu Asn Pro Gln Glu Tyr Pro Asp Phe
545                 550                 555                 560

Tyr Asp Phe Ser Asn Ala Ala Cys Arg Pro Ser Thr Pro Ala Leu Ser
                565                 570                 575

Arg Arg Thr Pro Ser Pro Ser Gln Gly Gly Tyr Phe Gly Pro Asp Leu
            580                 585                 590

Tyr Ser His Asn Lys Ala Ser Pro Ser Gly Leu Lys Ser Ala Tyr Leu
        595                 600                 605

Pro Gly Gln Thr Ser Pro Lys Lys Gln Glu Glu Ala Arg Arg Glu Tyr
    610                 615                 620

Pro Leu Ser Pro Asp Gly His Leu His Arg Gln Lys Asn Glu Pro Ile
625                 630                 635                 640

His Leu Asp Val Val Glu Gln Pro Pro Gln Arg Ser Asp Phe Pro Leu
                645                 650                 655

Ala Ala Pro Glu Asn Ala Ser Thr Gly Pro Ala His Val Arg Gly Arg
            660                 665                 670

Thr Ala Val Glu Thr Asp Leu Thr Phe Gly Leu Thr Pro Asn Arg Pro
        675                 680                 685

Ser Leu Ser Ala Cys Ser Ser Glu Ala Pro Glu Glu Arg Ser Gly Arg
    690                 695                 700

Arg Leu Ala Asp Ser Glu Ser Leu Gly His Gly Ala Gln Arg Asn Thr
705                 710                 715                 720

Asp Leu Glu Arg Glu Asp Ser Ile Ser Arg Gly Arg Arg Ser Pro Ser
                725                 730                 735

Lys Pro Asp Phe Leu Tyr Lys Lys Ser Ala Leu
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740 745

<210> 9981
<211> 781
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P203; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486274"

<400> 9981
Met Ala Gly Gly Ala Gly Ala Gly Ala Asp Gly Gly Ala Gly Gly Gly
1 5 10 15

Gly Gly Gly Gly Asp Gly Ser Gly Pro Ser Gly Ser Ser Ser Gly Gly
20 25 30

Arg Ser Leu Arg Gly Cys Glu Asp Ile Ile Ala Glu Ser Ile Ser Leu
35 40 45

Asp Thr Leu Ile Ala Ile Leu Lys Trp Ser Ser His Pro Tyr Gly Ser
50 55 60

Lys Trp Val His Arg Gln Ala Leu His Phe Leu Cys Glu Glu Phe Ser
65 70 75 80

Gln Val Met Thr Ser Asp Val Phe Tyr Glu Leu Ser Lys Asp His Leu
85 90 95

Leu Thr Ala Ile Gln Ser Asp Tyr Leu Gln Ala Ser Glu Gln Asp Ile
100 105 110

```
Leu Lys Tyr Leu Ile Lys Trp Gly Glu His Gln Leu Met Lys Arg Ile
        115                 120                 125

Ala Asp Arg Glu Pro Asn Leu Leu Ser Gly Thr Ala His Ser Val Asn
    130                 135                 140

Lys Arg Gly Val Lys Arg Arg Asp Leu Asp Met Glu Glu Leu Arg Glu
145                 150                 155                 160

Ile Leu Ser Ser Leu Leu Pro Phe Val Arg Ile Glu His Ile Leu Pro
                165                 170                 175

Ile Asn Ser Glu Val Leu Ser Asp Ala Met Lys Arg Gly Leu Ile Ser
            180                 185                 190

Thr Pro Pro Ser Asp Met Leu Pro Thr Thr Glu Gly Gly Lys Ser Asn
        195                 200                 205

Ala Trp Leu Arg Gln Lys Asn Ala Gly Ile Tyr Val Arg Pro Arg Leu
    210                 215                 220

Phe Ser Pro Tyr Val Glu Glu Ala Lys Ser Val Leu Asp Glu Met Met
225                 230                 235                 240

Val Glu Gln Thr Asp Leu Val Arg Leu Arg Met Val Arg Met Ser Asn
                245                 250                 255

Val Pro Asp Thr Leu Tyr Met Val Asn Asn Ala Val Pro Gln Cys Cys
            260                 265                 270

His Met Ile Ser His Gln Gln Ile Ser Ser Asn Gln Ser Ser Pro Pro
        275                 280                 285

Ser Val Val Ala Asn Glu Ile Pro Val Pro Arg Leu Leu Ile Met Lys
    290                 295                 300

Asp Met Val Arg Arg Leu Gln Glu Leu Arg His Thr Glu Gln Val Gln
305                 310                 315                 320

Arg Ala Tyr Ala Leu Asn Cys Gly Glu Gly Ala Thr Val Ser Tyr Glu
                325                 330                 335
```

Ile Gln Ile Arg Val Leu Arg Glu Phe Gly Leu Ala Asp Ala Ala Ala
340 345 350

Glu Leu Leu Gln Asn Pro His Lys Phe Phe Pro Asp Glu Arg Phe Gly
355 360 365

Asp Glu Ser Pro Leu Leu Thr Met Arg Gln Pro Gly Arg Cys Arg Val
370 375 380

Asn Ser Thr Pro Pro Ala Glu Thr Met Phe Thr Asp Leu Asp Ser Phe
385 390 395 400

Val Ala Phe His Pro Pro Leu Pro Pro Pro Pro Pro Pro Tyr His Pro
405 410 415

Pro Ala Thr Pro Ile His Asn Gln Leu Lys Ala Gly Trp Lys Gln Arg
420 425 430

Pro Pro Ser Gln His Pro Ser Arg Ser Phe Ser Tyr Pro Cys Asn His
435 440 445

Ser Leu Phe His Ser Arg Thr Ala Pro Lys Ala Gly Pro Pro Pro Val
450 455 460

Tyr Leu Pro Ser Val Lys Ala Ala Pro Pro Asp Cys Thr Ser Thr Ala
465 470 475 480

Gly Leu Gly Arg Gln Thr Val Ala Ala Ala Ala Ala Thr Thr Thr Ser
485 490 495

Thr Ala Thr Ala Ala Ala Ala Ala Ala Ser Glu Lys Gln Val Arg Thr
500 505 510

Gln Pro Val Leu Asn Asp Leu Met Pro Asp Ile Ala Val Gly Val Ser
515 520 525

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

Glu Leu Ser Gln Ser Val Ser Glu Ala Gly Pro Gly Pro Pro Gln His
545 550 555 560

```
Leu Ser Cys Ile Pro Gln Arg His Thr His Thr Ser Arg Lys Lys His
                565                 570                 575

Thr Leu Glu Gln Lys Thr Asp Thr Arg Glu Asn Pro Gln Glu Tyr Pro
            580                 585                 590

Asp Phe Tyr Asp Phe Ser Asn Ala Ala Cys Arg Pro Ser Thr Pro Ala
        595                 600                 605

Leu Ser Arg Arg Thr Pro Ser Pro Ser Gln Gly Gly Tyr Phe Gly Pro
    610                 615                 620

Asp Leu Tyr Ser His Asn Lys Ala Ser Pro Ser Gly Leu Lys Ser Ala
625                 630                 635                 640

Tyr Leu Pro Gly Gln Thr Ser Pro Lys Lys Gln Glu Glu Ala Arg Arg
                645                 650                 655

Glu Tyr Pro Leu Ser Pro Asp Gly His Leu His Arg Gln Lys Asn Glu
            660                 665                 670

Pro Ile His Leu Asp Val Val Glu Gln Pro Pro Gln Arg Ser Asp Phe
        675                 680                 685

Pro Leu Ala Ala Pro Glu Asn Ala Ser Thr Gly Pro Ala His Val Arg
    690                 695                 700

Gly Arg Thr Ala Val Glu Thr Asp Leu Thr Phe Gly Leu Thr Pro Asn
705                 710                 715                 720

Arg Pro Ser Leu Ser Ala Cys Ser Ser Glu Ala Pro Glu Glu Arg Ser
                725                 730                 735

Gly Arg Arg Leu Ala Asp Ser Glu Ser Leu Gly His Gly Ala Gln Arg
            740                 745                 750

Asn Thr Asp Leu Glu Arg Glu Asp Ser Ile Ser Arg Gly Arg Arg Ser
        755                 760                 765

Pro Ser Lys Pro Asp Phe Leu Tyr Lys Lys Ser Ala Leu
    770                 775                 780
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<210> 9982

<211> 55
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2003; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD7; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486412"

<400> 9982
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1 5 10 15

Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
20 25 30

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

Gly His Glu Lys Pro Gln Asp
50 55

<210> 9983
<211> 478
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2003; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486521"

<400> 9983
Met Gly Ala Asn Ala Ser Asn Tyr Pro His Ser Cys Ser Pro Arg Val
1   5   10   15

Gly Gly Asn Ser Gln Ala Gln Gln Thr Phe Ile Gly Thr Ser Ser Tyr
            20   25   30

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

Gly His Glu Lys Pro Gln Asp Lys Lys Lys Arg Thr Ser Gly Leu Ala
    50   55   60

Thr Leu Lys Lys Lys Phe Ile Lys Arg Arg Lys Ser Asn Arg Ser Ala
65   70   75   80

Asp His Ala Lys Gln Met Arg Glu Leu Leu Ser Gly Trp Asp Val Arg
                85   90   95

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

Glu Leu Ser Leu Gln Ala Ser Leu Ala Arg Pro Glu Ala Arg Thr Leu
        115   120   125

Gln Lys Asp Met Ala Asp Leu Tyr Glu Tyr Lys Tyr Cys Thr Asp Val
    130   135   140

Asp Leu Ile Phe Gln Glu Thr Cys Phe Pro Val His Arg Ala Ile Leu
145   150   155   160

Ala Ala Arg Cys Pro Phe Phe Lys Thr Leu Leu Ser Ser Ser Pro Glu
                165   170   175

Tyr Gly Ala Glu Ile Ile Met Asp Ile Asn Thr Ala Gly Ile Asp Met
            180   185   190

Pro Met Phe Ser Ala Leu Leu His Tyr Leu Tyr Thr Gly Glu Phe Gly
        195   200   205

```
Met Glu Asp Ser Arg Phe Gln Asn Val Asp Ile Leu Val Gln Leu Ser
    210                 215                 220

Glu Glu Phe Gly Thr Pro Asn Ser Leu Asp Val Asp Met Arg Gly Leu
225                 230                 235                 240

Phe Asp Tyr Met Cys Tyr Tyr Asp Val Val Leu Ser Phe Ser Ser Asp
                245                 250                 255

Ser Glu Leu Val Glu Ala Phe Gly Gly Asn Gln Asn Cys Leu Asp Glu
            260                 265                 270

Glu Leu Lys Ala His Lys Ala Val Ile Ser Ala Arg Ser Pro Phe Phe
        275                 280                 285

Arg Asn Leu Leu Gln Arg Arg Ile Arg Thr Gly Glu Glu Ile Thr Asp
    290                 295                 300

Arg Thr Leu Arg Thr Pro Thr Arg Ile Ile Leu Asp Glu Ser Ile Ile
305                 310                 315                 320

Pro Lys Lys Tyr Ala Thr Val Ile Leu His Cys Met Tyr Thr Asp Val
                325                 330                 335

Val Asp Leu Ser Val Leu His Cys Ser Pro Ser Val Gly Ser Leu Ser
            340                 345                 350

Glu Val Gln Ala Leu Val Ala Gly Lys Pro Asn Met Thr Arg Ala Glu
        355                 360                 365

Glu Ala Met Glu Leu Tyr His Ile Ala Leu Phe Leu Glu Phe Asn Met
    370                 375                 380

Leu Ala Gln Ala Cys Leu Pro Phe Val Leu Gln Arg Arg Leu Gln Ser
385                 390                 395                 400

Ser Gly Leu Pro Val Gln Gln Ser Phe Gln Thr Ala Ala Tyr Cys Leu
                405                 410                 415

Asn Leu Lys Tyr Glu Asn Pro Ser Lys Asp Asn Trp Thr Phe Glu Glu
            420                 425                 430
```

Ser Phe Gln Ile Glu Thr Glu Ile Arg Ala Lys Arg Thr Lys Ser Trp
435 440 445

Arg Lys Gln Thr Met Lys Gly Ala Glu Glu Asn Phe Ser Arg Ile Lys
450 455 460

Ile Ser Leu Tyr Lys Arg Thr Phe Tyr Gly Ile Ser Glu Thr
465 470 475

<210> 9984
<211> 378
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2004; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD8; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q5XKL5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343686"

<400> 9984
Met Ala Arg Cys Gly Glu Gly Ser Ala Ala Pro Met Val Leu Leu Gly
1 5 10 15

Ser Ala Gly Val Cys Ser Lys Gly Leu Gln Arg Lys Gly Pro Cys Glu
20 25 30

Arg Arg Arg Leu Lys Ala Thr Val Ser Glu Gln Leu Ser Gln Asp Leu
35 40 45

Leu Arg Leu Leu Arg Glu Glu Phe His Thr Asp Val Thr Phe Ser Val
50 55 60

Gly Cys Thr Leu Phe Lys Ala His Lys Ala Val Leu Leu Ala Arg Val

65 70 75 80

Pro Asp Phe Tyr Phe His Thr Ile Gly Gln Thr Ser Asn Ser Leu Thr
85 90 95

Asn Gln Glu Pro Ile Ala Val Glu Asn Val Glu Ala Leu Glu Phe Arg
100 105 110

Thr Phe Leu Gln Ile Ile Tyr Ser Ser Asn Arg Asn Ile Lys Asn Tyr
115 120 125

Glu Glu Glu Ile Leu Arg Lys Lys Ile Met Glu Ile Gly Ile Ser Gln
130 135 140

Lys Gln Leu Asp Ile Ser Phe Pro Lys Cys Glu Asn Ser Ser Asp Cys
145 150 155 160

Ser Leu Gln Lys His Glu Ile Pro Glu Asp Ile Ser Asp Arg Asp Asp
165 170 175

Asp Phe Ile Ser Asn Asp Asn Tyr Asp Leu Glu Pro Ala Ser Glu Leu
180 185 190

Gly Glu Asp Leu Leu Lys Leu Tyr Val Lys Pro Cys Cys Pro Asp Ile
195 200 205

Asp Ile Phe Val Asp Gly Lys Arg Phe Lys Ala His Arg Ala Ile Leu
210 215 220

Ser Ala Arg Ser Ser Tyr Phe Ala Ala Met Leu Ser Gly Cys Trp Ala
225 230 235 240

Glu Ser Ser Gln Glu Tyr Val Thr Leu Gln Gly Ile Ser His Val Glu
245 250 255

Leu Asn Val Met Met His Phe Ile Tyr Gly Gly Thr Leu Asp Ile Pro
260 265 270

Asp Lys Thr Asn Val Gly Gln Ile Leu Asn Met Ala Asp Met Tyr Gly
275 280 285

Leu Glu Gly Leu Lys Glu Val Ala Ile Tyr Ile Leu Arg Arg Asp Tyr
290 295 300

```
Cys Asn Phe Phe Gln Lys Pro Val Pro Arg Thr Leu Thr Ser Ile Leu
305                 310                 315                 320


Glu Cys Leu Ile Ile Ala His Ser Val Gly Val Glu Ser Leu Phe Ala
                325                 330                 335


Asp Cys Met Lys Trp Ile Val Lys His Phe Ala Arg Phe Trp Ser Glu
            340                 345                 350


Arg Ser Phe Ala Asn Ile Pro Pro Glu Ile Gln Lys Ser Cys Leu Asn
        355                 360                 365


Met Leu Ile Gln Ser Leu Val Ser Ile Thr
    370                 375


<210> 9985
<211> 305
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2004; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD8; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 8; "

<220>
<221> source
<223> /note="Uniprot ID:  Q5XKL5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000359408"

<400> 9985
Met Ala Arg Cys Gly Glu Gly Ser Ala Ala Pro Met Val Leu Leu Gly
1               5                   10                  15


Ser Ala Gly Val Cys Ser Lys Gly Leu Gln Arg Lys Gly Pro Cys Glu
            20                  25                  30
```

```
Arg Arg Arg Leu Lys Ala Thr Val Ser Glu Gln Leu Ser Gln Asp Leu
        35                  40                  45

Leu Arg Leu Leu Arg Glu Glu Phe His Thr Asp Val Thr Phe Ser Val
    50                  55                  60

Gly Cys Thr Leu Phe Lys Ala His Lys Ala Val Leu Leu Ala Arg Val
65                  70                  75                  80

Pro Asp Phe Tyr Phe His Thr Ile Gly Gln Thr Ser Asn Ser Leu Thr
                85                  90                  95

Asn Gln Glu Pro Ile Ala Val Glu Asn Val Glu Ala Leu Glu Phe Arg
            100                 105                 110

Thr Phe Leu Gln Ile Ile Tyr Ser Ser Asn Arg Asn Ile Lys Asn Tyr
        115                 120                 125

Glu Glu Glu Ile Leu Arg Lys Lys Ile Met Glu Ile Gly Ile Ser Gln
    130                 135                 140

Lys Gln Leu Asp Ile Ser Phe Pro Lys Cys Glu Asn Ser Ser Asp Cys
145                 150                 155                 160

Ser Leu Gln Lys His Glu Ile Pro Glu Asp Ile Ser Asp Arg Asp Asp
                165                 170                 175

Asp Phe Ile Ser Asn Asp Asn Tyr Asp Leu Glu Pro Ala Ser Glu Leu
            180                 185                 190

Gly Glu Asp Leu Leu Lys Leu Tyr Val Lys Pro Cys Cys Pro Asp Ile
        195                 200                 205

Asp Ile Phe Val Asp Gly Lys Arg Phe Lys Ala His Arg Ala Ile Leu
    210                 215                 220

Ser Ala Arg Ser Ser Tyr Phe Ala Ala Met Leu Ser Gly Cys Trp Ala
225                 230                 235                 240

Glu Ser Ser Gln Glu Tyr Val Thr Leu Gln Gly Ile Ser His Val Glu
                245                 250                 255
```

```
Leu Asn Val Met Met His Phe Ile Tyr Gly Gly Thr Leu Asp Ile Pro
            260                 265                 270

Asp Lys Thr Asn Val Gly Tyr Val Phe Leu Phe Asn Asn Leu Lys Tyr
        275                 280                 285

Lys Arg Val Arg Phe Cys Phe Val Glu Leu Cys Cys Lys Val Leu Met
    290                 295                 300

Lys
305


<210> 9986
<211> 544
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2005; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD9; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 9; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96Q07; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000323408"

<400> 9986
Met Arg Glu Ser Gln Pro Glu Ala Glu Ile Pro Leu Gln Asp Thr Thr
1               5                  10                  15

Ala Glu Ala Phe Thr Met Leu Leu Lys Tyr Ile Tyr Thr Gly Arg Ala
            20                  25                  30

Thr Leu Thr Asp Glu Lys Glu Glu Val Leu Leu Asp Phe Leu Ser Leu
        35                  40                  45

Ala His Lys Tyr Gly Phe Pro Glu Leu Glu Asp Ser Thr Ser Glu Tyr
```

50 55 60

Leu Cys Thr Ile Leu Asn Ile Gln Asn Val Cys Met Thr Phe Asp Val
65 70 75 80

Ala Ser Leu Tyr Ser Leu Pro Lys Leu Thr Cys Met Cys Cys Met Phe
85 90 95

Met Asp Arg Asn Ala Gln Glu Val Leu Ser Ser Glu Gly Phe Leu Ser
100 105 110

Leu Ser Lys Thr Ala Leu Leu Asn Ile Val Leu Arg Asp Ser Phe Ala
115 120 125

Ala Pro Glu Lys Asp Ile Phe Leu Ala Leu Leu Asn Trp Cys Lys His
130 135 140

Asn Ser Lys Glu Asn His Ala Glu Ile Met Gln Ala Val Arg Leu Pro
145 150 155 160

Leu Met Ser Leu Thr Glu Leu Leu Asn Val Val Arg Pro Ser Gly Leu
165 170 175

Leu Ser Pro Asp Ala Ile Leu Asp Ala Ile Lys Val Arg Ser Glu Ser
180 185 190

Arg Asp Met Asp Leu Asn Tyr Arg Gly Met Leu Ile Pro Glu Glu Asn
195 200 205

Ile Ala Thr Met Lys Tyr Gly Ala Gln Val Val Lys Gly Glu Leu Lys
210 215 220

Ser Ala Leu Leu Asp Gly Asp Thr Gln Asn Tyr Asp Leu Asp His Gly
225 230 235 240

Phe Ser Arg His Pro Ile Asp Asp Asp Cys Arg Ser Gly Ile Glu Ile
245 250 255

Lys Leu Gly Gln Pro Ser Ile Ile Asn His Ile Arg Ile Leu Leu Trp
260 265 270

Asp Arg Asp Ser Arg Ser Tyr Ser Tyr Phe Ile Glu Val Ser Met Asp
275 280 285

```
Glu Leu Asp Trp Val Arg Val Ile Asp His Ser Gln Tyr Leu Cys Arg
    290                 295                 300

Ser Trp Gln Lys Leu Tyr Phe Pro Ala Arg Val Cys Arg Tyr Ile Arg
305                 310                 315                 320

Ile Val Gly Thr His Asn Thr Val Asn Lys Ile Phe His Ile Val Ala
                325                 330                 335

Phe Glu Cys Met Phe Thr Asn Lys Thr Phe Thr Leu Glu Lys Gly Leu
            340                 345                 350

Ile Val Pro Met Glu Asn Val Ala Thr Ile Ala Asp Cys Ala Ser Val
        355                 360                 365

Ile Glu Gly Val Ser Arg Ser Arg Asn Ala Leu Leu Asn Gly Asp Thr
    370                 375                 380

Lys Asn Tyr Asp Trp Asp Ser Gly Tyr Thr Cys His Gln Leu Gly Ser
385                 390                 395                 400

Gly Ala Ile Val Val Gln Leu Ala Gln Pro Tyr Met Ile Gly Ser Ile
                405                 410                 415

Arg Leu Leu Leu Trp Asp Cys Asp Asp Arg Ser Tyr Ser Tyr Tyr Val
            420                 425                 430

Glu Val Ser Thr Asn Gln Gln Gln Trp Thr Met Val Ala Asp Arg Thr
        435                 440                 445

Lys Val Ser Cys Lys Ser Trp Gln Ser Val Thr Phe Glu Arg Gln Pro
    450                 455                 460

Ala Ser Phe Ile Arg Ile Val Gly Thr His Asn Thr Ala Asn Glu Val
465                 470                 475                 480

Phe His Cys Val His Phe Glu Cys Pro Glu Gln Gln Ser Ser Gln Lys
                485                 490                 495

Glu Glu Asn Ser Glu Glu Ser Gly Thr Gly Asp Thr Ser Leu Ala Gly
            500                 505                 510
```

```
Gln Gln Leu Asp Ser His Ala Leu Arg Ala Pro Ser Gly Ser Ser Leu
        515                 520                 525


Pro Ser Ser Pro Gly Ser Asn Ser Arg Ser Pro Asn Arg Gln His Gln
    530                 535                 540


<210> 9987
<211> 318
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2005; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD9; "

<220>
<221> source
<223> /note="Gene Name:
      BTB (POZ)
      domain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000328328"

<400> 9987
Met Arg Glu Ser Gln Pro Glu Ala Glu Ile Pro Leu Gln Asp Thr Thr
1               5                   10                  15


Ala Glu Ala Phe Thr Met Leu Leu Lys Tyr Ile Tyr Thr Gly Arg Ala
            20                  25                  30


Thr Leu Thr Asp Glu Lys Glu Glu Val Leu Leu Asp Phe Leu Ser Leu
        35                  40                  45


Ala His Lys Tyr Gly Phe Pro Glu Leu Glu Asp Ser Thr Ser Glu Tyr
    50                  55                  60


Leu Cys Thr Ile Leu Asn Ile Gln Asn Val Cys Met Thr Phe Asp Val
65                  70                  75                  80


Ala Ser Leu Tyr Ser Leu Pro Lys Leu Thr Cys Met Cys Cys Met Phe
                85                  90                  95
```

```
Met Asp Arg Asn Ala Gln Glu Val Leu Ser Ser Glu Gly Phe Leu Ser
            100                 105                 110

Leu Ser Lys Thr Ala Leu Leu Asn Ile Val Leu Arg Asp Ser Phe Ala
        115                 120                 125

Ala Pro Glu Lys Asp Ile Phe Leu Ala Leu Leu Asn Trp Cys Lys His
    130                 135                 140

Asn Ser Lys Glu Asn His Ala Glu Ile Met Gln Ala Val Arg Leu Pro
145                 150                 155                 160

Leu Met Ser Leu Thr Glu Leu Leu Asn Val Val Arg Pro Ser Gly Leu
                165                 170                 175

Leu Ser Pro Asp Ala Ile Leu Asp Ala Ile Lys Val Arg Ser Glu Ser
            180                 185                 190

Arg Asp Met Asp Leu Asn Tyr Arg Gly Met Leu Ile Pro Glu Glu Asn
        195                 200                 205

Ile Ala Thr Met Lys Tyr Gly Ala Gln Val Val Lys Gly Glu Leu Lys
    210                 215                 220

Ser Ala Leu Leu Asp Gly Asp Thr Gln Asn Tyr Asp Leu Asp His Gly
225                 230                 235                 240

Phe Ser Arg His Pro Ile Asp Asp Asp Cys Arg Ser Gly Ile Glu Ile
                245                 250                 255

Lys Leu Gly Gln Pro Ser Ile Ile Asn His Ile Arg Ile Leu Leu Trp
            260                 265                 270

Asp Arg Asp Ser Arg Ser Tyr Ser Tyr Phe Ile Glu Val Ser Met Asp
        275                 280                 285

Glu Leu Asp Trp Val Arg Val Ile Asp His Ser Gln Tyr Leu Cys Arg
    290                 295                 300

Ser Trp Gln Lys Leu Tyr Phe Pro Ala Arg Val Cys Ser Leu
305                 310                 315
```

<210> 9988

<211> 385
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2005; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD9; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386121"

<400> 9988

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Met Ser Asn Ser His Pro Leu Arg Pro Phe Thr Ala Val Gly Glu Ile
1               5                   10                  15

Asp His Val His Ile Leu Ser Glu His Ile Gly Ala Leu Leu Ile Gly
            20                  25                  30

Glu Glu Tyr Gly Asp Val Thr Phe Val Val Glu Lys Lys Arg Phe Pro
        35                  40                  45

Ala His Arg Val Ile Leu Ala Ala Arg Cys Gln Tyr Phe Arg Ala Leu
    50                  55                  60

Leu Tyr Gly Gly Met Arg Glu Ser Gln Pro Glu Ala Glu Ile Pro Leu
65                  70                  75                  80

Gln Asp Thr Thr Ala Glu Ala Phe Thr Met Leu Leu Lys Tyr Ile Tyr
                85                  90                  95

Thr Gly Arg Ala Thr Leu Thr Asp Glu Lys Glu Glu Val Leu Leu Asp
            100                 105                 110

Phe Leu Ser Leu Ala His Lys Tyr Gly Phe Pro Glu Leu Glu Asp Ser
        115                 120                 125

Thr Ser Glu Tyr Leu Cys Thr Ile Leu Asn Ile Gln Asn Val Cys Met
    130                 135                 140
```

```
Thr Phe Asp Val Ala Ser Leu Tyr Ser Leu Pro Lys Leu Thr Cys Met
145                 150                 155                 160

Cys Cys Met Phe Met Asp Arg Asn Ala Gln Glu Val Leu Ser Ser Glu
                165                 170                 175

Gly Phe Leu Ser Leu Ser Lys Thr Ala Leu Leu Asn Ile Val Leu Arg
            180                 185                 190

Asp Ser Phe Ala Ala Pro Glu Lys Asp Ile Phe Leu Ala Leu Leu Asn
        195                 200                 205

Trp Cys Lys His Asn Ser Lys Glu Asn His Ala Glu Ile Met Gln Ala
    210                 215                 220

Val Arg Leu Pro Leu Met Ser Leu Thr Glu Leu Leu Asn Val Val Arg
225                 230                 235                 240

Pro Ser Gly Leu Leu Ser Pro Asp Ala Ile Leu Asp Ala Ile Lys Val
                245                 250                 255

Arg Ser Glu Ser Arg Asp Met Asp Leu Asn Tyr Arg Gly Met Leu Ile
            260                 265                 270

Pro Glu Glu Asn Ile Ala Thr Met Lys Tyr Gly Ala Gln Val Val Lys
        275                 280                 285

Gly Glu Leu Lys Ser Ala Leu Leu Asp Gly Asp Thr Gln Asn Tyr Asp
    290                 295                 300

Leu Asp His Gly Phe Ser Arg His Pro Ile Asp Asp Asp Cys Arg Ser
305                 310                 315                 320

Gly Ile Glu Ile Lys Leu Gly Gln Pro Ser Ile Ile Asn His Ile Arg
                325                 330                 335

Ile Leu Leu Trp Asp Arg Asp Ser Arg Ser Tyr Ser Tyr Phe Ile Glu
            340                 345                 350

Val Ser Met Asp Glu Leu Asp Trp Val Arg Val Ile Asp His Ser Gln
        355                 360                 365
```

Tyr Leu Cys Arg Ser Trp Gln Lys Leu Tyr Phe Pro Ala Arg Val Cys
370 375 380

Arg
385

<210> 9989
<211> 354
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2005; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD9; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386211"

<400> 9989
Met Cys Arg Ala Leu Leu Tyr Gly Gly Met Arg Glu Ser Gln Pro Glu
1 5 10 15

Ala Glu Ile Pro Leu Gln Asp Thr Thr Ala Glu Ala Phe Thr Met Leu
20 25 30

Leu Lys Tyr Ile Tyr Thr Gly Arg Ala Thr Leu Thr Asp Glu Lys Glu
35 40 45

Glu Val Leu Leu Asp Phe Leu Ser Leu Ala His Lys Tyr Gly Phe Pro
50 55 60

Glu Leu Glu Asp Ser Thr Ser Glu Tyr Leu Cys Thr Ile Leu Asn Ile
65 70 75 80

Gln Asn Val Cys Met Thr Phe Asp Val Ala Ser Leu Tyr Ser Leu Pro
85 90 95

```
Lys Leu Thr Cys Met Cys Cys Met Phe Met Asp Arg Asn Ala Gln Glu
            100                 105                 110

Val Leu Ser Ser Glu Gly Phe Leu Ser Leu Ser Lys Thr Ala Leu Leu
        115                 120                 125

Asn Ile Val Leu Arg Asp Ser Phe Ala Ala Pro Glu Lys Asp Ile Phe
    130                 135                 140

Leu Ala Leu Leu Asn Trp Cys Lys His Asn Ser Lys Glu Asn His Ala
145                 150                 155                 160

Glu Ile Met Gln Ala Val Arg Leu Pro Leu Met Ser Leu Thr Glu Leu
                165                 170                 175

Leu Asn Val Val Arg Pro Ser Gly Leu Leu Ser Pro Asp Ala Ile Leu
            180                 185                 190

Asp Ala Ile Lys Val Arg Ser Glu Ser Arg Asp Met Asp Leu Asn Tyr
        195                 200                 205

Arg Gly Met Leu Ile Pro Glu Glu Asn Ile Ala Thr Met Lys Tyr Gly
    210                 215                 220

Ala Gln Val Val Lys Gly Glu Leu Lys Ser Ala Leu Leu Asp Gly Asp
225                 230                 235                 240

Thr Gln Asn Tyr Asp Leu Asp His Gly Phe Ser Arg His Pro Ile Asp
                245                 250                 255

Asp Asp Cys Arg Ser Gly Ile Glu Ile Lys Leu Gly Gln Pro Ser Ile
            260                 265                 270

Ile Asn His Ile Arg Ile Leu Leu Trp Asp Arg Asp Ser Arg Ser Tyr
        275                 280                 285

Ser Tyr Phe Ile Glu Val Ser Met Asp Glu Leu Asp Trp Val Arg Val
    290                 295                 300

Ile Asp His Ser Gln Tyr Leu Cys Arg Ser Trp Gln Lys Leu Tyr Phe
305                 310                 315                 320

Pro Ala Arg Val Cys Ser Arg Asp Gly Ala Leu Pro Cys Cys Pro Gly
```

325 330 335

Trp Ser Ser Thr Pro Gly Leu Lys Arg Ser Asp Cys Phe Ser Leu Thr
340 345 350

Lys Cys

<210> 9990
<211> 582
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2005; "

<220>
<221> source
<223> /note="Gene Symbol: BTBD9; "

<220>
<221> source
<223> /note="Gene Name:
BTB (POZ)
domain containing 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q96Q07; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415365"

<400> 9990
Met Cys Arg Ala Leu Leu Tyr Gly Gly Met Arg Glu Ser Gln Pro Glu
1 5 10 15

Ala Glu Ile Pro Leu Gln Asp Thr Thr Ala Glu Ala Phe Thr Met Leu
20 25 30

Leu Lys Tyr Ile Tyr Thr Gly Arg Ala Thr Leu Thr Asp Glu Lys Glu
35 40 45

Glu Val Leu Leu Asp Phe Leu Ser Leu Ala His Lys Tyr Gly Phe Pro
50 55 60

Glu Leu Glu Asp Ser Thr Ser Glu Tyr Leu Cys Thr Ile Leu Asn Ile
65 70 75 80

```
Gln Asn Val Cys Met Thr Phe Asp Val Ala Ser Leu Tyr Ser Leu Pro
                85                  90                  95

Lys Leu Thr Cys Met Cys Cys Met Phe Met Asp Arg Asn Ala Gln Glu
            100                 105                 110

Val Leu Ser Ser Glu Gly Phe Leu Ser Leu Ser Lys Thr Ala Leu Leu
        115                 120                 125

Asn Ile Val Leu Arg Asp Ser Phe Ala Ala Pro Glu Lys Asp Ile Phe
    130                 135                 140

Leu Ala Leu Leu Asn Trp Cys Lys His Asn Ser Lys Glu Asn His Ala
145                 150                 155                 160

Glu Ile Met Gln Ala Val Arg Leu Pro Leu Met Ser Leu Thr Glu Leu
                165                 170                 175

Leu Asn Val Val Arg Pro Ser Gly Leu Leu Ser Pro Asp Ala Ile Leu
            180                 185                 190

Asp Ala Ile Lys Val Arg Ser Glu Ser Arg Asp Met Asp Leu Asn Tyr
        195                 200                 205

Arg Gly Met Leu Ile Pro Glu Glu Asn Ile Ala Thr Met Lys Tyr Gly
    210                 215                 220

Ala Gln Val Val Lys Gly Glu Leu Lys Ser Ala Leu Leu Asp Gly Asp
225                 230                 235                 240

Thr Gln Asn Tyr Asp Leu Asp His Gly Phe Ser Arg His Pro Ile Asp
                245                 250                 255

Asp Asp Cys Arg Ser Gly Ile Glu Ile Lys Leu Gly Gln Pro Ser Ile
            260                 265                 270

Ile Asn His Ile Arg Ile Leu Leu Trp Asp Arg Asp Ser Arg Ser Tyr
        275                 280                 285

Ser Tyr Phe Ile Glu Val Ser Met Asp Glu Leu Asp Trp Val Arg Val
    290                 295                 300
```

```
Ile Asp His Ser Gln Tyr Leu Cys Arg Ser Trp Gln Lys Leu Tyr Phe
305                 310                 315                 320

Pro Ala Arg Val Cys Ser Gly Asp Gly Val Ser Leu Trp Cys Pro Leu
                325                 330                 335

Trp Ser Arg Thr Pro Glu Leu Lys Gln Ser Ser Leu Leu Gly Leu Pro
            340                 345                 350

Lys Cys Arg Tyr Ile Arg Ile Val Gly Thr His Asn Thr Val Asn Lys
        355                 360                 365

Ile Phe His Ile Val Ala Phe Glu Cys Met Phe Thr Asn Lys Thr Phe
    370                 375                 380

Thr Leu Glu Lys Gly Leu Ile Val Pro Met Glu Asn Val Ala Thr Ile
385                 390                 395                 400

Ala Asp Cys Ala Ser Val Ile Glu Gly Val Ser Arg Ser Arg Asn Ala
                405                 410                 415

Leu Leu Asn Gly Asp Thr Lys Asn Tyr Asp Trp Asp Ser Gly Tyr Thr
            420                 425                 430

Cys His Gln Leu Gly Ser Gly Ala Ile Val Val Gln Leu Ala Gln Pro
        435                 440                 445

Tyr Met Ile Gly Ser Ile Arg Leu Leu Leu Trp Asp Cys Asp Asp Arg
    450                 455                 460

Ser Tyr Ser Tyr Tyr Val Glu Val Ser Thr Asn Gln Gln Gln Trp Thr
465                 470                 475                 480

Met Val Ala Asp Arg Thr Lys Val Ser Cys Lys Ser Trp Gln Ser Val
                485                 490                 495

Thr Phe Glu Arg Gln Pro Ala Ser Phe Ile Arg Ile Val Gly Thr His
            500                 505                 510

Asn Thr Ala Asn Glu Val Phe His Cys Val His Phe Glu Cys Pro Glu
        515                 520                 525
```

```
Gln Gln Ser Ser Gln Lys Glu Glu Asn Ser Glu Glu Ser Gly Thr Gly
    530                 535                 540

Asp Thr Ser Leu Ala Gly Gln Gln Leu Asp Ser His Ala Leu Arg Ala
545                 550                 555                 560

Pro Ser Gly Ser Ser Leu Pro Ser Ser Pro Gly Ser Asn Ser Arg Ser
                565                 570                 575

Pro Asn Arg Gln His Gln
            580
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<210> 9991
<211> 115
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2005; "

<220>
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<223> /note="Gene Symbol: BTBD9; "

<220>
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<223> /note="Gene Name:
BTB (POZ)
domain containing 9; "

<220>
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<400> 9991

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Met Arg Glu Ser Gln Pro Glu Ala Glu Ile Pro Leu Gln Asp Thr Thr
1               5                   10                  15

Ala Glu Ala Phe Thr Met Leu Leu Lys Tyr Ile Tyr Thr Gly Arg Ala
            20                  25                  30

Thr Leu Thr Asp Glu Lys Glu Glu Val Leu Leu Asp Phe Leu Ser Leu
        35                  40                  45

Ala His Lys Tyr Gly Phe Pro Glu Leu Glu Asp Ser Thr Ser Glu Tyr
    50                  55                  60

Leu Cys Thr Ile Leu Asn Ile Gln Asn Val Cys Met Thr Phe Asp Val
```

65 70 75 80

Ala Ser Leu Tyr Ser Leu Pro Lys Leu Thr Cys Met Cys Cys Met Phe
85 90 95

Met Asp Arg Asn Ala Gln Glu Val Leu Ser Ser Glu Gly Phe Leu Ser
100 105 110

Leu Ser Lys
115

<210> 9992
<211> 612
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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domain containing 9; "

<220>
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<220>
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<400> 9992
Met Ser Asn Ser His Pro Leu Arg Pro Phe Thr Ala Val Gly Glu Ile
1 5 10 15

Asp His Val His Ile Leu Ser Glu His Ile Gly Ala Leu Leu Ile Gly
20 25 30

Glu Glu Tyr Gly Asp Val Thr Phe Val Val Glu Lys Lys Arg Phe Pro
35 40 45

Ala His Arg Val Ile Leu Ala Ala Arg Cys Gln Tyr Phe Arg Ala Leu
50 55 60

```
Leu Tyr Gly Gly Met Arg Glu Ser Gln Pro Glu Ala Glu Ile Pro Leu
65                  70                  75                  80

Gln Asp Thr Thr Ala Glu Ala Phe Thr Met Leu Leu Lys Tyr Ile Tyr
                85                  90                  95

Thr Gly Arg Ala Thr Leu Thr Asp Glu Lys Glu Glu Val Leu Leu Asp
            100                 105                 110

Phe Leu Ser Leu Ala His Lys Tyr Gly Phe Pro Glu Leu Glu Asp Ser
        115                 120                 125

Thr Ser Glu Tyr Leu Cys Thr Ile Leu Asn Ile Gln Asn Val Cys Met
    130                 135                 140

Thr Phe Asp Val Ala Ser Leu Tyr Ser Leu Pro Lys Leu Thr Cys Met
145                 150                 155                 160

Cys Cys Met Phe Met Asp Arg Asn Ala Gln Glu Val Leu Ser Ser Glu
                165                 170                 175

Gly Phe Leu Ser Leu Ser Lys Thr Ala Leu Leu Asn Ile Val Leu Arg
            180                 185                 190

Asp Ser Phe Ala Ala Pro Glu Lys Asp Ile Phe Leu Ala Leu Leu Asn
        195                 200                 205

Trp Cys Lys His Asn Ser Lys Glu Asn His Ala Glu Ile Met Gln Ala
    210                 215                 220

Val Arg Leu Pro Leu Met Ser Leu Thr Glu Leu Leu Asn Val Val Arg
225                 230                 235                 240

Pro Ser Gly Leu Leu Ser Pro Asp Ala Ile Leu Asp Ala Ile Lys Val
                245                 250                 255

Arg Ser Glu Ser Arg Asp Met Asp Leu Asn Tyr Arg Gly Met Leu Ile
            260                 265                 270

Pro Glu Glu Asn Ile Ala Thr Met Lys Tyr Gly Ala Gln Val Val Lys
        275                 280                 285
```

```
Gly Glu Leu Lys Ser Ala Leu Leu Asp Gly Asp Thr Gln Asn Tyr Asp
    290                 295                 300

Leu Asp His Gly Phe Ser Arg His Pro Ile Asp Asp Asp Cys Arg Ser
305                 310                 315                 320

Gly Ile Glu Ile Lys Leu Gly Gln Pro Ser Ile Ile Asn His Ile Arg
                325                 330                 335

Ile Leu Leu Trp Asp Arg Asp Ser Arg Ser Tyr Ser Tyr Phe Ile Glu
            340                 345                 350

Val Ser Met Asp Glu Leu Asp Trp Val Arg Val Ile Asp His Ser Gln
        355                 360                 365

Tyr Leu Cys Arg Ser Trp Gln Lys Leu Tyr Phe Pro Ala Arg Val Cys
    370                 375                 380

Arg Tyr Ile Arg Ile Val Gly Thr His Asn Thr Val Asn Lys Ile Phe
385                 390                 395                 400

His Ile Val Ala Phe Glu Cys Met Phe Thr Asn Lys Thr Phe Thr Leu
                405                 410                 415

Glu Lys Gly Leu Ile Val Pro Met Glu Asn Val Ala Thr Ile Ala Asp
            420                 425                 430

Cys Ala Ser Val Ile Glu Gly Val Ser Arg Ser Arg Asn Ala Leu Leu
        435                 440                 445

Asn Gly Asp Thr Lys Asn Tyr Asp Trp Asp Ser Gly Tyr Thr Cys His
    450                 455                 460

Gln Leu Gly Ser Gly Ala Ile Val Val Gln Leu Ala Gln Pro Tyr Met
465                 470                 475                 480

Ile Gly Ser Ile Arg Leu Leu Leu Trp Asp Cys Asp Asp Arg Ser Tyr
                485                 490                 495

Ser Tyr Tyr Val Glu Val Ser Thr Asn Gln Gln Gln Trp Thr Met Val
            500                 505                 510
```

```
Ala Asp Arg Thr Lys Val Ser Cys Lys Ser Trp Gln Ser Val Thr Phe
        515                 520                 525

Glu Arg Gln Pro Ala Ser Phe Ile Arg Ile Val Gly Thr His Asn Thr
    530                 535                 540

Ala Asn Glu Val Phe His Cys Val His Phe Glu Cys Pro Glu Gln Gln
545                 550                 555                 560

Ser Ser Gln Lys Glu Glu Asn Ser Glu Glu Ser Gly Thr Gly Asp Thr
                565                 570                 575

Ser Leu Ala Gly Gln Gln Leu Asp Ser His Ala Leu Arg Ala Pro Ser
            580                 585                 590

Gly Ser Ser Leu Pro Ser Ser Pro Gly Ser Asn Ser Arg Ser Pro Asn
        595                 600                 605

Arg Gln His Gln
    610


<210> 9993
<211> 92
<212> PRT
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<220>
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<220>
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      BTB (POZ)
      domain containing 9; "

<220>
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<223> /note="ENSP ID: ENSP00000419382"

<400> 9993
Met Ser Asn Ser His Pro Leu Arg Pro Phe Thr Ala Val Gly Glu Ile
1               5                   10                  15

Asp His Val His Ile Leu Ser Glu His Ile Gly Ala Leu Leu Ile Gly
```

```
            20                  25                  30

Glu Glu Tyr Gly Asp Val Thr Phe Val Val Glu Lys Lys Arg Phe Pro
        35                  40                  45

Ala His Arg Val Ile Leu Ala Ala Arg Cys Gln Tyr Phe Arg Ala Leu
    50                  55                  60

Leu Tyr Gly Gly Met Arg Glu Ser Gln Pro Glu Ala Glu Ile Pro Leu
65                  70                  75                  80

Gln Asp Thr Thr Ala Glu Ala Phe Thr Met Leu Leu
                85                  90


<210> 9994
<211> 736
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name:
      BTB and CNC homology 1, basic leu zipper transcription
      factor
      1; "

<220>
<221> source
<223> /note="Uniprot ID:  O14867; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000286800"

<400> 9994
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1               5                   10                  15

Ser Thr Asn Val Leu Leu Ser Leu Asn Asp Gln Arg Lys Lys Asp Val
            20                  25                  30

Leu Cys Asp Val Thr Ile Phe Val Glu Gly Gln Arg Phe Arg Ala His
```

```
        35                  40                  45

Arg Ser Val Leu Ala Ala Cys Ser Ser Tyr Phe His Ser Arg Ile Val
    50                  55                  60

Gly Gln Ala Asp Gly Glu Leu Asn Ile Thr Leu Pro Glu Glu Val Thr
65                  70                  75                  80

Val Lys Gly Phe Glu Pro Leu Ile Gln Phe Ala Tyr Thr Ala Lys Leu
                85                  90                  95

Ile Leu Ser Lys Glu Asn Val Asp Glu Val Cys Lys Cys Val Glu Phe
            100                 105                 110

Leu Ser Val His Asn Ile Glu Glu Ser Cys Phe Gln Phe Leu Lys Phe
        115                 120                 125

Lys Phe Leu Asp Ser Thr Ala Asp Gln Gln Glu Cys Pro Arg Lys Lys
    130                 135                 140

Cys Phe Ser Ser His Cys Gln Lys Thr Asp Leu Lys Leu Ser Leu Leu
145                 150                 155                 160

Asp Gln Arg Asp Leu Glu Thr Asp Glu Val Glu Glu Phe Leu Glu Asn
                165                 170                 175

Lys Asn Val Gln Thr Pro Gln Cys Lys Leu Arg Arg Tyr Gln Gly Asn
            180                 185                 190

Ala Lys Ala Ser Pro Pro Leu Gln Asp Ser Ala Ser Gln Thr Tyr Glu
        195                 200                 205

Ser Met Cys Leu Glu Lys Asp Ala Ala Leu Ala Leu Pro Ser Leu Cys
    210                 215                 220

Pro Lys Tyr Arg Lys Phe Gln Lys Ala Phe Gly Thr Asp Arg Val Arg
225                 230                 235                 240

Thr Gly Glu Ser Ser Val Lys Asp Ile His Ala Ser Val Gln Pro Asn
                245                 250                 255

Glu Arg Ser Glu Asn Glu Cys Leu Gly Gly Val Pro Glu Cys Arg Asp
            260                 265                 270
```

```
Leu Gln Val Met Leu Lys Cys Asp Glu Ser Lys Leu Ala Met Glu Pro
        275                 280                 285

Glu Glu Thr Lys Lys Asp Pro Ala Ser Gln Cys Pro Thr Glu Lys Ser
    290                 295                 300

Glu Val Thr Pro Phe Pro His Asn Ser Ser Ile Asp Pro His Gly Leu
305                 310                 315                 320

Tyr Ser Leu Ser Leu Leu His Thr Tyr Asp Gln Tyr Gly Asp Leu Asn
                325                 330                 335

Phe Ala Gly Met Gln Asn Thr Thr Val Leu Thr Glu Lys Pro Leu Ser
            340                 345                 350

Gly Thr Asp Val Gln Glu Lys Thr Phe Gly Glu Ser Gln Asp Leu Pro
        355                 360                 365

Leu Lys Ser Asp Leu Gly Thr Arg Glu Asp Ser Ser Val Ala Ser Ser
    370                 375                 380

Asp Arg Ser Ser Val Glu Arg Glu Val Ala Glu His Leu Ala Lys Gly
385                 390                 395                 400

Phe Trp Ser Asp Ile Cys Ser Thr Asp Thr Pro Cys Gln Met Gln Leu
                405                 410                 415

Ser Pro Ala Val Ala Lys Asp Gly Ser Glu Gln Ile Ser Gln Lys Arg
            420                 425                 430

Ser Glu Cys Pro Trp Leu Gly Ile Arg Ile Ser Glu Ser Pro Glu Pro
        435                 440                 445

Gly Gln Arg Thr Phe Thr Thr Leu Ser Ser Val Asn Cys Pro Phe Ile
    450                 455                 460

Ser Thr Leu Ser Thr Glu Gly Cys Ser Ser Asn Leu Glu Ile Gly Asn
465                 470                 475                 480

Asp Asp Tyr Val Ser Glu Pro Gln Gln Glu Pro Cys Pro Tyr Ala Cys
                485                 490                 495
```

```
Val Ile Ser Leu Gly Asp Asp Ser Glu Thr Asp Thr Glu Gly Asp Ser
            500                 505                 510

Glu Ser Cys Ser Ala Arg Glu Gln Glu Cys Glu Val Lys Leu Pro Phe
        515                 520                 525

Asn Ala Gln Arg Ile Ile Ser Leu Ser Arg Asn Asp Phe Gln Ser Leu
    530                 535                 540

Leu Lys Met His Lys Leu Thr Pro Glu Gln Leu Asp Cys Ile His Asp
545                 550                 555                 560

Ile Arg Arg Arg Ser Lys Asn Arg Ile Ala Ala Gln Arg Cys Arg Lys
                565                 570                 575

Arg Lys Leu Asp Cys Ile Gln Asn Leu Glu Ser Glu Ile Glu Lys Leu
            580                 585                 590

Gln Ser Glu Lys Glu Ser Leu Leu Lys Glu Arg Asp His Ile Leu Ser
        595                 600                 605

Thr Leu Gly Glu Thr Lys Gln Asn Leu Thr Gly Leu Cys Gln Lys Val
    610                 615                 620

Cys Lys Glu Ala Ala Leu Ser Gln Glu Gln Ile Gln Ile Leu Ala Lys
625                 630                 635                 640

Tyr Ser Ala Ala Asp Cys Pro Leu Ser Phe Leu Ile Ser Glu Lys Asp
                645                 650                 655

Lys Ser Thr Pro Asp Gly Glu Leu Ala Leu Pro Ser Ile Phe Ser Leu
            660                 665                 670

Ser Asp Arg Pro Pro Ala Val Leu Pro Pro Cys Ala Arg Gly Asn Ser
        675                 680                 685

Glu Pro Gly Tyr Ala Arg Gly Gln Glu Ser Gln Gln Met Ser Thr Ala
    690                 695                 700

Thr Ser Glu Gln Ala Gly Pro Ala Glu Gln Cys Arg Gln Ser Gly Gly
705                 710                 715                 720
```

```
Ile Ser Asp Phe Cys Gln Gln Met Thr Asp Lys Cys Thr Thr Asp Glu
                725                 730                 735


<210> 9995
<211> 736
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
      BTB and CNC homology 1, basic leu zipper transcription
      factor
      1; "

<220>
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<223> /note="Uniprot ID:  O14867; "

<220>
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<223> /note="ENSP ID: ENSP00000382805"

<400> 9995
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1               5                  10                  15


Ser Thr Asn Val Leu Leu Ser Leu Asn Asp Gln Arg Lys Lys Asp Val
            20                  25                  30


Leu Cys Asp Val Thr Ile Phe Val Glu Gly Gln Arg Phe Arg Ala His
        35                  40                  45


Arg Ser Val Leu Ala Ala Cys Ser Ser Tyr Phe His Ser Arg Ile Val
    50                  55                  60


Gly Gln Ala Asp Gly Glu Leu Asn Ile Thr Leu Pro Glu Glu Val Thr
65                  70                  75                  80


Val Lys Gly Phe Glu Pro Leu Ile Gln Phe Ala Tyr Thr Ala Lys Leu
                85                  90                  95
```

```
Ile Leu Ser Lys Glu Asn Val Asp Glu Val Cys Lys Cys Val Glu Phe
            100                 105                 110

Leu Ser Val His Asn Ile Glu Glu Ser Cys Phe Gln Phe Leu Lys Phe
        115                 120                 125

Lys Phe Leu Asp Ser Thr Ala Asp Gln Gln Glu Cys Pro Arg Lys Lys
    130                 135                 140

Cys Phe Ser Ser His Cys Gln Lys Thr Asp Leu Lys Leu Ser Leu Leu
145                 150                 155                 160

Asp Gln Arg Asp Leu Glu Thr Asp Glu Val Glu Glu Phe Leu Glu Asn
                165                 170                 175

Lys Asn Val Gln Thr Pro Gln Cys Lys Leu Arg Arg Tyr Gln Gly Asn
            180                 185                 190

Ala Lys Ala Ser Pro Pro Leu Gln Asp Ser Ala Ser Gln Thr Tyr Glu
        195                 200                 205

Ser Met Cys Leu Glu Lys Asp Ala Ala Leu Ala Leu Pro Ser Leu Cys
    210                 215                 220

Pro Lys Tyr Arg Lys Phe Gln Lys Ala Phe Gly Thr Asp Arg Val Arg
225                 230                 235                 240

Thr Gly Glu Ser Ser Val Lys Asp Ile His Ala Ser Val Gln Pro Asn
                245                 250                 255

Glu Arg Ser Glu Asn Glu Cys Leu Gly Gly Val Pro Glu Cys Arg Asp
            260                 265                 270

Leu Gln Val Met Leu Lys Cys Asp Glu Ser Lys Leu Ala Met Glu Pro
        275                 280                 285

Glu Glu Thr Lys Lys Asp Pro Ala Ser Gln Cys Pro Thr Glu Lys Ser
    290                 295                 300

Glu Val Thr Pro Phe Pro His Asn Ser Ser Ile Asp Pro His Gly Leu
305                 310                 315                 320

Tyr Ser Leu Ser Leu Leu His Thr Tyr Asp Gln Tyr Gly Asp Leu Asn
```

```
                325                 330                 335

Phe Ala Gly Met Gln Asn Thr Thr Val Leu Thr Glu Lys Pro Leu Ser
            340                 345                 350

Gly Thr Asp Val Gln Glu Lys Thr Phe Gly Glu Ser Gln Asp Leu Pro
        355                 360                 365

Leu Lys Ser Asp Leu Gly Thr Arg Glu Asp Ser Ser Val Ala Ser Ser
    370                 375                 380

Asp Arg Ser Ser Val Glu Arg Glu Val Ala Glu His Leu Ala Lys Gly
385                 390                 395                 400

Phe Trp Ser Asp Ile Cys Ser Thr Asp Thr Pro Cys Gln Met Gln Leu
                405                 410                 415

Ser Pro Ala Val Ala Lys Asp Gly Ser Glu Gln Ile Ser Gln Lys Arg
            420                 425                 430

Ser Glu Cys Pro Trp Leu Gly Ile Arg Ile Ser Glu Ser Pro Glu Pro
        435                 440                 445

Gly Gln Arg Thr Phe Thr Thr Leu Ser Ser Val Asn Cys Pro Phe Ile
    450                 455                 460

Ser Thr Leu Ser Thr Glu Gly Cys Ser Ser Asn Leu Glu Ile Gly Asn
465                 470                 475                 480

Asp Asp Tyr Val Ser Glu Pro Gln Gln Glu Pro Cys Pro Tyr Ala Cys
                485                 490                 495

Val Ile Ser Leu Gly Asp Asp Ser Glu Thr Asp Thr Glu Gly Asp Ser
            500                 505                 510

Glu Ser Cys Ser Ala Arg Glu Gln Glu Cys Glu Val Lys Leu Pro Phe
        515                 520                 525

Asn Ala Gln Arg Ile Ile Ser Leu Ser Arg Asn Asp Phe Gln Ser Leu
    530                 535                 540

Leu Lys Met His Lys Leu Thr Pro Glu Gln Leu Asp Cys Ile His Asp
545                 550                 555                 560
```

```
Ile Arg Arg Arg Ser Lys Asn Arg Ile Ala Ala Gln Arg Cys Arg Lys
                565                 570                 575

Arg Lys Leu Asp Cys Ile Gln Asn Leu Glu Ser Glu Ile Glu Lys Leu
            580                 585                 590

Gln Ser Glu Lys Glu Ser Leu Leu Lys Glu Arg Asp His Ile Leu Ser
        595                 600                 605

Thr Leu Gly Glu Thr Lys Gln Asn Leu Thr Gly Leu Cys Gln Lys Val
    610                 615                 620

Cys Lys Glu Ala Ala Leu Ser Gln Glu Gln Ile Gln Ile Leu Ala Lys
625                 630                 635                 640

Tyr Ser Ala Ala Asp Cys Pro Leu Ser Phe Leu Ile Ser Glu Lys Asp
                645                 650                 655

Lys Ser Thr Pro Asp Gly Glu Leu Ala Leu Pro Ser Ile Phe Ser Leu
            660                 665                 670

Ser Asp Arg Pro Pro Ala Val Leu Pro Pro Cys Ala Arg Gly Asn Ser
        675                 680                 685

Glu Pro Gly Tyr Ala Arg Gly Gln Glu Ser Gln Gln Met Ser Thr Ala
    690                 695                 700

Thr Ser Glu Gln Ala Gly Pro Ala Glu Gln Cys Arg Gln Ser Gly Gly
705                 710                 715                 720

Ile Ser Asp Phe Cys Gln Gln Met Thr Asp Lys Cys Thr Thr Asp Glu
                725                 730                 735


<210> 9996
<211> 170
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2006; "

<220>
<221> source
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<223> /note="Gene Symbol: BACH1; "

<220>
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BTB and CNC homology 1, basic leu zipper transcription
factor
1; "

<220>
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<400> 9996

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Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1               5                  10                  15

Ser Thr Asn Val Leu Leu Ser Leu Asn Asp Gln Arg Lys Lys Asp Val
            20                  25                  30

Leu Cys Asp Val Thr Ile Phe Val Glu Gly Gln Arg Phe Arg Ala His
        35                  40                  45

Arg Ser Val Leu Ala Ala Cys Ser Ser Tyr Phe His Ser Arg Ile Val
    50                  55                  60

Gly Gln Ala Asp Gly Glu Leu Asn Ile Thr Leu Pro Glu Glu Val Thr
65                  70                  75                  80

Val Lys Gly Phe Glu Pro Leu Ile Gln Phe Ala Tyr Thr Ala Lys Leu
                85                  90                  95

Ile Leu Ser Lys Glu Asn Val Asp Glu Val Cys Lys Cys Val Glu Phe
            100                 105                 110

Leu Ser Val His Asn Ile Glu Glu Ser Cys Phe Gln Phe Leu Lys Phe
        115                 120                 125

Lys Phe Leu Asp Ser Thr Ala Asp Gln Gln Glu Cys Pro Arg Lys Lys
    130                 135                 140

Cys Phe Ser Ser His Cys Gln Lys Thr Asp Leu Lys Leu Ser Leu Leu
145                 150                 155                 160

Asp Gln Arg Asp Leu Glu Thr Asp Glu Val
                165                 170
```

<210> 9997
<211> 224
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name:
BTB and CNC homology 1, basic leu zipper transcription
factor
1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400576"

<400> 9997

```
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1               5                  10                  15

Ser Thr Asn Val Leu Leu Ser Leu Asn Asp Gln Arg Lys Lys Asp Val
            20                  25                  30

Leu Cys Asp Val Thr Ile Phe Val Glu Gly Gln Arg Phe Arg Ala His
        35                  40                  45

Arg Ser Val Leu Ala Ala Cys Ser Ser Tyr Phe His Ser Arg Ile Val
    50                  55                  60

Gly Gln Ala Asp Gly Glu Leu Asn Ile Thr Leu Pro Glu Glu Val Thr
65                  70                  75                  80

Val Lys Gly Phe Glu Pro Leu Ile Gln Phe Ala Tyr Thr Ala Lys Leu
                85                  90                  95

Ile Leu Ser Lys Glu Asn Val Asp Glu Val Cys Lys Cys Val Glu Phe
            100                 105                 110

Leu Ser Val His Asn Ile Glu Glu Ser Cys Phe Gln Phe Leu Lys Phe
        115                 120                 125
```

```
Lys Phe Leu Asp Ser Thr Ala Asp Gln Gln Glu Cys Pro Arg Lys Lys
    130                 135                 140

Cys Phe Ser Ser His Cys Gln Lys Thr Asp Leu Lys Leu Ser Leu Leu
145                 150                 155                 160

Asp Gln Arg Asp Leu Glu Thr Asp Glu Val Glu Glu Phe Leu Glu Asn
                165                 170                 175

Lys Asn Val Gln Thr Pro Gln Cys Lys Leu Arg Arg Tyr Gln Gly Asn
            180                 185                 190

Ala Lys Ala Ser Pro Pro Leu Gln Asp Ser Ala Ser Gln Thr Tyr Glu
        195                 200                 205

Ser Met Cys Leu Glu Lys Asp Ala Ala Leu Ala Leu Pro Ser Leu Cys
    210                 215                 220


<210> 9998
<211> 220
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name:
      BTB and CNC homology 1, basic leu zipper transcription
      factor
      1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000408605"

<400> 9998
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1               5                   10                  15

Ser Thr Asn Val Leu Leu Ser Leu Asn Asp Gln Arg Lys Lys Asp Val
            20                  25                  30
```

```
Leu Cys Asp Val Thr Ile Phe Val Glu Gly Gln Arg Phe Arg Ala His
        35                  40                  45

Arg Ser Val Leu Ala Ala Cys Ser Ser Tyr Phe His Ser Arg Ile Val
    50                  55                  60

Gly Gln Ala Asp Gly Glu Leu Asn Ile Thr Leu Pro Glu Glu Val Thr
65                  70                  75                  80

Val Lys Gly Phe Glu Pro Leu Ile Gln Phe Ala Tyr Thr Ala Lys Leu
                85                  90                  95

Ile Leu Ser Lys Glu Asn Val Asp Glu Val Cys Lys Cys Val Glu Phe
            100                 105                 110

Leu Ser Val His Asn Ile Glu Glu Ser Cys Phe Gln Phe Leu Lys Phe
        115                 120                 125

Lys Phe Leu Asp Ser Thr Ala Asp Gln Gln Glu Cys Pro Arg Lys Lys
    130                 135                 140

Cys Phe Ser Ser His Cys Gln Lys Thr Asp Leu Lys Leu Ser Leu Leu
145                 150                 155                 160

Asp Gln Arg Asp Leu Glu Thr Asp Glu Val Glu Glu Phe Leu Glu Asn
                165                 170                 175

Lys Asn Val Gln Thr Pro Gln Cys Lys Leu Arg Arg Tyr Gln Gly Asn
            180                 185                 190

Ala Lys Ala Ser Pro Pro Leu Gln Asp Ser Ala Ser Gln Thr Tyr Glu
        195                 200                 205

Ser Met Cys Leu Glu Lys Asp Ala Ala Leu Ala Leu
    210                 215                 220


<210> 9999
<211> 218
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2006; "
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<220>
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<220>
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BTB and CNC homology 1, basic leu zipper transcription factor
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<220>
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<223> /note="ENSP ID: ENSP00000416569"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 9999
Xaa Pro Trp Leu Gly Ile Arg Ile Ser Glu Ser Pro Glu Pro Gly Gln
1 5 10 15

Arg Thr Phe Thr Thr Leu Ser Ser Val Asn Cys Pro Phe Ile Ser Thr
20 25 30

Leu Ser Thr Glu Gly Cys Ser Ser Asn Leu Glu Ile Gly Asn Asp Asp
35 40 45

Tyr Val Ser Glu Pro Gln Gln Glu Pro Cys Pro Tyr Ala Cys Val Ile
50 55 60

Ser Leu Gly Asp Asp Ser Glu Thr Asp Thr Glu Gly Asp Ser Glu Ser
65 70 75 80

Cys Ser Ala Arg Glu Gln Glu Cys Glu Val Lys Leu Pro Phe Asn Ala
85 90 95

Gln Arg Ile Ile Ser Leu Ser Arg Asn Asp Phe Gln Ser Leu Leu Lys
100 105 110

Met His Lys Leu Thr Pro Glu Gln Leu Asp Cys Ile His Asp Ile Arg
115 120 125

Arg Arg Ser Lys Asn Arg Ile Ala Ala Gln Arg Cys Arg Lys Arg Lys
130 135 140

```
Leu Asp Cys Ile Gln Asn Leu Glu Ser Glu Ile Glu Lys Leu Asn His
145                 150                 155                 160


Gly Leu Trp Ser Leu Asn Gln Gln Pro Trp Phe Ala Asn Ile Pro Cys
                165                 170                 175


Thr Ile Val Glu Thr Gly Trp Met Pro Cys Ala Leu Ser Gly His Val
            180                 185                 190


Arg Pro Thr Glu Gly Gln Ile Arg Val Lys Arg Lys Pro Glu Asp Gly
        195                 200                 205


Arg Asp Ile Phe Glu Gly Thr Ser Cys Gln
    210                 215


<210> 10000
<211> 25
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2006; "

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      factor
      1; "

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<400> 10000
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1               5                   10                  15


Ser Thr Asn Val Leu Leu Ser Leu Asn
            20                  25


<210> 10001
<211> 25
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<212> PRT
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zipper
transcription
factor 1; "

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1 5 10 15

Ser Thr Asn Val Leu Leu Ser Leu Asn
20 25

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transcription
factor 1; "

<220>
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<400> 10002
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His

1 5 10 15

Ser Thr Asn Val Leu Leu Ser Leu Asn
20 25

<210> 10003
<211> 25
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<220>
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transcription
factor 1; "

<220>
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<400> 10003
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1 5 10 15

Ser Thr Asn Val Leu Leu Ser Leu Asn
20 25

<210> 10004
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<220>
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<220>
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transcription
factor 1; "

<220>
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<400> 10004
Met Ser Leu Ser Glu Asn Ser Val Phe Ala Tyr Glu Ser Ser Val His
1 5 10 15

Ser Thr Asn Val Leu Leu Ser Leu Asn
20 25

<210> 10005
<211> 138
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transcription
factor 1; "

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10005
Xaa Ser Glu Pro Gln Gln Glu Pro Cys Pro Tyr Ala Cys Val Ile Ser
1 5 10 15

Leu Gly Asp Asp Ser Glu Thr Asp Thr Glu Gly Asp Ser Glu Ser Cys
20 25 30

Ser Ala Arg Glu Gln Glu Cys Glu Val Lys Leu Pro Phe Asn Ala Gln
35 40 45

```
Arg Ile Ile Ser Leu Ser Arg Asn Asp Phe Gln Ser Leu Leu Lys Met
    50                  55                  60

His Lys Leu Thr Pro Glu Gln Leu Asp Cys Ile His Asp Ile Arg Arg
65                  70                  75                  80

Arg Ser Lys Asn Arg Ile Ala Ala Gln Arg Cys Arg Lys Arg Lys Leu
                85                  90                  95

Asp Cys Ile Gln Asn Leu Glu Ser Glu Ile Glu Lys Leu Pro Thr Ser
            100                 105                 110

His Ala Pro Ser Trp Arg Leu Ala Gly Cys Pro Val Leu Tyr Gln Gly
        115                 120                 125

Met Ser Asp Gln Gln Arg Gly Lys Ser Glu
    130                 135


<210> 10006
<211> 841
<212> PRT
<213> Homo sapiens

<220>
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<220>
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zipper
      transcription
      factor 2; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000257749"

<400> 10006
Met Ser Val Asp Glu Lys Pro Asp Ser Pro Met Tyr Val Tyr Glu Ser
1               5                   10                  15
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Thr Val His Cys Thr Asn Ile Leu Leu Gly Leu Asn Asp Gln Arg Lys
            20                  25                  30

Lys Asp Ile Leu Cys Asp Val Thr Leu Ile Val Glu Arg Lys Glu Phe
        35                  40                  45

Arg Ala His Arg Ala Val Leu Ala Ala Cys Ser Glu Tyr Phe Trp Gln
    50                  55                  60

Ala Leu Val Gly Gln Thr Lys Asn Asp Leu Val Val Ser Leu Pro Glu
65                  70                  75                  80

Glu Val Thr Ala Arg Gly Phe Gly Pro Leu Leu Gln Phe Ala Tyr Thr
                85                  90                  95

Ala Lys Leu Leu Leu Ser Arg Glu Asn Ile Arg Glu Val Ile Arg Cys
            100                 105                 110

Ala Glu Phe Leu Arg Met His Asn Leu Glu Asp Ser Cys Phe Ser Phe
        115                 120                 125

Leu Gln Thr Gln Leu Leu Asn Ser Glu Asp Gly Leu Phe Val Cys Arg
    130                 135                 140

Lys Asp Ala Ala Cys Gln Arg Pro His Glu Asp Cys Glu Asn Ser Ala
145                 150                 155                 160

Gly Glu Glu Glu Asp Glu Glu Glu Glu Thr Met Asp Ser Glu Thr Ala
                165                 170                 175

Lys Met Ala Cys Pro Arg Asp Gln Met Leu Pro Glu Pro Ile Ser Phe
            180                 185                 190

Glu Ala Ala Ala Ile Pro Val Ala Glu Lys Glu Glu Ala Leu Leu Pro
        195                 200                 205

Glu Pro Asp Val Pro Thr Asp Thr Lys Glu Ser Ser Glu Lys Asp Ala
    210                 215                 220

Leu Thr Gln Tyr Pro Arg Tyr Lys Lys Tyr Gln Leu Ala Cys Thr Lys
225                 230                 235                 240
```

```
Asn Val Tyr Asn Ala Ser Ser His Ser Thr Ser Gly Phe Ala Ser Thr
                245                 250                 255

Phe Arg Glu Asp Asn Ser Ser Asn Ser Leu Lys Pro Gly Leu Ala Arg
            260                 265                 270

Gly Gln Ile Lys Ser Glu Pro Pro Ser Glu Glu Asn Glu Glu Glu Ser
        275                 280                 285

Ile Thr Leu Cys Leu Ser Gly Asp Glu Pro Asp Ala Lys Asp Arg Ala
    290                 295                 300

Gly Asp Val Glu Met Asp Arg Lys Gln Pro Ser Pro Ala Pro Thr Pro
305                 310                 315                 320

Thr Ala Pro Ala Gly Ala Ala Cys Leu Glu Arg Ser Arg Ser Val Ala
                325                 330                 335

Ser Pro Ser Cys Leu Arg Ser Leu Phe Ser Ile Thr Lys Ser Val Glu
            340                 345                 350

Leu Ser Gly Leu Pro Ser Thr Ser Gln Gln His Phe Ala Arg Ser Pro
        355                 360                 365

Ala Cys Pro Phe Asp Lys Gly Ile Thr Gln Gly Asp Leu Lys Thr Asp
    370                 375                 380

Tyr Thr Pro Phe Thr Gly Asn Tyr Gly Gln Pro His Val Gly Gln Lys
385                 390                 395                 400

Glu Val Ser Asn Phe Thr Met Gly Ser Pro Leu Arg Gly Pro Gly Leu
                405                 410                 415

Glu Ala Leu Cys Lys Gln Glu Gly Glu Leu Asp Arg Arg Ser Val Ile
            420                 425                 430

Phe Ser Ser Ser Ala Cys Asp Gln Val Ser Thr Ser Val His Ser Tyr
        435                 440                 445

Ser Gly Val Ser Ser Leu Asp Lys Asp Leu Ser Glu Pro Val Pro Lys
    450                 455                 460
```

```
Gly Leu Trp Val Gly Ala Gly Gln Ser Leu Pro Ser Ser Gln Ala Tyr
465                 470                 475                 480

Ser His Gly Gly Leu Met Ala Asp His Leu Pro Gly Arg Met Arg Pro
                485                 490                 495

Asn Thr Ser Cys Pro Val Pro Ile Lys Val Cys Pro Arg Ser Pro Pro
            500                 505                 510

Leu Glu Thr Arg Thr Arg Thr Ser Ser Ser Cys Ser Ser Tyr Ser Tyr
        515                 520                 525

Ala Glu Asp Gly Ser Gly Gly Ser Pro Cys Ser Leu Pro Leu Cys Glu
    530                 535                 540

Phe Ser Ser Ser Pro Cys Ser Gln Gly Ala Arg Phe Leu Ala Thr Glu
545                 550                 555                 560

His Gln Glu Pro Gly Leu Met Gly Asp Gly Met Tyr Asn Gln Val Arg
                565                 570                 575

Pro Gln Ile Lys Cys Glu Gln Ser Tyr Gly Thr Asn Ser Ser Asp Glu
            580                 585                 590

Ser Gly Ser Phe Ser Glu Ala Asp Ser Glu Ser Cys Pro Val Gln Asp
        595                 600                 605

Arg Gly Gln Glu Val Lys Leu Pro Phe Pro Val Asp Gln Ile Thr Asp
    610                 615                 620

Leu Pro Arg Asn Asp Phe Gln Met Met Ile Lys Met His Lys Leu Thr
625                 630                 635                 640

Ser Glu Gln Leu Glu Phe Ile His Asp Val Arg Arg Arg Ser Lys Asn
                645                 650                 655

Arg Ile Ala Ala Gln Arg Cys Arg Lys Arg Lys Leu Asp Cys Ile Gln
            660                 665                 670

Asn Leu Glu Cys Glu Ile Arg Lys Leu Val Cys Glu Lys Glu Lys Leu
        675                 680                 685

Leu Ser Glu Arg Asn Gln Leu Lys Ala Cys Met Gly Glu Leu Leu Asp
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690 695 700

Asn Phe Ser Cys Leu Ser Gln Glu Val Cys Arg Asp Ile Gln Ser Pro
705 710 715 720

Glu Gln Ile Gln Ala Leu His Arg Tyr Cys Pro Val Leu Arg Pro Met
725 730 735

Asp Leu Pro Thr Ala Ser Ser Ile Asn Pro Ala Pro Leu Gly Ala Glu
740 745 750

Gln Asn Ile Ala Ala Ser Gln Cys Ala Val Gly Glu Asn Val Pro Cys
755 760 765

Cys Leu Glu Pro Gly Ala Ala Pro Pro Gly Pro Pro Trp Ala Pro Ser
770 775 780

Asn Thr Ser Glu Asn Cys Thr Ser Gly Arg Arg Leu Glu Gly Thr Asp
785 790 795 800

Pro Gly Thr Phe Ser Glu Arg Gly Pro Pro Leu Glu Pro Arg Ser Gln
805 810 815

Thr Val Thr Val Asp Phe Cys Gln Glu Met Thr Asp Lys Cys Thr Thr
820 825 830

Asp Glu Gln Pro Arg Lys Asp Tyr Thr
835 840

<210> 10007
<211> 841
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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transcription

factor 2; "

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<220>
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<400> 10007

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Met Ser Val Asp Glu Lys Pro Asp Ser Pro Met Tyr Val Tyr Glu Ser
1               5                  10                  15

Thr Val His Cys Thr Asn Ile Leu Leu Gly Leu Asn Asp Gln Arg Lys
            20                  25                  30

Lys Asp Ile Leu Cys Asp Val Thr Leu Ile Val Glu Arg Lys Glu Phe
        35                  40                  45

Arg Ala His Arg Ala Val Leu Ala Ala Cys Ser Glu Tyr Phe Trp Gln
    50                  55                  60

Ala Leu Val Gly Gln Thr Lys Asn Asp Leu Val Val Ser Leu Pro Glu
65                  70                  75                  80

Glu Val Thr Ala Arg Gly Phe Gly Pro Leu Leu Gln Phe Ala Tyr Thr
                85                  90                  95

Ala Lys Leu Leu Leu Ser Arg Glu Asn Ile Arg Glu Val Ile Arg Cys
            100                 105                 110

Ala Glu Phe Leu Arg Met His Asn Leu Glu Asp Ser Cys Phe Ser Phe
        115                 120                 125

Leu Gln Thr Gln Leu Leu Asn Ser Glu Asp Gly Leu Phe Val Cys Arg
    130                 135                 140

Lys Asp Ala Ala Cys Gln Arg Pro His Glu Asp Cys Glu Asn Ser Ala
145                 150                 155                 160

Gly Glu Glu Glu Asp Glu Glu Glu Glu Thr Met Asp Ser Glu Thr Ala
                165                 170                 175

Lys Met Ala Cys Pro Arg Asp Gln Met Leu Pro Glu Pro Ile Ser Phe
            180                 185                 190
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```
Glu Ala Ala Ala Ile Pro Val Ala Glu Lys Glu Glu Ala Leu Leu Pro
        195                 200                 205

Glu Pro Asp Val Pro Thr Asp Thr Lys Glu Ser Ser Glu Lys Asp Ala
    210                 215                 220

Leu Thr Gln Tyr Pro Arg Tyr Lys Lys Tyr Gln Leu Ala Cys Thr Lys
225                 230                 235                 240

Asn Val Tyr Asn Ala Ser Ser His Ser Thr Ser Gly Phe Ala Ser Thr
                245                 250                 255

Phe Arg Glu Asp Asn Ser Ser Asn Ser Leu Lys Pro Gly Leu Ala Arg
            260                 265                 270

Gly Gln Ile Lys Ser Glu Pro Pro Ser Glu Glu Asn Glu Glu Glu Ser
        275                 280                 285

Ile Thr Leu Cys Leu Ser Gly Asp Glu Pro Asp Ala Lys Asp Arg Ala
    290                 295                 300

Gly Asp Val Glu Met Asp Arg Lys Gln Pro Ser Pro Ala Pro Thr Pro
305                 310                 315                 320

Thr Ala Pro Ala Gly Ala Ala Cys Leu Glu Arg Ser Arg Ser Val Ala
                325                 330                 335

Ser Pro Ser Cys Leu Arg Ser Leu Phe Ser Ile Thr Lys Ser Val Glu
            340                 345                 350

Leu Ser Gly Leu Pro Ser Thr Ser Gln Gln His Phe Ala Arg Ser Pro
        355                 360                 365

Ala Cys Pro Phe Asp Lys Gly Ile Thr Gln Gly Asp Leu Lys Thr Asp
    370                 375                 380

Tyr Thr Pro Phe Thr Gly Asn Tyr Gly Gln Pro His Val Gly Gln Lys
385                 390                 395                 400

Glu Val Ser Asn Phe Thr Met Gly Ser Pro Leu Arg Gly Pro Gly Leu
                405                 410                 415
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Glu Ala Leu Cys Lys Gln Glu Gly Glu Leu Asp Arg Arg Ser Val Ile
420 425 430

Phe Ser Ser Ser Ala Cys Asp Gln Val Ser Thr Ser Val His Ser Tyr
435 440 445

Ser Gly Val Ser Ser Leu Asp Lys Asp Leu Ser Glu Pro Val Pro Lys
450 455 460

Gly Leu Trp Val Gly Ala Gly Gln Ser Leu Pro Ser Ser Gln Ala Tyr
465 470 475 480

Ser His Gly Gly Leu Met Ala Asp His Leu Pro Gly Arg Met Arg Pro
485 490 495

Asn Thr Ser Cys Pro Val Pro Ile Lys Val Cys Pro Arg Ser Pro Pro
500 505 510

Leu Glu Thr Arg Thr Arg Thr Ser Ser Ser Cys Ser Ser Tyr Ser Tyr
515 520 525

Ala Glu Asp Gly Ser Gly Gly Ser Pro Cys Ser Leu Pro Leu Cys Glu
530 535 540

Phe Ser Ser Ser Pro Cys Ser Gln Gly Ala Arg Phe Leu Ala Thr Glu
545 550 555 560

His Gln Glu Pro Gly Leu Met Gly Asp Gly Met Tyr Asn Gln Val Arg
565 570 575

Pro Gln Ile Lys Cys Glu Gln Ser Tyr Gly Thr Asn Ser Ser Asp Glu
580 585 590

Ser Gly Ser Phe Ser Glu Ala Asp Ser Glu Ser Cys Pro Val Gln Asp
595 600 605

Arg Gly Gln Glu Val Lys Leu Pro Phe Pro Val Asp Gln Ile Thr Asp
610 615 620

Leu Pro Arg Asn Asp Phe Gln Met Met Ile Lys Met His Lys Leu Thr
625 630 635 640

```
Ser Glu Gln Leu Glu Phe Ile His Asp Val Arg Arg Arg Ser Lys Asn
                645                 650                 655

Arg Ile Ala Ala Gln Arg Cys Arg Lys Arg Lys Leu Asp Cys Ile Gln
            660                 665                 670

Asn Leu Glu Cys Glu Ile Arg Lys Leu Val Cys Glu Lys Glu Lys Leu
        675                 680                 685

Leu Ser Glu Arg Asn Gln Leu Lys Ala Cys Met Gly Glu Leu Leu Asp
    690                 695                 700

Asn Phe Ser Cys Leu Ser Gln Glu Val Cys Arg Asp Ile Gln Ser Pro
705                 710                 715                 720

Glu Gln Ile Gln Ala Leu His Arg Tyr Cys Pro Val Leu Arg Pro Met
                725                 730                 735

Asp Leu Pro Thr Ala Ser Ser Ile Asn Pro Ala Pro Leu Gly Ala Glu
            740                 745                 750

Gln Asn Ile Ala Ala Ser Gln Cys Ala Val Gly Glu Asn Val Pro Cys
        755                 760                 765

Cys Leu Glu Pro Gly Ala Ala Pro Pro Gly Pro Pro Trp Ala Pro Ser
    770                 775                 780

Asn Thr Ser Glu Asn Cys Thr Ser Gly Arg Arg Leu Glu Gly Thr Asp
785                 790                 795                 800

Pro Gly Thr Phe Ser Glu Arg Gly Pro Pro Leu Glu Pro Arg Ser Gln
                805                 810                 815

Thr Val Thr Val Asp Phe Cys Gln Glu Met Thr Asp Lys Cys Thr Thr
            820                 825                 830

Asp Glu Gln Pro Arg Lys Asp Tyr Thr
        835                 840
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<210> 10008
<211> 81
<212> PRT
<213> Homo sapiens

<220>
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<220>
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transcription
factor 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384145"

<400> 10008
Met Ser Val Asp Glu Lys Pro Asp Ser Pro Met Tyr Val Tyr Glu Ser
1 5 10 15

Thr Val His Cys Thr Asn Ile Leu Leu Gly Leu Asn Asp Gln Arg Lys
20 25 30

Lys Asp Ile Leu Cys Asp Val Thr Leu Ile Val Glu Arg Lys Glu Phe
35 40 45

Arg Ala His Arg Ala Val Leu Ala Ala Cys Ser Glu Tyr Phe Trp Gln
50 55 60

Ala Leu Val Gly Gln Thr Lys Asn Asp Leu Val Val Ser Leu Pro Glu
65 70 75 80

Glu

<210> 10009
<211> 81
<212> PRT
<213> Homo sapiens

<220>
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transcription
factor 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397668"

<400> 10009
Met Ser Val Asp Glu Lys Pro Asp Ser Pro Met Tyr Val Tyr Glu Ser
1 5 10 15

Thr Val His Cys Thr Asn Ile Leu Leu Gly Leu Asn Asp Gln Arg Lys
20 25 30

Lys Asp Ile Leu Cys Asp Val Thr Leu Ile Val Glu Arg Lys Glu Phe
35 40 45

Arg Ala His Arg Ala Val Leu Ala Ala Cys Ser Glu Tyr Phe Trp Gln
50 55 60

Ala Leu Val Gly Gln Thr Lys Asn Asp Leu Val Val Ser Leu Pro Glu
65 70 75 80

Glu

<210> 10010
<211> 841
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2007; "

<220>
<221> source
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transcription
factor 2; "

<220>

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<223> /note="Uniprot ID: Q9BYV9; "

<220>
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<400> 10010
Met Ser Val Asp Glu Lys Pro Asp Ser Pro Met Tyr Val Tyr Glu Ser
1   5   10   15

Thr Val His Cys Thr Asn Ile Leu Leu Gly Leu Asn Asp Gln Arg Lys
            20   25   30

Lys Asp Ile Leu Cys Asp Val Thr Leu Ile Val Glu Arg Lys Glu Phe
        35   40   45

Arg Ala His Arg Ala Val Leu Ala Ala Cys Ser Glu Tyr Phe Trp Gln
    50   55   60

Ala Leu Val Gly Gln Thr Lys Asn Asp Leu Val Val Ser Leu Pro Glu
65   70   75   80

Glu Val Thr Ala Arg Gly Phe Gly Pro Leu Leu Gln Phe Ala Tyr Thr
                85   90   95

Ala Lys Leu Leu Leu Ser Arg Glu Asn Ile Arg Glu Val Ile Arg Cys
            100   105   110

Ala Glu Phe Leu Arg Met His Asn Leu Glu Asp Ser Cys Phe Ser Phe
        115   120   125

Leu Gln Thr Gln Leu Leu Asn Ser Glu Asp Gly Leu Phe Val Cys Arg
    130   135   140

Lys Asp Ala Ala Cys Gln Arg Pro His Glu Asp Cys Glu Asn Ser Ala
145   150   155   160

Gly Glu Glu Glu Asp Glu Glu Glu Glu Thr Met Asp Ser Glu Thr Ala
                165   170   175

Lys Met Ala Cys Pro Arg Asp Gln Met Leu Pro Glu Pro Ile Ser Phe
            180   185   190

Glu Ala Ala Ala Ile Pro Val Ala Glu Lys Glu Glu Ala Leu Leu Pro

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        195                 200                 205

Glu Pro Asp Val Pro Thr Asp Thr Lys Glu Ser Ser Glu Lys Asp Ala
    210                 215                 220

Leu Thr Gln Tyr Pro Arg Tyr Lys Lys Tyr Gln Leu Ala Cys Thr Lys
225                 230                 235                 240

Asn Val Tyr Asn Ala Ser Ser His Ser Thr Ser Gly Phe Ala Ser Thr
                245                 250                 255

Phe Arg Glu Asp Asn Ser Ser Asn Ser Leu Lys Pro Gly Leu Ala Arg
            260                 265                 270

Gly Gln Ile Lys Ser Glu Pro Pro Ser Glu Glu Asn Glu Glu Glu Ser
        275                 280                 285

Ile Thr Leu Cys Leu Ser Gly Asp Glu Pro Asp Ala Lys Asp Arg Ala
    290                 295                 300

Gly Asp Val Glu Met Asp Arg Lys Gln Pro Ser Pro Ala Pro Thr Pro
305                 310                 315                 320

Thr Ala Pro Ala Gly Ala Ala Cys Leu Glu Arg Ser Arg Ser Val Ala
                325                 330                 335

Ser Pro Ser Cys Leu Arg Ser Leu Phe Ser Ile Thr Lys Ser Val Glu
            340                 345                 350

Leu Ser Gly Leu Pro Ser Thr Ser Gln Gln His Phe Ala Arg Ser Pro
        355                 360                 365

Ala Cys Pro Phe Asp Lys Gly Ile Thr Gln Gly Asp Leu Lys Thr Asp
    370                 375                 380

Tyr Thr Pro Phe Thr Gly Asn Tyr Gly Gln Pro His Val Gly Gln Lys
385                 390                 395                 400

Glu Val Ser Asn Phe Thr Met Gly Ser Pro Leu Arg Gly Pro Gly Leu
                405                 410                 415

Glu Ala Leu Cys Lys Gln Glu Gly Glu Leu Asp Arg Arg Ser Val Ile
            420                 425                 430
```

```
Phe Ser Ser Ser Ala Cys Asp Gln Val Ser Thr Ser Val His Ser Tyr
        435                 440                 445

Ser Gly Val Ser Ser Leu Asp Lys Asp Leu Ser Glu Pro Val Pro Lys
    450                 455                 460

Gly Leu Trp Val Gly Ala Gly Gln Ser Leu Pro Ser Ser Gln Ala Tyr
465                 470                 475                 480

Ser His Gly Gly Leu Met Ala Asp His Leu Pro Gly Arg Met Arg Pro
                485                 490                 495

Asn Thr Ser Cys Pro Val Pro Ile Lys Val Cys Pro Arg Ser Pro Pro
            500                 505                 510

Leu Glu Thr Arg Thr Arg Thr Ser Ser Ser Cys Ser Ser Tyr Ser Tyr
        515                 520                 525

Ala Glu Asp Gly Ser Gly Gly Ser Pro Cys Ser Leu Pro Leu Cys Glu
    530                 535                 540

Phe Ser Ser Ser Pro Cys Ser Gln Gly Ala Arg Phe Leu Ala Thr Glu
545                 550                 555                 560

His Gln Glu Pro Gly Leu Met Gly Asp Gly Met Tyr Asn Gln Val Arg
                565                 570                 575

Pro Gln Ile Lys Cys Glu Gln Ser Tyr Gly Thr Asn Ser Ser Asp Glu
            580                 585                 590

Ser Gly Ser Phe Ser Glu Ala Asp Ser Glu Ser Cys Pro Val Gln Asp
        595                 600                 605

Arg Gly Gln Glu Val Lys Leu Pro Phe Pro Val Asp Gln Ile Thr Asp
    610                 615                 620

Leu Pro Arg Asn Asp Phe Gln Met Met Ile Lys Met His Lys Leu Thr
625                 630                 635                 640

Ser Glu Gln Leu Glu Phe Ile His Asp Val Arg Arg Arg Ser Lys Asn
                645                 650                 655
```

```
Arg Ile Ala Ala Gln Arg Cys Arg Lys Arg Lys Leu Asp Cys Ile Gln
            660                 665                 670

Asn Leu Glu Cys Glu Ile Arg Lys Leu Val Cys Glu Lys Glu Lys Leu
        675                 680                 685

Leu Ser Glu Arg Asn Gln Leu Lys Ala Cys Met Gly Glu Leu Leu Asp
    690                 695                 700

Asn Phe Ser Cys Leu Ser Gln Glu Val Cys Arg Asp Ile Gln Ser Pro
705                 710                 715                 720

Glu Gln Ile Gln Ala Leu His Arg Tyr Cys Pro Val Leu Arg Pro Met
                725                 730                 735

Asp Leu Pro Thr Ala Ser Ser Ile Asn Pro Ala Pro Leu Gly Ala Glu
            740                 745                 750

Gln Asn Ile Ala Ala Ser Gln Cys Ala Val Gly Glu Asn Val Pro Cys
        755                 760                 765

Cys Leu Glu Pro Gly Ala Ala Pro Pro Gly Pro Pro Trp Ala Pro Ser
    770                 775                 780

Asn Thr Ser Glu Asn Cys Thr Ser Gly Arg Arg Leu Glu Gly Thr Asp
785                 790                 795                 800

Pro Gly Thr Phe Ser Glu Arg Gly Pro Pro Leu Glu Pro Arg Ser Gln
                805                 810                 815

Thr Val Thr Val Asp Phe Cys Gln Glu Met Thr Asp Lys Cys Thr Thr
            820                 825                 830

Asp Glu Gln Pro Arg Lys Asp Tyr Thr
        835                 840


<210> 10011
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2008; "
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<220>
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<223> /note="Gene Symbol: BTG2; "

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<221> source
<223> /note="Gene Name: BTG
family, member 2; "

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<223> /note="Uniprot ID: P78543; "

<220>
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<400> 10011
Met Ser His Gly Lys Gly Thr Asp Met Leu Pro Glu Ile Ala Ala Ala
1   5   10   15

Val Gly Phe Leu Ser Ser Leu Leu Arg Thr Arg Gly Cys Val Ser Glu
            20   25   30

Gln Arg Leu Lys Val Phe Ser Gly Ala Leu Gln Glu Ala Leu Thr Glu
        35   40   45

His Tyr Lys His His Trp Phe Pro Glu Lys Pro Ser Lys Gly Ser Gly
    50   55   60

Tyr Arg Cys Ile Arg Ile Asn His Lys Met Asp Pro Ile Ile Ser Arg
65   70   75   80

Val Ala Ser Gln Ile Gly Leu Ser Gln Pro Gln Leu His Gln Leu Leu
                85   90   95

Pro Ser Glu Leu Thr Leu Trp Val Asp Pro Tyr Glu Val Ser Tyr Arg
            100   105   110

Ile Gly Glu Asp Gly Ser Ile Cys Val Leu Tyr Glu Glu Ala Pro Leu
        115   120   125

Ala Ala Ser Cys Gly Leu Leu Thr Cys Lys Asn Gln Val Leu Leu Gly
    130   135   140

Arg Ser Ser Pro Ser Lys Asn Tyr Val Met Ala Val Ser Ser
145   150   155

<210> 10012
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2008; "

<220>
<221> source
<223> /note="Gene Symbol: BTG2; "

<220>
<221> source
<223> /note="Gene Name: BTG
family, member 2; "

<220>
<221> source
<223> /note="Uniprot ID: P78543; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433553"

<400> 10012

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Met Ser His Gly Lys Gly Thr Asp Met Leu Pro Glu Ile Ala Ala Ala
1               5                  10                  15

Val Gly Phe Leu Ser Ser Leu Leu Arg Thr Arg Gly Cys Val Ser Glu
            20                  25                  30

Gln Arg Leu Lys Val Phe Ser Gly Ala Leu Gln Glu Ala Leu Thr Glu
        35                  40                  45

His Tyr Lys His His Trp Phe Pro Glu Lys Pro Ser Lys Gly Ser Gly
    50                  55                  60

Tyr Arg Cys Ile Arg Ile Asn His Lys Met Asp Pro Ile Ile Ser Arg
65                  70                  75                  80

Val Ala Ser Gln Ile Gly Leu Ser Gln Pro Gln Leu His Gln Leu Leu
                85                  90                  95

Pro Ser Glu Leu Thr Leu Trp Val Asp Pro Tyr Glu Val Ser Tyr Arg
            100                 105                 110
```

```
Ile Gly Glu Asp Gly Ser Ile Cys Val Leu Tyr Glu Glu Ala Pro Leu
        115                 120                 125

Ala Ala Ser Cys Gly Leu Leu Thr Cys Lys Asn Gln Val Leu Leu Gly
    130                 135                 140

Arg Ser Ser Pro Ser Lys Asn Tyr Val Met Ala Val Ser Ser
145                 150                 155


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Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr Arg Leu Val
1               5                   10                  15

Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg Phe Ala Glu
            20                  25                  30

Lys Leu Thr Leu Ile Leu Gln Glu Lys Tyr Lys Asn His Trp Tyr Pro
        35                  40                  45

Glu Lys Pro Ser Lys Gly Gln Ala Tyr Arg Cys Ile Arg Val Asn Lys
    50                  55                  60

Phe Gln Arg Val Asp Pro Asp Val Leu Lys Ala Cys Glu Asn Ser Cys
65                  70                  75                  80
```

```
Ile Leu Tyr Ser Asp Leu Gly Leu Pro Lys Glu Leu Thr Leu Trp Val
                85                  90                  95

Asp Pro Cys Glu Val Cys Cys Arg Tyr Gly Glu Lys Asn Asn Ala Phe
            100                 105                 110

Ile Val Ala Ser Phe Glu Asn Lys Asp Glu Asn Lys Asp Glu Ile Ser
        115                 120                 125

Arg Lys Val Thr Arg Ala Leu Asp Lys Val Thr Ser Asp Tyr His Ser
    130                 135                 140

Gly Ser Ser Ser Ser Asp Glu Glu Thr Ser Lys Glu Met Glu Val Lys
145                 150                 155                 160

Pro Ser Ser Val Thr Ala Ala Ala Ser Pro Val Tyr Gln Ile Ser Glu
                165                 170                 175

Leu Ile Phe Pro Pro Leu Pro Met Trp His Pro Leu Pro Arg Lys Lys
            180                 185                 190

Pro Gly Met Tyr Arg Gly Asn Gly His Gln Asn His Tyr Pro Pro Pro
        195                 200                 205

Val Pro Phe Gly Tyr Pro Asn Gln Gly Arg Lys Asn Lys Pro Tyr Arg
    210                 215                 220

Pro Ile Pro Val Thr Trp Val Pro Pro Pro Gly Met His Cys Asp Arg
225                 230                 235                 240

Asn His Trp Ile Asn Pro His Met Leu Ala Pro His
                245                 250


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<400> 10014

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Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr Arg Leu Val
1               5                  10                  15

Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg Phe Ala Glu
            20                  25                  30

Lys Leu Thr Leu Ile Leu Gln Glu Lys Tyr Lys Asn His Trp Tyr Pro
        35                  40                  45

Glu Lys Pro Ser Lys Gly Gln Ala Tyr Arg Cys Ile Arg Val Asn Lys
    50                  55                  60

Phe Gln Arg Val Asp Pro Asp Val Leu Lys Ala Cys Glu Asn Ser Cys
65                  70                  75                  80

Ile Leu Tyr Ser Asp Leu Gly Leu Pro Lys Glu Leu Thr Leu Trp Val
                85                  90                  95

Asp Pro Cys Glu Val Cys Cys Arg Arg Asp Gly Val Ser Pro Cys Trp
            100                 105                 110

Pro Asp Cys Ser Gln Thr Pro Asp Leu Val Ile Arg Pro Pro Trp Pro
        115                 120                 125

Pro Lys Ala Leu Asp Tyr Arg Arg Glu Pro Leu Arg Pro Ala Ser Ser
    130                 135                 140

Phe Leu Ile Met Tyr Gly Glu Lys Asn Asn Ala Phe Ile Val Ala Ser
145                 150                 155                 160

Phe Glu Asn Lys Asp Glu Asn Lys Asp Glu Ile Ser Arg Lys Val Thr
```

```
                165                 170                 175

Arg Ala Leu Asp Lys Val Thr Ser Asp Tyr His Ser Gly Ser Ser Ser
            180                 185                 190

Ser Asp Glu Glu Thr Ser Lys Glu Met Glu Val Lys Pro Ser Ser Val
        195                 200                 205

Thr Ala Ala Ala Ser Pro Val Tyr Gln Ile Ser Glu Leu Ile Phe Pro
    210                 215                 220

Pro Leu Pro Met Trp His Pro Leu Pro Arg Lys Lys Pro Gly Met Tyr
225                 230                 235                 240

Arg Gly Asn Gly His Gln Asn His Tyr Pro Pro Pro Val Pro Phe Gly
                245                 250                 255

Tyr Pro Asn Gln Gly Arg Lys Asn Lys Pro Tyr Arg Pro Ile Pro Val
            260                 265                 270

Thr Trp Val Pro Pro Pro Gly Met His Cys Asp Arg Asn His Trp Ile
        275                 280                 285

Asn Pro His Met Leu Ala Pro His
    290                 295


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<400> 10015
Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr Arg Leu Val
1 5 10 15

Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg Phe Ala Glu
20 25 30

Lys Leu Thr Leu Ile Leu Gln Glu Lys Tyr Lys Asn His Trp
35 40 45

<210> 10016
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<220>
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<400> 10016
Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr Arg Leu Val
1 5 10 15

Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg Phe Ala Glu
20 25 30

Lys Leu Thr Leu Ile Leu Gln Glu Lys Tyr Lys Asn His Trp
35 40 45

<210> 10017
<211> 147
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<220>
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family, member 3; "

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<400> 10017
Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr Arg Leu Val
1 5 10 15

Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg Phe Ala Glu
20 25 30

Lys Leu Thr Leu Ile Leu Gln Glu Lys Tyr Lys Asn His Trp Tyr Pro
35 40 45

Glu Lys Pro Ser Lys Gly Gln Ala Tyr Arg Cys Ile Arg Val Asn Lys
50 55 60

Phe Gln Arg Val Asp Pro Asp Val Leu Lys Ala Cys Glu Asn Ser Cys
65 70 75 80

Ile Leu Tyr Ser Asp Leu Gly Leu Pro Lys Glu Leu Thr Leu Trp Val
85 90 95

Asp Pro Cys Glu Val Cys Cys Arg Arg Asp Gly Val Ser Pro Cys Trp
100 105 110

Pro Asp Cys Ser Gln Thr Pro Asp Leu Val Ile Arg Pro Pro Trp Pro
115 120 125

Pro Lys Ala Leu Asp Tyr Arg Arg Glu Pro Leu Arg Pro Ala Ser Ser
130 135 140

Phe Leu Ile
145

<210> 10018
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<400> 10018
Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr Arg Leu Val
1 5 10 15

Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg Phe Ala Glu
20 25 30

Lys Leu Thr Leu Ile Leu Gln Glu Lys Tyr Lys Asn His Trp Tyr Pro
35 40 45

Glu Lys Pro Ser Lys Gly Gln Ala Tyr Arg Cys Ile Arg Val Asn Lys
50 55 60

Phe Gln Arg Val Asp Pro Asp Val Leu Lys Ala Cys Glu Asn Ser Cys
65 70 75 80

Ile Leu Tyr Ser Asp Leu Gly Leu Pro Lys Glu Leu Thr Leu Trp Val
85 90 95

Asp Pro Cys Glu Val Cys Cys
100

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Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20   25   30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35   40   45

Gln Asp Pro Ser Ile Lys Thr Ile Cys Leu Arg Leu Asp Ser Ile Glu
    50   55   60

Ala Lys Leu Gln Ala Leu Glu Ala Thr Cys Lys Ser Leu Glu Glu Lys
65   70   75   80

Leu Asp Leu Val Thr Asn Lys Gln His Ser Pro Ile Gln Val Pro Met
                85   90   95

Val Ala Gly Ser Pro Leu Gly Ala Thr Gln Thr Cys Asn Lys Val Arg
            100   105   110

Cys Val Val Pro Gln Thr Thr Val Ile Leu Asn Asn Asp Arg Gln Asn
        115   120   125

Ala Ile Val Ala Lys Met Glu Asp Pro Leu Ser Asn Arg Ala Pro Asp
    130   135   140

Ser Leu Glu Asn Val Ile Ser Asn Ala Val Pro Gly Arg Arg Gln Asn
145   150   155   160

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Thr Ile Val Val Lys Val Pro Gly Gln Glu Asp Ser His His Glu Asp
                165                 170                 175

Gly Glu Ser Gly Ser Glu Ala Ser Asp Ser Val Ser Ser Cys Gly Gln
            180                 185                 190

Ala Gly Ser Gln Ser Ile Gly Ser Asn Val Thr Leu Ile Thr Leu Asn
        195                 200                 205

Ser Glu Glu Asp Tyr Pro Asn Gly Thr Trp Leu Gly Asp Glu Asn Asn
    210                 215                 220

Pro Glu Met Arg Val Arg Cys Ala Ile Ile Pro Ser Asp Met Leu His
225                 230                 235                 240

Ile Ser Thr Asn Cys Arg Thr Ala Glu Lys Met Ala Leu Thr Leu Leu
                245                 250                 255

Asp Tyr Leu Phe His Arg Glu Val Gln Ala Val Ser Asn Leu Ser Gly
            260                 265                 270

Gln Gly Lys His Gly Lys Lys Gln Leu Asp Pro Leu Thr Ile Tyr Gly
        275                 280                 285

Ile Arg Cys His Leu Phe Tyr Lys Phe Gly Ile Thr Glu Ser Asp Trp
    290                 295                 300

Tyr Arg Ile Lys Gln Ser Ile Asp Ser Lys Cys Arg Thr Ala Trp Arg
305                 310                 315                 320

Arg Lys Gln Arg Gly Gln Ser Leu Ala Val Lys Ser Phe Ser Arg Arg
                325                 330                 335

Thr Pro Asn Ser Ser Ser Tyr Cys Pro Ser Glu Pro Met Met Ser Thr
            340                 345                 350

Pro Pro Pro Ala Ser Glu Leu Pro Gln Pro Gln Pro Gln Pro Gln Ala
        355                 360                 365

Leu His Tyr Ala Leu Ala Asn Ala Gln Gln Val Gln Ile His Gln Ile
    370                 375                 380

Gly Glu Asp Gly Gln Val Gln Val Gly His Leu His Ile Ala Gln Val
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385                 390                 395                 400

Pro Gln Gly Glu Gln Val Gln Ile Thr Gln Asp Ser Glu Gly Asn Leu
                405                 410                 415

Gln Ile His His Val Gly Gln Asp Gly Gln Leu Leu Glu Ala Thr Arg
            420                 425                 430

Ile Pro Cys Leu Leu Ala Pro Ser Val Phe Lys Ala Ser Ser Gly Gln
        435                 440                 445

Val Leu Gln Gly Ala Gln Leu Ile Ala Val Ala Ser Ser Asp Pro Ala
    450                 455                 460

Ala Ala Gly Val Asp Gly Ser Pro Leu Gln Gly Ser Asp Ile Gln Val
465                 470                 475                 480

Gln Tyr Val Gln Leu Ala Pro Val Ser Asp His Thr Ala Gly Ala Gln
                485                 490                 495

Thr Ala Glu Ala Leu Gln Pro Thr Leu Gln Pro Glu Met Gln Leu Glu
            500                 505                 510

His Gly Ala Ile Gln Ile Gln
        515


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<400> 10020
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1 5 10 15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
20 25 30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
35 40 45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
50 55 60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65 70 75 80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
85 90 95

His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
100 105 110

Thr Gln Thr Cys Asn Lys Val Arg Cys Ala Val Pro Gly Arg Arg Gln
115 120 125

Asn Thr Ile Val Val Lys Val Pro Gly Gln Glu Asp Ser His His Glu
130 135 140

Asp Gly Glu Ser Gly Ser Glu Ala Ser Asp Ser Val Ser Ser Cys Gly
145 150 155 160

Gln Ala Gly Ser Gln Ser Ile Gly Ser Asn Val Thr Leu Ile Thr Leu
165 170 175

Asn Ser Glu Glu Asp Tyr Pro Asn Gly Thr Trp Leu Gly Asp Glu Asn
180 185 190

Asn Pro Glu Met Arg Val Arg Cys Ala Ile Ile Pro Ser Asp Met Leu
195 200 205

His Ile Ser Thr Asn Cys Arg Thr Ala Glu Lys Met Ala Leu Thr Leu

```
    210                 215                 220

Leu Asp Tyr Leu Phe His Arg Glu Val Gln Ala Val Ser Asn Leu Ser
225                 230                 235                 240

Gly Gln Gly Lys His Gly Lys Lys Gln Leu Asp Pro Leu Thr Ile Tyr
                245                 250                 255

Gly Ile Arg Cys His Leu Phe Tyr Lys Phe Gly Ile Thr Glu Ser Asp
            260                 265                 270

Trp Tyr Arg Ile Lys Gln Ser Ile Asp Ser Lys Cys Arg Thr Ala Trp
        275                 280                 285

Arg Arg Lys Gln Arg Gly Gln Ser Leu Ala Val Lys Ser Phe Ser Arg
    290                 295                 300

Arg Thr Pro Asn Ser Ser Ser Tyr Cys Pro Ser Glu Pro Met Met Ser
305                 310                 315                 320

Thr Pro Pro Pro Ala Ser Glu Leu Pro Gln Pro Gln Pro Gln Pro Gln
                325                 330                 335

Ala Leu His Tyr Ala Leu Ala Asn Ala Gln Gln Val Gln Ile His Gln
            340                 345                 350

Ile Gly Glu Asp Gly Gln Val Gln Val Ile Pro Gln Gly His Leu His
        355                 360                 365

Ile Ala Gln Val Pro Gln Gly Glu Gln Val Gln Ile Thr Gln Asp Ser
    370                 375                 380

Glu Gly Asn Leu Gln Ile His His Val Gly Gln Asp Gly Gln Val Leu
385                 390                 395                 400

Gln Gly Ala Gln Leu Ile Ala Val Ala Ser Ser Asp Pro Ala Ala Ala
                405                 410                 415

Gly Val Asp Gly Ser Pro Leu Gln Gly Ser Asp Ile Gln Val Gln Tyr
            420                 425                 430

Val Gln Leu Ala Pro Val Ser Asp His Thr Ala Gly Ala Gln Thr Ala
        435                 440                 445
```

Glu Ala Leu Gln Pro Thr Leu Gln Pro Glu Met Gln Leu Glu His Gly
450 455 460

Ala Ile Gln Ile Gln
465

<210> 10021
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<400> 10021
Met Gly Ser Pro Glu Pro Thr Gln Gly Pro Arg Leu Ser Pro Ile Leu
1 5 10 15

Ile Pro Tyr Ser Gly Arg Arg Tyr Lys Val Gly Arg Ala Ser Gly Ala
20 25 30

Leu Cys His Gln Asp Ser Leu Pro Pro Ile Leu Glu Leu Gly Leu Thr
35 40 45

Phe Leu Arg Ala Ser Ala Gly Phe Ser Val Pro Thr Ser Ser Ser Phe
50 55 60

Ala Leu Pro Glu Pro Leu Arg Ser Leu Cys Leu Gly Asn Gly Glu Gly
65 70 75 80

Leu Gly Leu Ser Leu Thr Leu Thr Val Leu Ala Trp Ile Leu Gly Leu
85 90 95

Ser Gly Thr Leu Gly Ala Leu Val Leu Phe Met Val Ala Thr Gly Ile

```
            100                 105                 110

Phe Gln Glu Ala Leu Trp His Leu Leu Leu Leu Ser Phe Ser Val Glu
        115                 120                 125

Ala Leu Pro Cys Phe Phe Phe Phe Pro Phe Phe Leu Leu Cys Arg Cys
    130                 135                 140

Leu Arg Ala Glu Leu Gln Ile Gln Gln Arg Leu Asp Gly Thr Leu Ser
145                 150                 155                 160

Leu Asp Leu Met Arg Leu Glu Ser Asp Gly Glu Thr Gly Cys Ala Ala
                165                 170                 175

Glu Ser Ser Val Leu Gln Gly Ala Gln Leu Ile Ala Val Ala Ser Ser
            180                 185                 190

Asp Pro Ala Ala Ala Gly Val Asp Gly Ser Pro Leu Gln Gly Ser Asp
        195                 200                 205

Ile Gln Val Gln Tyr Val Gln Leu Ala Pro Val Ser Asp His Thr Ala
    210                 215                 220

Gly Ala Gln Thr Ala Glu Ala Leu Gln Pro Thr Leu Gln Pro Glu Met
225                 230                 235                 240

Gln Leu Glu His Gly Ala Ile Gln Ile Gln
                245                 250


<210> 10022
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<400> 10022
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20   25   30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35   40   45

Gln Asp Pro Ser Ile Lys Thr Ile Cys Leu Arg Leu Asp Ser Ile Glu
    50   55   60

Ala Lys Leu Gln Ala Leu Glu Ala Thr Cys Lys Ser Leu Glu Glu Lys
65   70   75   80

Leu Asp Leu Val Thr Asn Lys Gln His Ser Pro Ile Gln Val Pro Met
                85   90   95

Val Ala Gly Ser Pro Leu Gly Ala Thr Gln Thr Cys Asn Lys Val Arg
            100   105   110

Cys Val Val Pro Gln Thr Thr Val Ile Leu Asn Asn Asp Arg Gln Asn
        115   120   125

Ala Ile Val Ala Lys Met Glu Asp Pro Leu Ser Asn Arg Ala Pro Asp
    130   135   140

Ser Leu Glu Asn Val Ile Ser Asn Ala Val Pro Gly Arg Arg Gln Asn
145   150   155   160

Thr Ile Val Val Lys Val Pro Gly Gln Glu Asp Ser His His Glu Asp
                165   170   175

Gly Glu Ser Gly Ser Glu Ala Ser Asp Ser Val Ser Ser Cys Gly Gln
            180   185   190

Ala Gly Ser Gln Ser Ile Gly Ser Asn Val Thr Leu Ile Thr Leu Asn

```
        195                 200                 205

Ser Glu Glu Asp Tyr Pro Asn Gly Thr Trp Leu Gly Asp Glu Asn Asn
    210                 215                 220

Pro Glu Met Arg Val Arg Cys Ala Ile Ile Pro Ser Asp Met Leu His
225                 230                 235                 240

Ile Ser Thr Asn Cys Arg Thr Ala Glu Lys Met Ala Leu Thr Leu Leu
                245                 250                 255

Asp Tyr Leu Phe His Arg Glu Val Gln Ala Val Ser Asn Leu Ser Gly
            260                 265                 270

Gln Gly Lys His Gly Lys Lys Gln Leu Asp Pro Leu Thr Ile Tyr Gly
        275                 280                 285

Ile Arg Cys His Leu Phe Tyr Lys Phe Gly Ile Thr Glu Ser Asp Trp
    290                 295                 300

Tyr Arg Ile Lys Gln Ser Ile Asp Ser Lys Cys Arg Thr Ala Trp Arg
305                 310                 315                 320

Arg Lys Gln Arg Gly Gln Ser Leu Ala Val Lys Ser Phe Ser Arg Arg
                325                 330                 335

Thr Pro Asn Ser Ser Ser Tyr Cys Pro Ser Glu Pro Met Met Ser Thr
            340                 345                 350

Pro Pro Pro Ala Ser Glu Leu Pro Gln Pro Gln Pro Gln Pro Gln Ala
        355                 360                 365

Leu His Tyr Ala Leu Ala Asn Ala Gln Gln Val Gln Ile His Gln Ile
    370                 375                 380

Gly Glu Asp Gly Gln Val Gln Val Gly His Leu His Ile Ala Gln Val
385                 390                 395                 400

Pro Gln Gly Glu Gln Val Gln Ile Thr Gln Asp Ser Glu Gly Asn Leu
                405                 410                 415

Gln Ile His His Val Gly Gln Asp Gly Gln Leu Leu Glu Ala Thr Arg
            420                 425                 430
```

```
Ile Pro Cys Leu Leu Ala Pro Ser Val Phe Lys Ala Ser Ser Gly Gln
        435                 440                 445

Val Leu Gln Gly Ala Gln Leu Ile Ala Val Ala Ser Ser Asp Pro Ala
    450                 455                 460

Ala Ala Gly Val Asp Gly Ser Pro Leu Gln Gly Ser Asp Ile Gln Val
465                 470                 475                 480

Gln Tyr Val Gln Leu Ala Pro Val Ser Asp His Thr Ala Gly Ala Gln
                485                 490                 495

Thr Ala Glu Ala Leu Gln Pro Thr Leu Gln Pro Glu Met Gln Leu Glu
            500                 505                 510

His Gly Ala Ile Gln Ile Gln
        515


<210> 10023
<211> 491
<212> PRT
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<400> 10023
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1               5                   10                  15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
```

```
            20                  25                  30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35                  40                  45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
    50                  55                  60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65                  70                  75                  80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
                85                  90                  95

His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
            100                 105                 110

Thr Gln Thr Cys Asn Lys Val Arg Cys Ala Val Pro Gly Arg Arg Gln
        115                 120                 125

Asn Thr Ile Val Val Lys Val Pro Gly Gln Glu Asp Ser His His Glu
    130                 135                 140

Asp Gly Glu Ser Gly Ser Glu Ala Ser Asp Ser Val Ser Ser Cys Gly
145                 150                 155                 160

Gln Ala Gly Ser Gln Ser Ile Gly Ser Asn Val Thr Leu Ile Thr Leu
                165                 170                 175

Asn Ser Glu Glu Asp Tyr Pro Asn Gly Thr Trp Leu Gly Asp Glu Asn
            180                 185                 190

Asn Pro Glu Met Arg Val Arg Cys Ala Ile Ile Pro Ser Asp Met Leu
        195                 200                 205

His Ile Ser Thr Asn Cys Arg Thr Ala Glu Lys Met Ala Leu Thr Leu
    210                 215                 220

Leu Asp Tyr Leu Phe His Arg Glu Val Gln Ala Val Ser Asn Leu Ser
225                 230                 235                 240

Gly Gln Gly Lys His Gly Lys Lys Gln Leu Asp Pro Leu Thr Ile Tyr
                245                 250                 255
```

```
Gly Ile Arg Cys His Leu Phe Tyr Lys Phe Gly Ile Thr Glu Ser Asp
            260                 265                 270

Trp Tyr Arg Ile Lys Gln Ser Ile Asp Ser Lys Cys Arg Thr Ala Trp
        275                 280                 285

Arg Arg Lys Gln Arg Gly Gln Ser Leu Ala Val Lys Ser Phe Ser Arg
    290                 295                 300

Arg Thr Pro Asn Ser Ser Ser Tyr Cys Pro Ser Glu Pro Met Met Ser
305                 310                 315                 320

Thr Pro Pro Pro Ala Ser Glu Leu Pro Gln Pro Gln Pro Gln Pro Gln
                325                 330                 335

Ala Leu His Tyr Ala Leu Ala Asn Ala Gln Gln Val Gln Ile His Gln
            340                 345                 350

Ile Gly Glu Asp Gly Gln Val Gln Val Ile Pro Gln Gly His Leu His
        355                 360                 365

Ile Ala Gln Val Pro Gln Gly Glu Gln Val Gln Ile Thr Gln Asp Ser
    370                 375                 380

Glu Gly Asn Leu Gln Ile His His Val Gly Gln Asp Gly Gln Leu Leu
385                 390                 395                 400

Glu Ala Thr Arg Ile Pro Cys Leu Leu Ala Pro Ser Val Phe Lys Ala
                405                 410                 415

Ser Ser Gly Gln Val Leu Gln Gly Ala Gln Leu Ile Ala Val Ala Ser
            420                 425                 430

Ser Asp Pro Ala Ala Ala Gly Val Asp Gly Ser Pro Leu Gln Gly Ser
        435                 440                 445

Asp Ile Gln Val Gln Tyr Val Gln Leu Ala Pro Val Ser Asp His Thr
    450                 455                 460

Ala Gly Ala Gln Thr Ala Glu Ala Leu Gln Pro Thr Leu Gln Pro Glu
465                 470                 475                 480
```

Met Gln Leu Glu His Gly Ala Ile Gln Ile Gln
485 490

<210> 10024
<211> 118
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
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<223> /note="ENSP ID: ENSP00000390504"

<400> 10024
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1 5 10 15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
20 25 30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
35 40 45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
50 55 60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65 70 75 80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
85 90 95

His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
100 105 110

Thr Gln Thr Cys Asn Lys
115

<210> 10025
<211> 123
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
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<223> /note="ENSP ID: ENSP00000399576"

<400> 10025
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20   25   30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35   40   45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
    50   55   60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65   70   75   80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
                85   90   95

His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
            100   105   110

Thr Gln Thr Cys Asn Lys Val Arg Cys Val Val
        115   120

<210> 10026

<211> 95
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
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<223> /note="ENSP ID: ENSP00000401454"

<400> 10026
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20   25   30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35   40   45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
    50   55   60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65   70   75   80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys
                85   90   95

<210> 10027
<211> 28
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

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<223> /note="ENSP ID: ENSP00000401718"

<400> 10027
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn
            20   25

<210> 10028
<211> 119
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
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<223> /note="ENSP ID: ENSP00000410089"

<400> 10028
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20   25   30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35   40   45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
    50   55   60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala

65 70 75 80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
85 90 95

His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
100 105 110

Thr Gln Thr Cys Asn Lys Val
115

<210> 10029
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2010; "

<220>
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<223> /note="Gene Symbol: BANP; "

<220>
<221> source
<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
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<223> /note="ENSP ID: ENSP00000411479"

<400> 10029
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1 5 10 15

Asp Leu Ser Pro Asp His Pro Gly Thr Glu Leu Trp Asp Ile Val Leu
20 25 30

Glu Asn His Val Val Thr Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln
35 40 45

Arg Leu Glu Ile Asn Cys Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr
50 55 60

Ser Ile Asn Gln Thr Ile Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys
65 70 75 80

```
Leu Gln Ala Leu Glu Ala Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp
                85                  90                  95

Leu Val Thr Asn Lys Gln His Ser Pro Ile Gln Val Pro Met Val Ala
            100                 105                 110

Gly Ser Pro Leu Gly Ala Thr Gln Thr Cys Asn Lys Val Arg Cys Ala
        115                 120                 125

Val Pro Gly Arg Arg Gln Asn Thr Ile Val Val Lys Val Pro Gly Gln
    130                 135                 140

Glu Asp Ser His His Glu Asp Gly Glu Ser Gly Ser Glu Ala Ser Asp
145                 150                 155                 160

Ser Val Ser Ser Cys Gly Gln Ala Gly Ser Gln Ser Ile Gly Ser Asn
                165                 170                 175

Val Thr Leu Ile Thr Leu Asn Ser Glu Glu Asp Tyr Pro Asn Gly Thr
            180                 185                 190

Trp Leu
```

<210> 10030
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2010; "

<220>
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<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
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<223> /note="ENSP ID: ENSP00000413717"

<400> 10030
```
Met Arg Ser Leu Pro Val Arg Ser His Glu Ala Glu Gly Ile Ala Val
1               5                   10                  15
```

```
Cys Cys Thr Gln Gly Thr Pro Ala Pro Gln Pro Leu Ser Ser Trp Asp
            20                  25                  30

Tyr Pro Val Val Leu Glu Asn His Val Val Thr Asp Glu Asp Glu Pro
        35                  40                  45

Ala Leu Lys Arg Gln Arg Leu Glu
    50                  55
```

<210> 10031
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2010; "

<220>
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<223> /note="Gene Symbol: BANP; "

<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431812"

<400> 10031

```
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1               5                   10                  15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20                  25                  30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35                  40                  45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
    50                  55                  60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65                  70                  75                  80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
                85                  90                  95
```

```
His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
            100                 105                 110

Thr Gln Thr Cys Asn Lys Val Arg Cys Leu Pro Gln Gln Ser Gly Pro
        115                 120                 125


<210> 10032
<211> 466
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2010; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N9N5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432508"

<400> 10032
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1               5                   10                  15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20                  25                  30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35                  40                  45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
    50                  55                  60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65                  70                  75                  80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
```

```
                85                  90                  95

His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
            100                 105                 110

Thr Gln Thr Cys Asn Lys Val Arg Cys Ala Val Pro Gly Arg Arg Gln
        115                 120                 125

Asn Thr Ile Val Val Lys Val Pro Gly Gln Glu Asp Ser His His Glu
    130                 135                 140

Asp Gly Glu Ser Gly Ser Glu Ala Ser Asp Ser Val Ser Ser Cys Gly
145                 150                 155                 160

Gln Ala Gly Ser Gln Ser Ile Gly Ser Asn Val Thr Leu Ile Thr Leu
                165                 170                 175

Asn Ser Glu Glu Asp Tyr Pro Asn Gly Thr Trp Leu Gly Asp Glu Asn
            180                 185                 190

Asn Pro Glu Met Arg Val Arg Cys Ala Ile Ile Pro Ser Asp Met Leu
        195                 200                 205

His Ile Ser Thr Asn Cys Arg Thr Ala Glu Lys Met Ala Leu Thr Leu
    210                 215                 220

Leu Asp Tyr Leu Phe His Arg Glu Val Gln Ala Val Ser Asn Leu Ser
225                 230                 235                 240

Gly Gln Gly Lys His Gly Lys Lys Gln Leu Asp Pro Leu Thr Ile Tyr
                245                 250                 255

Gly Ile Arg Cys His Leu Phe Tyr Lys Phe Gly Ile Thr Glu Ser Asp
            260                 265                 270

Trp Tyr Arg Ile Lys Gln Ser Ile Asp Ser Lys Cys Arg Thr Ala Trp
        275                 280                 285

Arg Arg Lys Gln Arg Gly Gln Ser Leu Ala Val Lys Ser Phe Ser Arg
    290                 295                 300

Arg Thr Pro Asn Ser Ser Ser Tyr Cys Pro Ser Glu Pro Met Met Ser
305                 310                 315                 320
```

```
Thr Pro Pro Pro Ala Ser Glu Leu Pro Gln Pro Gln Pro Gln Pro Gln
                325                 330                 335

Ala Leu His Tyr Ala Leu Ala Asn Ala Gln Gln Val Gln Ile His Gln
            340                 345                 350

Ile Gly Glu Asp Gly Gln Val Gln Val Gly His Leu His Ile Ala Gln
        355                 360                 365

Val Pro Gln Gly Glu Gln Val Gln Ile Thr Gln Asp Ser Glu Gly Asn
    370                 375                 380

Leu Gln Ile His His Val Gly Gln Asp Gly Gln Val Leu Gln Gly Ala
385                 390                 395                 400

Gln Leu Ile Ala Val Ala Ser Ser Asp Pro Ala Ala Ala Gly Val Asp
                405                 410                 415

Gly Ser Pro Leu Gln Gly Ser Asp Ile Gln Val Gln Tyr Val Gln Leu
            420                 425                 430

Ala Pro Val Ser Asp His Thr Ala Gly Ala Gln Thr Ala Glu Ala Leu
        435                 440                 445

Gln Pro Thr Leu Gln Pro Glu Met Gln Leu Glu His Gly Ala Ile Gln
    450                 455                 460

Ile Gln
465
```

<210> 10033
<211> 40
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2010; "

<220>
<221> source
<223> /note="Gene Symbol: BANP; "

<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435727"

<400> 10033
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Gly Thr Glu Leu Trp Asp Ser Ser Cys
            20   25   30

Phe Gly Glu Ser Cys Ser Asp Arg
        35   40

<210> 10034
<211> 40
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2010; "

<220>
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<223> /note="Gene Symbol: BANP; "

<220>
<221> source
<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436869"

<400> 10034
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Gly Thr Glu Leu Trp Asp Ser Ser Cys
            20   25   30

Phe Gly Glu Ser Cys Ser Asp Arg
        35   40

<210> 10035
<211> 508
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2010; "

<220>
<221> source
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<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N9N5; "

<220>
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<223> /note="ENSP ID: ENSP00000444352"

<400> 10035
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1   5   10   15

Asp Leu Ser Pro Asp His Pro Val Val Leu Glu Asn His Val Val Thr
            20   25   30

Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln Arg Leu Glu Ile Asn Cys
        35   40   45

Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr Ser Ile Asn Gln Thr Ile
    50   55   60

Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys Leu Gln Ala Leu Glu Ala
65   70   75   80

Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp Leu Val Thr Asn Lys Gln
                85   90   95

His Ser Pro Ile Gln Val Pro Met Val Ala Gly Ser Pro Leu Gly Ala
            100   105   110

Thr Gln Thr Cys Asn Lys Val Arg Cys Val Val Pro Gln Thr Thr Val
        115   120   125

Ile Leu Asn Asn Asp Arg Gln Asn Ala Ile Val Ala Lys Met Glu Asp
    130   135   140

```
Pro Leu Ser Asn Arg Ala Pro Asp Ser Leu Glu Asn Val Ile Ser Asn
145                 150                 155                 160

Ala Val Pro Gly Arg Arg Gln Asn Thr Ile Val Val Lys Val Pro Gly
                165                 170                 175

Gln Glu Asp Ser His His Glu Asp Gly Glu Ser Gly Ser Glu Ala Ser
            180                 185                 190

Asp Ser Val Ser Ser Cys Gly Gln Ala Gly Ser Gln Ser Ile Gly Ser
        195                 200                 205

Asn Val Thr Leu Ile Thr Leu Asn Ser Glu Glu Asp Tyr Pro Asn Gly
    210                 215                 220

Thr Trp Leu Gly Asp Glu Asn Asn Pro Glu Met Arg Val Arg Cys Ala
225                 230                 235                 240

Ile Ile Pro Ser Asp Met Leu His Ile Ser Thr Asn Cys Arg Thr Ala
                245                 250                 255

Glu Lys Met Ala Leu Thr Leu Leu Asp Tyr Leu Phe His Arg Glu Val
            260                 265                 270

Gln Ala Val Ser Asn Leu Ser Gly Gln Gly Lys His Gly Lys Lys Gln
        275                 280                 285

Leu Asp Pro Leu Thr Ile Tyr Gly Ile Arg Cys His Leu Phe Tyr Lys
    290                 295                 300

Phe Gly Ile Thr Glu Ser Asp Trp Tyr Arg Ile Lys Gln Ser Ile Asp
305                 310                 315                 320

Ser Lys Cys Arg Thr Ala Trp Arg Arg Lys Gln Arg Gly Gln Ser Leu
                325                 330                 335

Ala Val Lys Ser Phe Ser Arg Arg Thr Pro Asn Ser Ser Ser Tyr Cys
            340                 345                 350

Pro Ser Glu Pro Met Met Ser Thr Pro Pro Pro Ala Ser Glu Leu Pro
        355                 360                 365
```

```
Gln Pro Gln Pro Gln Pro Gln Ala Leu His Tyr Ala Leu Ala Asn Ala
    370                 375                 380

Gln Gln Val Gln Ile His Gln Ile Gly Glu Asp Gly Gln Val Gln Val
385                 390                 395                 400

Ile Pro Gln Gly His Leu His Ile Ala Gln Val Pro Gln Gly Glu Gln
                405                 410                 415

Val Gln Ile Thr Gln Asp Ser Glu Gly Asn Leu Gln Ile His His Val
            420                 425                 430

Gly Gln Asp Gly Gln Val Leu Gln Gly Ala Gln Leu Ile Ala Val Ala
        435                 440                 445

Ser Ser Asp Pro Ala Ala Ala Gly Val Asp Gly Ser Pro Leu Gln Gly
    450                 455                 460

Ser Asp Ile Gln Val Gln Tyr Val Gln Leu Ala Pro Val Ser Asp His
465                 470                 475                 480

Thr Ala Gly Ala Gln Thr Ala Glu Ala Leu Gln Pro Thr Leu Gln Pro
                485                 490                 495

Glu Met Gln Leu Glu His Gly Ala Ile Gln Ile Gln
            500                 505


<210> 10036
<211> 497
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2010; "

<220>
<221> source
<223> /note="Gene Symbol: BANP; "

<220>
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<223> /note="Gene Name: BTG3 associated nuclear prt; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N9N5; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000487304"

<400> 10036
Met Met Ser Glu His Asp Leu Ala Asp Val Val Gln Ile Ala Val Glu
1 5 10 15

Asp Leu Ser Pro Asp His Pro Gly Thr Glu Leu Trp Asp Ile Val Leu
20 25 30

Glu Asn His Val Val Thr Asp Glu Asp Glu Pro Ala Leu Lys Arg Gln
35 40 45

Arg Leu Glu Ile Asn Cys Gln Asp Pro Ser Ile Lys Ser Phe Leu Tyr
50 55 60

Ser Ile Asn Gln Thr Ile Cys Leu Arg Leu Asp Ser Ile Glu Ala Lys
65 70 75 80

Leu Gln Ala Leu Glu Ala Thr Cys Lys Ser Leu Glu Glu Lys Leu Asp
85 90 95

Leu Val Thr Asn Lys Gln His Ser Pro Ile Gln Val Pro Met Val Ala
100 105 110

Gly Ser Pro Leu Gly Ala Thr Gln Thr Cys Asn Lys Val Arg Cys Ala
115 120 125

Val Pro Gly Arg Arg Gln Asn Thr Ile Val Val Lys Val Pro Gly Gln
130 135 140

Glu Asp Ser His His Glu Asp Gly Glu Ser Gly Ser Glu Ala Ser Asp
145 150 155 160

Ser Val Ser Ser Cys Gly Gln Ala Gly Ser Gln Ser Ile Gly Ser Asn
165 170 175

Val Thr Leu Ile Thr Leu Asn Ser Glu Glu Asp Tyr Pro Asn Gly Thr
180 185 190

Trp Leu Gly Asp Glu Asn Asn Pro Glu Met Arg Val Arg Cys Ala Ile
195 200 205

```
Ile Pro Ser Asp Met Leu His Ile Ser Thr Asn Cys Arg Thr Ala Glu
    210                 215                 220

Lys Met Ala Leu Thr Leu Leu Asp Tyr Leu Phe His Arg Glu Val Gln
225                 230                 235                 240

Ala Val Ser Asn Leu Ser Gly Gln Gly Lys His Gly Lys Lys Gln Leu
                245                 250                 255

Asp Pro Leu Thr Ile Tyr Gly Ile Arg Cys His Leu Phe Tyr Lys Phe
            260                 265                 270

Gly Ile Thr Glu Ser Asp Trp Tyr Arg Ile Lys Gln Ser Ile Asp Ser
        275                 280                 285

Lys Cys Arg Thr Ala Trp Arg Arg Lys Gln Arg Gly Gln Ser Leu Ala
    290                 295                 300

Val Lys Ser Phe Ser Arg Arg Thr Pro Asn Ser Ser Ser Tyr Cys Pro
305                 310                 315                 320

Ser Glu Pro Met Met Ser Thr Pro Pro Pro Ala Ser Glu Leu Pro Gln
                325                 330                 335

Pro Gln Pro Gln Pro Gln Ala Leu His Tyr Ala Leu Ala Asn Ala Gln
            340                 345                 350

Gln Val Gln Ile His Gln Ile Gly Glu Asp Gly Gln Val Gln Val Ile
        355                 360                 365

Pro Gln Gly His Leu His Ile Ala Gln Val Pro Gln Gly Glu Gln Val
    370                 375                 380

Gln Ile Thr Gln Asp Ser Glu Gly Asn Leu Gln Ile His His Val Gly
385                 390                 395                 400

Gln Asp Gly Gln Leu Leu Glu Ala Thr Arg Ile Pro Cys Leu Leu Ala
                405                 410                 415

Pro Ser Val Phe Lys Ala Ser Ser Gly Gln Val Leu Gln Gly Ala Gln
            420                 425                 430

Leu Ile Ala Val Ala Ser Ser Asp Pro Ala Ala Ala Gly Val Asp Gly
```

435 440 445

Ser Pro Leu Gln Gly Ser Asp Ile Gln Val Gln Tyr Val Gln Leu Ala
450 455 460

Pro Val Ser Asp His Thr Ala Gly Ala Gln Thr Ala Glu Ala Leu Gln
465 470 475 480

Pro Thr Leu Gln Pro Glu Met Gln Leu Glu His Gly Ala Ile Gln Ile
485 490 495

Gln

<210> 10037
<211> 1085
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2011; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
kinase; "

<220>
<221> source
<223> /note="Uniprot ID: O43683; "

<220>
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<223> /note="ENSP ID: ENSP00000302530"

<400> 10037
Met Asp Thr Pro Glu Asn Val Leu Gln Met Leu Glu Ala His Met Gln
1 5 10 15

Ser Tyr Lys Gly Asn Asp Pro Leu Gly Glu Trp Glu Arg Tyr Ile Gln
20 25 30

Trp Val Glu Glu Asn Phe Pro Glu Asn Lys Glu Tyr Leu Ile Thr Leu
35 40 45

```
Leu Glu His Leu Met Lys Glu Phe Leu Asp Lys Lys Lys Tyr His Asn
    50                  55                  60

Asp Pro Arg Phe Ile Ser Tyr Cys Leu Lys Phe Ala Glu Tyr Asn Ser
65                  70                  75                  80

Asp Leu His Gln Phe Phe Glu Phe Leu Tyr Asn His Gly Ile Gly Thr
                85                  90                  95

Leu Ser Ser Pro Leu Tyr Ile Ala Trp Ala Gly His Leu Glu Ala Gln
            100                 105                 110

Gly Glu Leu Gln His Ala Ser Ala Val Leu Gln Arg Gly Ile Gln Asn
        115                 120                 125

Gln Ala Glu Pro Arg Glu Phe Leu Gln Gln Gln Tyr Arg Leu Phe Gln
    130                 135                 140

Thr Arg Leu Thr Glu Thr His Leu Pro Ala Gln Ala Arg Thr Ser Glu
145                 150                 155                 160

Pro Leu His Asn Val Gln Val Leu Asn Gln Met Ile Thr Ser Lys Ser
                165                 170                 175

Asn Pro Gly Asn Asn Met Ala Cys Ile Ser Lys Asn Gln Gly Ser Glu
            180                 185                 190

Leu Ser Gly Val Ile Ser Ser Ala Cys Asp Lys Glu Ser Asn Met Glu
        195                 200                 205

Arg Arg Val Ile Thr Ile Ser Lys Ser Glu Tyr Ser Val His Ser Ser
    210                 215                 220

Leu Ala Ser Lys Val Asp Val Glu Gln Val Val Met Tyr Cys Lys Glu
225                 230                 235                 240

Lys Leu Ile Arg Gly Glu Ser Glu Phe Ser Phe Glu Glu Leu Arg Ala
                245                 250                 255

Gln Lys Tyr Asn Gln Arg Arg Lys His Glu Gln Trp Val Asn Glu Asp
            260                 265                 270
```

```
Arg His Tyr Met Lys Arg Lys Glu Ala Asn Ala Phe Glu Glu Gln Leu
        275                 280                 285

Leu Lys Gln Lys Met Asp Glu Leu His Lys Lys Leu His Gln Val Val
    290                 295                 300

Glu Thr Ser His Glu Asp Leu Pro Ala Ser Gln Glu Arg Ser Glu Val
305                 310                 315                 320

Asn Pro Ala Arg Met Gly Pro Ser Val Gly Ser Gln Gln Glu Leu Arg
                325                 330                 335

Ala Pro Cys Leu Pro Val Thr Tyr Gln Gln Thr Pro Val Asn Met Glu
            340                 345                 350

Lys Asn Pro Arg Glu Ala Pro Pro Val Val Pro Pro Leu Ala Asn Ala
        355                 360                 365

Ile Ser Ala Ala Leu Val Ser Pro Ala Thr Ser Gln Ser Ile Ala Pro
    370                 375                 380

Pro Val Pro Leu Lys Ala Gln Thr Val Thr Asp Ser Met Phe Ala Val
385                 390                 395                 400

Ala Ser Lys Asp Ala Gly Cys Val Asn Lys Ser Thr His Glu Phe Lys
                405                 410                 415

Pro Gln Ser Gly Ala Glu Ile Lys Glu Gly Cys Glu Thr His Lys Val
            420                 425                 430

Ala Asn Thr Ser Ser Phe His Thr Thr Pro Asn Thr Ser Leu Gly Met
        435                 440                 445

Val Gln Ala Thr Pro Ser Lys Val Gln Pro Ser Pro Thr Val His Thr
    450                 455                 460

Lys Glu Ala Leu Gly Phe Ile Met Asn Met Phe Gln Ala Pro Thr Leu
465                 470                 475                 480

Pro Asp Ile Ser Asp Asp Lys Asp Glu Trp Gln Ser Leu Asp Gln Asn
                485                 490                 495
```

```
Glu Asp Ala Phe Glu Ala Gln Phe Gln Lys Asn Val Arg Ser Ser Gly
            500                 505                 510

Ala Trp Gly Val Asn Lys Ile Ile Ser Ser Leu Ser Ser Ala Phe His
        515                 520                 525

Val Phe Glu Asp Gly Asn Lys Glu Asn Tyr Gly Leu Pro Gln Pro Lys
    530                 535                 540

Asn Lys Pro Thr Gly Ala Arg Thr Phe Gly Glu Arg Ser Val Ser Arg
545                 550                 555                 560

Leu Pro Ser Lys Pro Lys Glu Glu Val Pro His Ala Glu Glu Phe Leu
                565                 570                 575

Asp Asp Ser Thr Val Trp Gly Ile Arg Cys Asn Lys Thr Leu Ala Pro
            580                 585                 590

Ser Pro Lys Ser Pro Gly Asp Phe Thr Ser Ala Ala Gln Leu Ala Ser
        595                 600                 605

Thr Pro Phe His Lys Leu Pro Val Glu Ser Val His Ile Leu Glu Asp
    610                 615                 620

Lys Glu Asn Val Val Ala Lys Gln Cys Thr Gln Ala Thr Leu Asp Ser
625                 630                 635                 640

Cys Glu Glu Asn Met Val Val Pro Ser Arg Asp Gly Lys Phe Ser Pro
                645                 650                 655

Ile Gln Glu Lys Ser Pro Lys Gln Ala Leu Ser Ser His Met Tyr Ser
            660                 665                 670

Ala Ser Leu Leu Arg Leu Ser Gln Pro Ala Ala Gly Gly Val Leu Thr
        675                 680                 685

Cys Glu Ala Glu Leu Gly Val Glu Ala Cys Arg Leu Thr Asp Thr Asp
    690                 695                 700

Ala Ala Ile Ala Glu Asp Pro Pro Asp Ala Ile Ala Gly Leu Gln Ala
705                 710                 715                 720

Glu Trp Met Gln Met Ser Ser Leu Gly Thr Val Asp Ala Pro Asn Phe
```

```
                725                 730                 735

Ile Val Gly Asn Pro Trp Asp Asp Lys Leu Ile Phe Lys Leu Leu Ser
            740                 745                 750

Gly Leu Ser Lys Pro Val Ser Ser Tyr Pro Asn Thr Phe Glu Trp Gln
        755                 760                 765

Cys Lys Leu Pro Ala Ile Lys Pro Lys Thr Glu Phe Gln Leu Gly Ser
    770                 775                 780

Lys Leu Val Tyr Val His His Leu Leu Gly Glu Gly Ala Phe Ala Gln
785                 790                 795                 800

Val Tyr Glu Ala Thr Gln Gly Asp Leu Asn Asp Ala Lys Asn Lys Gln
                805                 810                 815

Lys Phe Val Leu Lys Val Gln Lys Pro Ala Asn Pro Trp Glu Phe Tyr
            820                 825                 830

Ile Gly Thr Gln Leu Met Glu Arg Leu Lys Pro Ser Met Gln His Met
        835                 840                 845

Phe Met Lys Phe Tyr Ser Ala His Leu Phe Gln Asn Gly Ser Val Leu
    850                 855                 860

Val Gly Glu Leu Tyr Ser Tyr Gly Thr Leu Leu Asn Ala Ile Asn Leu
865                 870                 875                 880

Tyr Lys Asn Thr Pro Glu Lys Val Met Pro Gln Gly Leu Val Ile Ser
                885                 890                 895

Phe Ala Met Arg Met Leu Tyr Met Ile Glu Gln Val His Asp Cys Glu
            900                 905                 910

Ile Ile His Gly Asp Ile Lys Pro Asp Asn Phe Ile Leu Gly Asn Gly
        915                 920                 925

Phe Leu Glu Gln Asp Asp Glu Asp Asp Leu Ser Ala Gly Leu Ala Leu
    930                 935                 940

Ile Asp Leu Gly Gln Ser Ile Asp Met Lys Leu Phe Pro Lys Gly Thr
945                 950                 955                 960
```

Ile Phe Thr Ala Lys Cys Glu Thr Ser Gly Phe Gln Cys Val Glu Met
965 970 975

Leu Ser Asn Lys Pro Trp Asn Tyr Gln Ile Asp Tyr Phe Gly Val Ala
980 985 990

Ala Thr Val Tyr Cys Met Leu Phe Gly Thr Tyr Met Lys Val Lys
Asn
995 1000 1005

Glu Gly Gly Glu Cys Lys Pro Glu Gly Leu Phe Arg Arg Leu Pro
1010 1015 1020

His Leu Asp Met Trp Asn Glu Phe Phe His Val Met Leu Asn Ile
1025 1030 1035

Pro Asp Cys His His Leu Pro Ser Leu Asp Leu Leu Arg Gln Lys
1040 1045 1050

Leu Lys Lys Val Phe Gln Gln His Tyr Thr Asn Lys Ile Arg Ala
1055 1060 1065

Leu Arg Asn Arg Leu Ile Val Leu Leu Leu Glu Cys Lys Arg Ser
1070 1075 1080

Arg Lys
1085

<210> 10038
<211> 1028
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2011; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
kinase; "

<220>
<221> source
<223> /note="Uniprot ID: O43683; "

<220>
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<400> 10038
Met Asp Thr Pro Glu Asn Val Leu Gln Met Leu Glu Ala His Met Gln
1   5   10   15

Ser Tyr Lys Gly Asn Asp Pro Leu Gly Glu Trp Glu Arg Tyr Ile Gln
            20   25   30

Trp Val Glu Glu Asn Phe Pro Glu Asn Lys Glu Tyr Leu Ile Thr Leu
        35   40   45

Leu Glu His Leu Met Lys Glu Phe Leu Asp Lys Lys Lys Tyr His Asn
    50   55   60

Asp Pro Arg Phe Ile Ser Tyr Cys Leu Lys Phe Ala Glu Tyr Asn Ser
65   70   75   80

Asp Leu His Gln Phe Phe Glu Phe Leu Tyr Asn His Gly Ile Gly Thr
                85   90   95

Leu Ser Ser Pro Leu Tyr Ile Ala Trp Ala Gly His Leu Glu Ala Gln
            100   105   110

Gly Glu Leu Gln His Ala Ser Ala Val Leu Gln Arg Gly Ile Gln Asn
        115   120   125

Gln Ala Glu Pro Arg Glu Phe Leu Gln Gln Tyr Arg Leu Phe Gln
    130   135   140

Thr Arg Leu Thr Glu Thr His Leu Pro Ala Gln Ala Arg Thr Ser Glu
145   150   155   160

Pro Leu His Asn Val Gln Val Leu Asn Gln Met Ile Thr Ser Lys Ser
                165   170   175

Asn Pro Gly Asn Asn Met Ala Cys Ile Ser Lys Asn Gln Gly Ser Glu
            180   185   190

```
Leu Ser Gly Val Ile Ser Ser Ala Cys Asp Lys Glu Ser Asn Met Glu
        195                 200                 205

Arg Arg Val Ile Thr Ile Ser Lys Ser Glu Tyr Ser Val His Ser Ser
    210                 215                 220

Leu Ala Ser Lys Val Asp Val Glu Gln Val Val Met Tyr Cys Lys Glu
225                 230                 235                 240

Lys Leu Ile Arg Gly Glu Ser Glu Phe Ser Phe Glu Glu Leu Arg Ala
                245                 250                 255

Gln Lys Tyr Asn Gln Arg Arg Lys His Glu Gln Trp Val Asn Glu Asp
            260                 265                 270

Arg His Tyr Met Lys Arg Lys Glu Ala Asn Ala Phe Glu Glu Gln Leu
        275                 280                 285

Leu Lys Gln Lys Met Asp Glu Leu His Lys Lys Leu His Gln Val Val
    290                 295                 300

Glu Thr Ser His Glu Asp Leu Pro Ala Ser Gln Glu Arg Ser Glu Val
305                 310                 315                 320

Asn Pro Ala Arg Met Gly Pro Ser Val Gly Ser Gln Gln Glu Leu Arg
                325                 330                 335

Ala Pro Cys Leu Pro Val Thr Tyr Gln Gln Thr Pro Val Asn Met Glu
            340                 345                 350

Lys Asn Pro Arg Glu Ala Pro Pro Val Val Pro Pro Leu Ala Asn Ala
        355                 360                 365

Ile Ser Ala Ala Leu Val Ser Pro Ala Thr Ser Gln Ser Ile Ala Pro
    370                 375                 380

Pro Val Pro Leu Lys Ala Gln Thr Val Thr Asp Ser Met Phe Ala Val
385                 390                 395                 400

Ala Ser Lys Asp Ala Gly Cys Val Asn Lys Ser Thr His Glu Phe Lys
                405                 410                 415
```

```
Pro Gln Ser Gly Ala Glu Ile Lys Glu Gly Cys Glu Thr His Lys Val
            420                 425                 430

Ala Asn Thr Ser Ser Phe His Thr Thr Pro Asn Thr Ser Leu Gly Met
        435                 440                 445

Val Gln Ala Thr Pro Ser Lys Val Gln Pro Ser Pro Thr Val His Thr
    450                 455                 460

Lys Glu Ala Leu Gly Phe Ile Met Asn Met Phe Gln Ala Pro Thr Leu
465                 470                 475                 480

Pro Asp Ile Ser Asp Asp Lys Asp Glu Trp Gln Ser Leu Asp Gln Asn
                485                 490                 495

Glu Asp Ala Phe Glu Ala Gln Phe Gln Lys Asn Val Arg Ser Ser Gly
            500                 505                 510

Ala Trp Gly Val Asn Lys Ile Ile Ser Ser Leu Ser Ser Ala Phe His
        515                 520                 525

Val Phe Glu Asp Gly Asn Lys Glu Asn Tyr Gly Leu Pro Gln Pro Lys
    530                 535                 540

Asn Lys Pro Thr Gly Ala Arg Thr Phe Gly Glu Arg Ser Val Ser Arg
545                 550                 555                 560

Leu Pro Ser Lys Pro Lys Glu Glu Val Pro His Ala Glu Glu Phe Leu
                565                 570                 575

Asp Asp Ser Thr Val Trp Gly Ile Arg Cys Asn Lys Thr Leu Ala Pro
            580                 585                 590

Ser Pro Lys Ser Pro Gly Asp Phe Thr Ser Ala Ala Gln Leu Ala Ser
        595                 600                 605

Thr Pro Phe His Lys Leu Pro Val Glu Ser Val His Ile Leu Glu Asp
    610                 615                 620

Lys Glu Asn Val Val Ala Lys Gln Cys Thr Gln Ala Thr Leu Asp Ser
625                 630                 635                 640

Cys Glu Glu Asn Met Val Val Pro Ser Arg Asp Gly Lys Phe Ser Pro
```

645 650 655

Ile Gln Glu Lys Ser Pro Lys Gln Ala Leu Ser Ser His Met Tyr Ser
660 665 670

Ala Ser Leu Leu Arg Leu Ser Gln Pro Ala Ala Gly Gly Val Leu Thr
675 680 685

Cys Glu Ala Glu Leu Gly Val Glu Ala Cys Arg Leu Thr Asp Thr Asp
690 695 700

Ala Ala Ile Ala Glu Asp Pro Pro Asp Ala Ile Ala Gly Leu Gln Ala
705 710 715 720

Glu Trp Met Gln Met Ser Ser Leu Gly Thr Val Asp Ala Pro Asn Phe
725 730 735

Ile Val Gly Asn Pro Trp Asp Asp Lys Leu Ile Phe Lys Leu Leu Ser
740 745 750

Gly Leu Ser Lys Pro Val Ser Ser Tyr Pro Asn Thr Phe Glu Trp Gln
755 760 765

Cys Lys Leu Pro Ala Ile Lys Pro Lys Thr Glu Phe Gln Leu Gly Ser
770 775 780

Lys Leu Val Tyr Val His His Leu Leu Gly Glu Gly Ala Phe Ala Gln
785 790 795 800

Val Tyr Glu Ala Thr Gln Gly Asp Leu Asn Asp Ala Lys Asn Lys Gln
805 810 815

Lys Phe Val Leu Lys Val Gln Lys Pro Ala Asn Pro Trp Glu Phe Tyr
820 825 830

Ile Gly Thr Gln Leu Met Glu Arg Leu Lys Pro Ser Met Gln His Met
835 840 845

Phe Met Lys Phe Tyr Ser Ala His Leu Phe Gln Asn Gly Ser Val Leu
850 855 860

Val Gly Glu Leu Tyr Ser Tyr Gly Thr Leu Leu Asp Asp Glu Asp Asp
865 870 875 880

```
Leu Ser Ala Gly Leu Ala Leu Ile Asp Leu Gly Gln Ser Ile Asp Met
                885                 890                 895

Lys Leu Phe Pro Lys Gly Thr Ile Phe Thr Ala Lys Cys Glu Thr Ser
            900                 905                 910

Gly Phe Gln Cys Val Glu Met Leu Ser Asn Lys Pro Trp Asn Tyr Gln
        915                 920                 925

Ile Asp Tyr Phe Gly Val Ala Ala Thr Val Tyr Cys Met Leu Phe Gly
    930                 935                 940

Thr Tyr Met Lys Val Lys Asn Glu Gly Gly Glu Cys Lys Pro Glu Gly
945                 950                 955                 960

Leu Phe Arg Arg Leu Pro His Leu Asp Met Trp Asn Glu Phe Phe His
                965                 970                 975

Val Met Leu Asn Ile Pro Asp Cys His His Leu Pro Ser Leu Asp Leu
            980                 985                 990

Leu Arg Gln Lys Leu Lys Lys Val  Phe Gln Gln His Tyr  Thr Asn
Lys
        995                 1000                1005

Ile Arg  Ala Leu Arg Asn Arg  Leu Ile Val Leu Leu  Leu Glu Cys
    1010                1015                1020

Lys Arg  Ser Arg Lys
    1025
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<210> 10039
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2011; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1; "

<220>

<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392219"

<400> 10039
Met Leu Glu Ala His Met Gln Ser Tyr Lys Gly Asn Asp Pro Leu Gly
1 5 10 15

Glu Trp Glu Arg Tyr Ile Gln Trp Val Glu Glu Asn Phe Pro Glu Asn
20 25 30

Lys Glu Tyr Leu Ile Thr Leu Leu Glu His Leu Met Lys Glu Phe Leu
35 40 45

Asp Lys Lys Lys Tyr His Asn Asp
50 55

<210> 10040
<211> 146
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2011; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402883"

<400> 10040
Met Leu Glu Ala His Met Gln Ser Tyr Lys Gly Asn Asp Pro Leu Gly
1 5 10 15

Glu Trp Glu Arg Tyr Ile Gln Trp Val Glu Glu Asn Phe Pro Glu Asn
20 25 30

```
Lys Glu Tyr Leu Ile Thr Leu Leu Glu His Leu Met Lys Glu Phe Leu
        35                  40                  45

Asp Lys Lys Lys Tyr His Asn Asp Pro Arg Phe Ile Ser Tyr Cys Leu
    50                  55                  60

Lys Phe Ala Glu Tyr Asn Ser Asp Leu His Gln Phe Phe Glu Phe Leu
65                  70                  75                  80

Tyr Asn His Gly Ile Gly Thr Leu Ser Ser Pro Leu Tyr Ile Ala Trp
                85                  90                  95

Ala Gly His Leu Glu Ala Gln Gly Glu Leu Gln His Ala Ser Ala Val
            100                 105                 110

Leu Gln Arg Gly Ile Gln Asn Gln Ala Glu Pro Arg Glu Phe Leu Gln
        115                 120                 125

Gln Gln Tyr Arg Leu Phe Gln Thr Arg Leu Thr Glu Thr His Leu Pro
    130                 135                 140

Ala Gln
145


<210> 10041
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2011; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
      kinase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409713"

<400> 10041
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```
Met Leu Glu Ala His Met Gln Ser Tyr Lys Gly Asn Asp Pro Leu Gly
1               5                   10                  15

Glu Trp Glu Arg Tyr Ile Gln Trp Val Glu Glu Asn Phe Pro Glu Asn
            20                  25                  30

Lys Glu Tyr Leu Ile Thr Leu Leu Glu His Leu Met Lys Glu Phe Leu
        35                  40                  45

Asp Lys Lys Lys Tyr His Asn Asp Pro Arg Phe Ile Ser Tyr Cys Leu
    50                  55                  60

Lys Phe Ala Glu Tyr Asn Ser Asp Leu His Gln Phe Phe Glu Phe Leu
65                  70                  75                  80

Tyr Asn His Gly Ile Gly Thr Leu Ser Ser Pro Leu Tyr Ile Ala Trp
                85                  90                  95

Ala Gly His Leu Glu Ala Gln Gly Glu Leu Gln His Ala Ser Ala Val
            100                 105                 110

Leu Gln Arg Gly Ile Gln Asn Gln Ala Glu Pro Arg Glu Phe Leu Gln
        115                 120                 125

Gln Gln Tyr Arg Leu Phe
    130


<210> 10042
<211> 1065
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2011; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
      kinase; "

<220>
<221> source
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<223> /note="Uniprot ID: O43683; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441013"

<400> 10042
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Met Asp Thr Pro Glu Asn Val Leu Gln Tyr Ile Gln Trp Val Glu Glu
1               5                  10                  15

Asn Phe Pro Glu Asn Lys Glu Tyr Leu Ile Thr Leu Leu Glu His Leu
            20                  25                  30

Met Lys Glu Phe Leu Asp Lys Lys Lys Tyr His Asn Asp Pro Arg Phe
        35                  40                  45

Ile Ser Tyr Cys Leu Lys Phe Ala Glu Tyr Asn Ser Asp Leu His Gln
    50                  55                  60

Phe Phe Glu Phe Leu Tyr Asn His Gly Ile Gly Thr Leu Ser Ser Pro
65                  70                  75                  80

Leu Tyr Ile Ala Trp Ala Gly His Leu Glu Ala Gln Gly Glu Leu Gln
                85                  90                  95

His Ala Ser Ala Val Leu Gln Arg Gly Ile Gln Asn Gln Ala Glu Pro
            100                 105                 110

Arg Glu Phe Leu Gln Gln Gln Tyr Arg Leu Phe Gln Thr Arg Leu Thr
        115                 120                 125

Glu Thr His Leu Pro Ala Gln Ala Arg Thr Ser Glu Pro Leu His Asn
    130                 135                 140

Val Gln Val Leu Asn Gln Met Ile Thr Ser Lys Ser Asn Pro Gly Asn
145                 150                 155                 160

Asn Met Ala Cys Ile Ser Lys Asn Gln Gly Ser Glu Leu Ser Gly Val
                165                 170                 175

Ile Ser Ser Ala Cys Asp Lys Glu Ser Asn Met Glu Arg Arg Val Ile
            180                 185                 190

Thr Ile Ser Lys Ser Glu Tyr Ser Val His Ser Ser Leu Ala Ser Lys
        195                 200                 205
```

```
Val Asp Val Glu Gln Val Val Met Tyr Cys Lys Glu Lys Leu Ile Arg
    210                 215                 220

Gly Glu Ser Glu Phe Ser Phe Glu Glu Leu Arg Ala Gln Lys Tyr Asn
225                 230                 235                 240

Gln Arg Arg Lys His Glu Gln Trp Val Asn Glu Asp Arg His Tyr Met
                245                 250                 255

Lys Arg Lys Glu Ala Asn Ala Phe Glu Glu Gln Leu Leu Lys Gln Lys
            260                 265                 270

Met Asp Glu Leu His Lys Lys Leu His Gln Val Val Glu Thr Ser His
        275                 280                 285

Glu Asp Leu Pro Ala Ser Gln Glu Arg Ser Glu Val Asn Pro Ala Arg
    290                 295                 300

Met Gly Pro Ser Val Gly Ser Gln Gln Glu Leu Arg Ala Pro Cys Leu
305                 310                 315                 320

Pro Val Thr Tyr Gln Gln Thr Pro Val Asn Met Glu Lys Asn Pro Arg
                325                 330                 335

Glu Ala Pro Pro Val Val Pro Pro Leu Ala Asn Ala Ile Ser Ala Ala
            340                 345                 350

Leu Val Ser Pro Ala Thr Ser Gln Ser Ile Ala Pro Pro Val Pro Leu
        355                 360                 365

Lys Ala Gln Thr Val Thr Asp Ser Met Phe Ala Val Ala Ser Lys Asp
    370                 375                 380

Ala Gly Cys Val Asn Lys Ser Thr His Glu Phe Lys Pro Gln Ser Gly
385                 390                 395                 400

Ala Glu Ile Lys Glu Gly Cys Glu Thr His Lys Val Ala Asn Thr Ser
                405                 410                 415

Ser Phe His Thr Thr Pro Asn Thr Ser Leu Gly Met Val Gln Ala Thr
            420                 425                 430
```

```
Pro Ser Lys Val Gln Pro Ser Pro Thr Val His Thr Lys Glu Ala Leu
        435                 440                 445

Gly Phe Ile Met Asn Met Phe Gln Ala Pro Thr Leu Pro Asp Ile Ser
    450                 455                 460

Asp Asp Lys Asp Glu Trp Gln Ser Leu Asp Gln Asn Glu Asp Ala Phe
465                 470                 475                 480

Glu Ala Gln Phe Gln Lys Asn Val Arg Ser Ser Gly Ala Trp Gly Val
                485                 490                 495

Asn Lys Ile Ile Ser Ser Leu Ser Ser Ala Phe His Val Phe Glu Asp
            500                 505                 510

Gly Asn Lys Glu Asn Tyr Gly Leu Pro Gln Pro Lys Asn Lys Pro Thr
        515                 520                 525

Gly Ala Arg Thr Phe Gly Glu Arg Ser Val Ser Arg Leu Pro Ser Lys
    530                 535                 540

Pro Lys Glu Glu Val Pro His Ala Glu Glu Phe Leu Asp Asp Ser Thr
545                 550                 555                 560

Val Trp Gly Ile Arg Cys Asn Lys Thr Leu Ala Pro Ser Pro Lys Ser
                565                 570                 575

Pro Gly Asp Phe Thr Ser Ala Ala Gln Leu Ala Ser Thr Pro Phe His
            580                 585                 590

Lys Leu Pro Val Glu Ser Val His Ile Leu Glu Asp Lys Glu Asn Val
        595                 600                 605

Val Ala Lys Gln Cys Thr Gln Ala Thr Leu Asp Ser Cys Glu Glu Asn
    610                 615                 620

Met Val Val Pro Ser Arg Asp Gly Lys Phe Ser Pro Ile Gln Glu Lys
625                 630                 635                 640

Ser Pro Lys Gln Ala Leu Ser Ser His Met Tyr Ser Ala Ser Leu Leu
                645                 650                 655
```

```
Arg Leu Ser Gln Pro Ala Ala Gly Gly Val Leu Thr Cys Glu Ala Glu
            660                 665                 670

Leu Gly Val Glu Ala Cys Arg Leu Thr Asp Thr Asp Ala Ala Ile Ala
        675                 680                 685

Glu Asp Pro Pro Asp Ala Ile Ala Gly Leu Gln Ala Glu Trp Met Gln
    690                 695                 700

Met Ser Ser Leu Gly Thr Val Asp Ala Pro Asn Phe Ile Val Gly Asn
705                 710                 715                 720

Pro Trp Asp Asp Lys Leu Ile Phe Lys Leu Leu Ser Gly Leu Ser Lys
                725                 730                 735

Pro Val Ser Ser Tyr Pro Asn Thr Phe Glu Trp Gln Cys Lys Leu Pro
            740                 745                 750

Ala Ile Lys Pro Lys Thr Glu Phe Gln Leu Gly Ser Lys Leu Val Tyr
        755                 760                 765

Val His His Leu Leu Gly Glu Gly Ala Phe Ala Gln Val Tyr Glu Ala
    770                 775                 780

Thr Gln Gly Asp Leu Asn Asp Ala Lys Asn Lys Gln Lys Phe Val Leu
785                 790                 795                 800

Lys Val Gln Lys Pro Ala Asn Pro Trp Glu Phe Tyr Ile Gly Thr Gln
                805                 810                 815

Leu Met Glu Arg Leu Lys Pro Ser Met Gln His Met Phe Met Lys Phe
            820                 825                 830

Tyr Ser Ala His Leu Phe Gln Asn Gly Ser Val Leu Val Gly Glu Leu
        835                 840                 845

Tyr Ser Tyr Gly Thr Leu Leu Asn Ala Ile Asn Leu Tyr Lys Asn Thr
    850                 855                 860

Pro Glu Lys Val Met Pro Gln Gly Leu Val Ile Ser Phe Ala Met Arg
865                 870                 875                 880

Met Leu Tyr Met Ile Glu Gln Val His Asp Cys Glu Ile Ile His Gly
```

885 890 895

Asp Ile Lys Pro Asp Asn Phe Ile Leu Gly Asn Gly Phe Leu Glu Gln
900 905 910

Asp Asp Glu Asp Asp Leu Ser Ala Gly Leu Ala Leu Ile Asp Leu Gly
915 920 925

Gln Ser Ile Asp Met Lys Leu Phe Pro Lys Gly Thr Ile Phe Thr Ala
930 935 940

Lys Cys Glu Thr Ser Gly Phe Gln Cys Val Glu Met Leu Ser Asn Lys
945 950 955 960

Pro Trp Asn Tyr Gln Ile Asp Tyr Phe Gly Val Ala Ala Thr Val Tyr
965 970 975

Cys Met Leu Phe Gly Thr Tyr Met Lys Val Lys Asn Glu Gly Gly Glu
980 985 990

Cys Lys Pro Glu Gly Leu Phe Arg Arg Leu Pro His Leu Asp Met
Trp
995 1000 1005

Asn Glu Phe Phe His Val Met Leu Asn Ile Pro Asp Cys His His
1010 1015 1020

Leu Pro Ser Leu Asp Leu Leu Arg Gln Lys Leu Lys Lys Val Phe
1025 1030 1035

Gln Gln His Tyr Thr Asn Lys Ile Arg Ala Leu Arg Asn Arg Leu
1040 1045 1050

Ile Val Leu Leu Leu Glu Cys Lys Arg Ser Arg Lys
1055 1060 1065

<210> 10043
<211> 1050
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2012; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1B; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
      kinase B; "

<220>
<221> source
<223> /note="Uniprot ID: O60566; "

<220>
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<223> /note="ENSP ID: ENSP00000287598"

<400> 10043
Met Ala Ala Val Lys Lys Glu Gly Gly Ala Leu Ser Glu Ala Met Ser
1   5   10   15

Leu Glu Gly Asp Glu Trp Glu Leu Ser Lys Glu Asn Val Gln Pro Leu
            20   25   30

Arg Gln Gly Arg Ile Met Ser Thr Leu Gln Gly Ala Leu Ala Gln Glu
        35   40   45

Ser Ala Cys Asn Asn Thr Leu Gln Gln Gln Lys Arg Ala Phe Glu Tyr
    50   55   60

Glu Ile Arg Phe Tyr Thr Gly Asn Asp Pro Leu Asp Val Trp Asp Arg
65   70   75   80

Tyr Ile Ser Trp Thr Glu Gln Asn Tyr Pro Gln Gly Gly Lys Glu Ser
                85   90   95

Asn Met Ser Thr Leu Leu Glu Arg Ala Val Glu Ala Leu Gln Gly Glu
            100   105   110

Lys Arg Tyr Tyr Ser Asp Pro Arg Phe Leu Asn Leu Trp Leu Lys Leu
        115   120   125

Gly Arg Leu Cys Asn Glu Pro Leu Asp Met Tyr Ser Tyr Leu His Asn
    130   135   140

Gln Gly Ile Gly Val Ser Leu Ala Gln Phe Tyr Ile Ser Trp Ala Glu
145   150   155   160

Glu Tyr Glu Ala Arg Glu Asn Phe Arg Lys Ala Asp Ala Ile Phe Gln
165 170 175

Glu Gly Ile Gln Gln Lys Ala Glu Pro Leu Glu Arg Leu Gln Ser Gln
180 185 190

His Arg Gln Phe Gln Ala Arg Val Ser Arg Gln Thr Leu Leu Ala Leu
195 200 205

Glu Lys Glu Glu Glu Glu Glu Val Phe Glu Ser Ser Val Pro Gln Arg
210 215 220

Ser Thr Leu Ala Glu Leu Lys Ser Lys Gly Lys Lys Thr Ala Arg Ala
225 230 235 240

Pro Ile Ile Arg Val Gly Gly Ala Leu Lys Ala Pro Ser Gln Asn Arg
245 250 255

Gly Leu Gln Asn Pro Phe Pro Gln Gln Met Gln Asn Asn Ser Arg Ile
260 265 270

Thr Val Phe Asp Glu Asn Ala Asp Glu Ala Ser Thr Ala Glu Leu Ser
275 280 285

Lys Pro Thr Val Gln Pro Trp Ile Ala Pro Pro Met Pro Arg Ala Lys
290 295 300

Glu Asn Glu Leu Gln Ala Gly Pro Trp Asn Thr Gly Arg Ser Leu Glu
305 310 315 320

His Arg Pro Arg Gly Asn Thr Ala Ser Leu Ile Ala Val Pro Ala Val
325 330 335

Leu Pro Ser Phe Thr Pro Tyr Val Glu Glu Thr Ala Arg Gln Pro Val
340 345 350

Met Thr Pro Cys Lys Ile Glu Pro Ser Ile Asn His Ile Leu Ser Thr
355 360 365

Arg Lys Pro Gly Lys Glu Glu Gly Asp Pro Leu Gln Arg Val Gln Ser
370 375 380

```
His Gln Gln Ala Ser Glu Glu Lys Lys Glu Lys Met Met Tyr Cys Lys
385                 390                 395                 400

Glu Lys Ile Tyr Ala Gly Val Gly Glu Phe Ser Phe Glu Glu Ile Arg
                405                 410                 415

Ala Glu Val Phe Arg Lys Lys Leu Lys Glu Gln Arg Glu Ala Glu Leu
            420                 425                 430

Leu Thr Ser Ala Glu Lys Arg Ala Glu Met Gln Lys Gln Ile Glu Glu
        435                 440                 445

Met Glu Lys Lys Leu Lys Glu Ile Gln Thr Thr Gln Gln Glu Arg Thr
    450                 455                 460

Gly Asp Gln Gln Glu Glu Thr Met Pro Thr Lys Glu Thr Thr Lys Leu
465                 470                 475                 480

Gln Ile Ala Ser Glu Ser Gln Lys Ile Pro Gly Met Thr Leu Ser Ser
                485                 490                 495

Ser Val Cys Gln Val Asn Cys Cys Ala Arg Glu Thr Ser Leu Ala Glu
            500                 505                 510

Asn Ile Trp Gln Glu Gln Pro His Ser Lys Gly Pro Ser Val Pro Phe
        515                 520                 525

Ser Ile Phe Asp Glu Phe Leu Leu Ser Glu Lys Lys Asn Lys Ser Pro
    530                 535                 540

Pro Ala Asp Pro Pro Arg Val Leu Ala Gln Arg Arg Pro Leu Ala Val
545                 550                 555                 560

Leu Lys Thr Ser Glu Ser Ile Thr Ser Asn Glu Asp Val Ser Pro Asp
                565                 570                 575

Val Cys Asp Glu Phe Thr Gly Ile Glu Pro Leu Ser Glu Asp Ala Ile
            580                 585                 590

Ile Thr Gly Phe Arg Asn Val Thr Ile Cys Pro Asn Pro Glu Asp Thr
        595                 600                 605
```

```
Cys Asp Phe Ala Arg Ala Ala Arg Phe Val Ser Thr Pro Phe His Glu
    610                 615                 620

Ile Met Ser Leu Lys Asp Leu Pro Ser Asp Pro Glu Arg Leu Leu Pro
625                 630                 635                 640

Glu Glu Asp Leu Asp Val Lys Thr Ser Glu Asp Gln Gln Thr Ala Cys
                645                 650                 655

Gly Thr Ile Tyr Ser Gln Thr Leu Ser Ile Lys Lys Leu Ser Pro Ile
            660                 665                 670

Ile Glu Asp Ser Arg Glu Ala Thr His Ser Ser Gly Phe Ser Gly Ser
        675                 680                 685

Ser Ala Ser Val Ala Ser Thr Ser Ser Ile Lys Cys Leu Gln Ile Pro
    690                 695                 700

Glu Lys Leu Glu Leu Thr Asn Glu Thr Ser Glu Asn Pro Thr Gln Ser
705                 710                 715                 720

Pro Trp Cys Ser Gln Tyr Arg Arg Gln Leu Leu Lys Ser Leu Pro Glu
                725                 730                 735

Leu Ser Ala Ser Ala Glu Leu Cys Ile Glu Asp Arg Pro Met Pro Lys
            740                 745                 750

Leu Glu Ile Glu Lys Glu Ile Glu Leu Gly Asn Glu Asp Tyr Cys Ile
        755                 760                 765

Lys Arg Glu Tyr Leu Ile Cys Glu Asp Tyr Lys Leu Phe Trp Val Ala
    770                 775                 780

Pro Arg Asn Ser Ala Glu Leu Thr Val Ile Lys Val Ser Ser Gln Pro
785                 790                 795                 800

Val Pro Trp Asp Phe Tyr Ile Asn Leu Lys Leu Lys Glu Arg Leu Asn
                805                 810                 815

Glu Asp Phe Asp His Phe Cys Ser Cys Tyr Gln Tyr Gln Asp Gly Cys
            820                 825                 830

Ile Val Trp His Gln Tyr Ile Asn Cys Phe Thr Leu Gln Asp Leu Leu
```

835 840 845

Gln His Ser Glu Tyr Ile Thr His Glu Ile Thr Val Leu Ile Ile Tyr
850 855 860

Asn Leu Leu Thr Ile Val Glu Met Leu His Lys Ala Glu Ile Val His
865 870 875 880

Gly Asp Leu Ser Pro Arg Cys Leu Ile Leu Arg Asn Arg Ile His Asp
885 890 895

Pro Tyr Asp Cys Asn Lys Asn Asn Gln Ala Leu Lys Ile Val Asp Phe
900 905 910

Ser Tyr Ser Val Asp Leu Arg Val Gln Leu Asp Val Phe Thr Leu Ser
915 920 925

Gly Phe Arg Thr Val Gln Ile Leu Glu Gly Gln Lys Ile Leu Ala Asn
930 935 940

Cys Ser Ser Pro Tyr Gln Val Asp Leu Phe Gly Ile Ala Asp Leu Ala
945 950 955 960

His Leu Leu Leu Phe Lys Glu His Leu Gln Val Phe Trp Asp Gly Ser
965 970 975

Phe Trp Lys Leu Ser Gln Asn Ile Ser Glu Leu Lys Asp Gly Glu Leu
980 985 990

Trp Asn Lys Phe Phe Val Arg Ile Leu Asn Ala Asn Asp Glu Ala
Thr
995 1000 1005

Val Ser Val Leu Gly Glu Leu Ala Ala Glu Met Asn Gly Val Phe
1010 1015 1020

Asp Thr Thr Phe Gln Ser His Leu Asn Lys Ala Leu Trp Lys Val
1025 1030 1035

Gly Lys Leu Thr Ser Pro Gly Ala Leu Leu Phe Gln
1040 1045 1050

<210> 10044

<211> 1064
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2012; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1B; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
kinase B; "

<220>
<221> source
<223> /note="Uniprot ID: O60566; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398470"

<400> 10044
Met Ala Ala Val Lys Lys Glu Gly Gly Ala Leu Ser Glu Ala Met Ser
1 5 10 15

Leu Glu Gly Asp Glu Trp Glu Leu Ser Lys Glu Asn Val Gln Pro Leu
20 25 30

Arg Gln Gly Arg Ile Met Ser Thr Leu Gln Gly Ala Leu Ala Gln Glu
35 40 45

Ser Ala Cys Asn Asn Thr Leu Gln Gln Gln Lys Arg Ala Phe Glu Tyr
50 55 60

Glu Ile Arg Phe Tyr Thr Gly Asn Asp Pro Leu Asp Val Trp Asp Arg
65 70 75 80

Trp Val Phe Leu Phe His Lys Asp Asn Arg Asn Ile Asn Arg Tyr Ile
85 90 95

Ser Trp Thr Glu Gln Asn Tyr Pro Gln Gly Gly Lys Glu Ser Asn Met
100 105 110

Ser Thr Leu Leu Glu Arg Ala Val Glu Ala Leu Gln Gly Glu Lys Arg
115 120 125

```
Tyr Tyr Ser Asp Pro Arg Phe Leu Asn Leu Trp Leu Lys Leu Gly Arg
    130                 135                 140

Leu Cys Asn Glu Pro Leu Asp Met Tyr Ser Tyr Leu His Asn Gln Gly
145                 150                 155                 160

Ile Gly Val Ser Leu Ala Gln Phe Tyr Ile Ser Trp Ala Glu Glu Tyr
                165                 170                 175

Glu Ala Arg Glu Asn Phe Arg Lys Ala Asp Ala Ile Phe Gln Glu Gly
            180                 185                 190

Ile Gln Gln Lys Ala Glu Pro Leu Glu Arg Leu Gln Ser Gln His Arg
        195                 200                 205

Gln Phe Gln Ala Arg Val Ser Arg Gln Thr Leu Leu Ala Leu Glu Lys
    210                 215                 220

Glu Glu Glu Glu Glu Val Phe Glu Ser Ser Val Pro Gln Arg Ser Thr
225                 230                 235                 240

Leu Ala Glu Leu Lys Ser Lys Gly Lys Lys Thr Ala Arg Ala Pro Ile
                245                 250                 255

Ile Arg Val Gly Gly Ala Leu Lys Ala Pro Ser Gln Asn Arg Gly Leu
            260                 265                 270

Gln Asn Pro Phe Pro Gln Gln Met Gln Asn Asn Ser Arg Ile Thr Val
        275                 280                 285

Phe Asp Glu Asn Ala Asp Glu Ala Ser Thr Ala Glu Leu Ser Lys Pro
    290                 295                 300

Thr Val Gln Pro Trp Ile Ala Pro Pro Met Pro Arg Ala Lys Glu Asn
305                 310                 315                 320

Glu Leu Gln Ala Gly Pro Trp Asn Thr Gly Arg Ser Leu Glu His Arg
                325                 330                 335

Pro Arg Gly Asn Thr Ala Ser Leu Ile Ala Val Pro Ala Val Leu Pro
            340                 345                 350
```

```
Ser Phe Thr Pro Tyr Val Glu Glu Thr Ala Arg Gln Pro Val Met Thr
        355                 360                 365

Pro Cys Lys Ile Glu Pro Ser Ile Asn His Ile Leu Ser Thr Arg Lys
    370                 375                 380

Pro Gly Lys Glu Glu Gly Asp Pro Leu Gln Arg Val Gln Ser His Gln
385                 390                 395                 400

Gln Ala Ser Glu Glu Lys Lys Glu Lys Met Met Tyr Cys Lys Glu Lys
                405                 410                 415

Ile Tyr Ala Gly Val Gly Glu Phe Ser Phe Glu Glu Ile Arg Ala Glu
            420                 425                 430

Val Phe Arg Lys Lys Leu Lys Glu Gln Arg Glu Ala Glu Leu Leu Thr
        435                 440                 445

Ser Ala Glu Lys Arg Ala Glu Met Gln Lys Gln Ile Glu Glu Met Glu
    450                 455                 460

Lys Lys Leu Lys Glu Ile Gln Thr Thr Gln Gln Glu Arg Thr Gly Asp
465                 470                 475                 480

Gln Gln Glu Glu Thr Met Pro Thr Lys Glu Thr Thr Lys Leu Gln Ile
                485                 490                 495

Ala Ser Glu Ser Gln Lys Ile Pro Gly Met Thr Leu Ser Ser Ser Val
            500                 505                 510

Cys Gln Val Asn Cys Cys Ala Arg Glu Thr Ser Leu Ala Glu Asn Ile
        515                 520                 525

Trp Gln Glu Gln Pro His Ser Lys Gly Pro Ser Val Pro Phe Ser Ile
    530                 535                 540

Phe Asp Glu Phe Leu Leu Ser Glu Lys Lys Asn Lys Ser Pro Pro Ala
545                 550                 555                 560

Asp Pro Pro Arg Val Leu Ala Gln Arg Arg Pro Leu Ala Val Leu Lys
                565                 570                 575
```

```
Thr Ser Glu Ser Ile Thr Ser Asn Glu Asp Val Ser Pro Asp Val Cys
            580                 585                 590

Asp Glu Phe Thr Gly Ile Glu Pro Leu Ser Glu Asp Ala Ile Ile Thr
        595                 600                 605

Gly Phe Arg Asn Val Thr Ile Cys Pro Asn Pro Glu Asp Thr Cys Asp
    610                 615                 620

Phe Ala Arg Ala Ala Arg Phe Val Ser Thr Pro Phe His Glu Ile Met
625                 630                 635                 640

Ser Leu Lys Asp Leu Pro Ser Asp Pro Glu Arg Leu Leu Pro Glu Glu
                645                 650                 655

Asp Leu Asp Val Lys Thr Ser Glu Asp Gln Gln Thr Ala Cys Gly Thr
            660                 665                 670

Ile Tyr Ser Gln Thr Leu Ser Ile Lys Lys Leu Ser Pro Ile Ile Glu
        675                 680                 685

Asp Ser Arg Glu Ala Thr His Ser Ser Gly Phe Ser Gly Ser Ser Ala
    690                 695                 700

Ser Val Ala Ser Thr Ser Ser Ile Lys Cys Leu Gln Ile Pro Glu Lys
705                 710                 715                 720

Leu Glu Leu Thr Asn Glu Thr Ser Glu Asn Pro Thr Gln Ser Pro Trp
                725                 730                 735

Cys Ser Gln Tyr Arg Arg Gln Leu Leu Lys Ser Leu Pro Glu Leu Ser
            740                 745                 750

Ala Ser Ala Glu Leu Cys Ile Glu Asp Arg Pro Met Pro Lys Leu Glu
        755                 760                 765

Ile Glu Lys Glu Ile Glu Leu Gly Asn Glu Asp Tyr Cys Ile Lys Arg
    770                 775                 780

Glu Tyr Leu Ile Cys Glu Asp Tyr Lys Leu Phe Trp Val Ala Pro Arg
785                 790                 795                 800

Asn Ser Ala Glu Leu Thr Val Ile Lys Val Ser Ser Gln Pro Val Pro
```

805 810 815

Trp Asp Phe Tyr Ile Asn Leu Lys Leu Lys Glu Arg Leu Asn Glu Asp
820 825 830

Phe Asp His Phe Cys Ser Cys Tyr Gln Tyr Gln Asp Gly Cys Ile Val
835 840 845

Trp His Gln Tyr Ile Asn Cys Phe Thr Leu Gln Asp Leu Leu Gln His
850 855 860

Ser Glu Tyr Ile Thr His Glu Ile Thr Val Leu Ile Ile Tyr Asn Leu
865 870 875 880

Leu Thr Ile Val Glu Met Leu His Lys Ala Glu Ile Val His Gly Asp
885 890 895

Leu Ser Pro Arg Cys Leu Ile Leu Arg Asn Arg Ile His Asp Pro Tyr
900 905 910

Asp Cys Asn Lys Asn Asn Gln Ala Leu Lys Ile Val Asp Phe Ser Tyr
915 920 925

Ser Val Asp Leu Arg Val Gln Leu Asp Val Phe Thr Leu Ser Gly Phe
930 935 940

Arg Thr Val Gln Ile Leu Glu Gly Gln Lys Ile Leu Ala Asn Cys Ser
945 950 955 960

Ser Pro Tyr Gln Val Asp Leu Phe Gly Ile Ala Asp Leu Ala His Leu
965 970 975

Leu Leu Phe Lys Glu His Leu Gln Val Phe Trp Asp Gly Ser Phe Trp
980 985 990

Lys Leu Ser Gln Asn Ile Ser Glu Leu Lys Asp Gly Glu Leu Trp
Asn
995 1000 1005

Lys Phe Phe Val Arg Ile Leu Asn Ala Asn Asp Glu Ala Thr Val
1010 1015 1020

Ser Val Leu Gly Glu Leu Ala Ala Glu Met Asn Gly Val Phe Asp

1025 1030 1035

Thr Thr Phe Gln Ser His Leu Asn Lys Ala Leu Trp Lys Val Gly
1040 1045 1050

Lys Leu Thr Ser Pro Gly Ala Leu Leu Phe Gln
1055 1060

<210> 10045
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2012; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1B; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint serine/threonine
kinase B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453643"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10045
Xaa Gln Phe Gln Ala Arg Val Ser Arg Gln Thr Leu Leu Ala Leu Glu
1 5 10 15

Lys Glu Glu Glu Glu Glu Val Phe Glu Ser Ser Val Pro Gln Arg Ser
20 25 30

Thr Leu Ala Glu Leu Lys Ser Lys Gly Lys Lys Thr Ala Arg Ala Pro
35 40 45

Ile Ile Arg Val Gly Gly Ala Leu Lys Gly His His Val Lys Leu Asn
50 55 60

Leu Val
65

<210> 10046
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2012; "

<220>
<221> source
<223> /note="Gene Symbol: BUB1B; "

<220>
<221> source
<223> /note="Gene Name: BUB1 mitotic checkpoint
serine/threonine
      kinase B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453861"

<400> 10046
Met Ala Ala Val Lys Lys Glu Gly Gly Ala Leu Ser Glu Ala Met Ser
1   5   10   15

Leu Glu Gly Asp Glu Trp Glu Leu Ser Lys Glu Asn Val Gln Pro Leu
            20   25   30

Arg Gln Gly Arg Ile Met Ser Thr Leu Gln Gly Ala Leu Ala Gln Glu
        35   40   45

Ser Ala Cys Asn Asn Thr Leu Gln Gln Gln Lys Arg Asp Gly Val Ser
    50   55   60

Leu Phe Arg Pro Gly Trp Ser Ala Val Ala Arg Ser Trp Leu Thr Gly
65   70   75   80

Ser Ser Ala Ser Trp Val His Ala Asn Leu Leu Pro Gln Pro Pro Glu
                85   90   95

<210> 10047
<211> 326
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2013; "

<220>
<221> source
<223> /note="Gene Symbol: BUB3; "

<220>
<221> source
<223> /note="Gene Name: BUB3 mitotic checkpoint prt; "

<220>
<221> source
<223> /note="Uniprot ID: O43684; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357851"

<400> 10047
Met Thr Gly Ser Asn Glu Phe Lys Leu Asn Gln Pro Pro Glu Asp Gly
1   5   10   15

Ile Ser Ser Val Lys Phe Ser Pro Asn Thr Ser Gln Phe Leu Leu Val
            20   25   30

Ser Ser Trp Asp Thr Ser Val Arg Leu Tyr Asp Val Pro Ala Asn Ser
        35   40   45

Met Arg Leu Lys Tyr Gln His Thr Gly Ala Val Leu Asp Cys Ala Phe
    50   55   60

Tyr Asp Pro Thr His Ala Trp Ser Gly Gly Leu Asp His Gln Leu Lys
65   70   75   80

Met His Asp Leu Asn Thr Asp Gln Glu Asn Leu Val Gly Thr His Asp
                85   90   95

Ala Pro Ile Arg Cys Val Glu Tyr Cys Pro Glu Val Asn Val Met Val
            100   105   110

Thr Gly Ser Trp Asp Gln Thr Val Lys Leu Trp Asp Pro Arg Thr Pro
        115   120   125

Cys Asn Ala Gly Thr Phe Ser Gln Pro Glu Lys Val Tyr Thr Leu Ser
    130   135   140

```
Val Ser Gly Asp Arg Leu Ile Val Gly Thr Ala Gly Arg Arg Val Leu
145                 150                 155                 160

Val Trp Asp Leu Arg Asn Met Gly Tyr Val Gln Gln Arg Arg Glu Ser
                165                 170                 175

Ser Leu Lys Tyr Gln Thr Arg Cys Ile Arg Ala Phe Pro Asn Lys Gln
            180                 185                 190

Gly Tyr Val Leu Ser Ser Ile Glu Gly Arg Val Ala Val Glu Tyr Leu
        195                 200                 205

Asp Pro Ser Pro Glu Val Gln Lys Lys Lys Tyr Ala Phe Lys Cys His
    210                 215                 220

Arg Leu Lys Glu Asn Asn Ile Glu Gln Ile Tyr Pro Val Asn Ala Ile
225                 230                 235                 240

Ser Phe His Asn Ile His Asn Thr Phe Ala Thr Gly Gly Ser Asp Gly
                245                 250                 255

Phe Val Asn Ile Trp Asp Pro Phe Asn Lys Lys Arg Leu Cys Gln Phe
            260                 265                 270

His Arg Tyr Pro Thr Ser Ile Ala Ser Leu Ala Phe Ser Asn Asp Gly
        275                 280                 285

Thr Thr Leu Ala Ile Ala Ser Ser Tyr Met Tyr Glu Met Asp Asp Thr
    290                 295                 300

Glu His Pro Glu Asp Gly Ile Phe Ile Arg Gln Val Thr Asp Ala Glu
305                 310                 315                 320

Thr Lys Pro Lys Ser Thr
                325
```

<210> 10048
<211> 145
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2013; "

<220>
<221> source
<223> /note="Gene Symbol: BUB3; "

<220>
<221> source
<223> /note="Gene Name: BUB3 mitotic checkpoint prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357852"

<400> 10048
Met Thr Gly Ser Asn Glu Phe Lys Leu Asn Gln Pro Pro Glu Asp Gly
1   5   10   15

Ile Ser Ser Val Lys Phe Ser Pro Asn Thr Ser Gln Phe Leu Leu Val
            20   25   30

Ser Ser Trp Asp Thr Ser Val Arg Leu Tyr Asp Val Pro Ala Asn Ser
        35   40   45

Met Arg Leu Lys Tyr Gln His Thr Gly Ala Val Leu Asp Cys Ala Phe
    50   55   60

Tyr Asp Pro Thr His Ala Trp Ser Gly Gly Leu Asp His Gln Leu Lys
65   70   75   80

Met His Asp Leu Asn Thr Asp Gln Glu Asn Leu Val Gly Thr His Asp
                85   90   95

Ala Pro Ile Arg Cys Val Glu Tyr Cys Pro Glu Val Asn Val Met Val
            100   105   110

Thr Gly Ser Trp Asp Gln Thr Val Lys Leu Trp Asp Pro Arg Thr Pro
        115   120   125

Cys Asn Ala Gly Thr Phe Ser Gln Pro Glu Lys Val His Leu Ile Ile
    130   135   140

Leu
145

<210> 10049
<211> 328
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2013; "

<220>
<221> source
<223> /note="Gene Symbol: BUB3; "

<220>
<221> source
<223> /note="Gene Name: BUB3 mitotic checkpoint prt; "

<220>
<221> source
<223> /note="Uniprot ID: O43684; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000357858"

<400> 10049
Met Thr Gly Ser Asn Glu Phe Lys Leu Asn Gln Pro Pro Glu Asp Gly
1   5   10   15

Ile Ser Ser Val Lys Phe Ser Pro Asn Thr Ser Gln Phe Leu Leu Val
            20   25   30

Ser Ser Trp Asp Thr Ser Val Arg Leu Tyr Asp Val Pro Ala Asn Ser
        35   40   45

Met Arg Leu Lys Tyr Gln His Thr Gly Ala Val Leu Asp Cys Ala Phe
    50   55   60

Tyr Asp Pro Thr His Ala Trp Ser Gly Gly Leu Asp His Gln Leu Lys
65   70   75   80

Met His Asp Leu Asn Thr Asp Gln Glu Asn Leu Val Gly Thr His Asp
                85   90   95

Ala Pro Ile Arg Cys Val Glu Tyr Cys Pro Glu Val Asn Val Met Val
            100   105   110

Thr Gly Ser Trp Asp Gln Thr Val Lys Leu Trp Asp Pro Arg Thr Pro
        115   120   125

Cys Asn Ala Gly Thr Phe Ser Gln Pro Glu Lys Val Tyr Thr Leu Ser
    130   135   140

```
Val Ser Gly Asp Arg Leu Ile Val Gly Thr Ala Gly Arg Arg Val Leu
145                 150                 155                 160

Val Trp Asp Leu Arg Asn Met Gly Tyr Val Gln Gln Arg Arg Glu Ser
                165                 170                 175

Ser Leu Lys Tyr Gln Thr Arg Cys Ile Arg Ala Phe Pro Asn Lys Gln
            180                 185                 190

Gly Tyr Val Leu Ser Ser Ile Glu Gly Arg Val Ala Val Glu Tyr Leu
        195                 200                 205

Asp Pro Ser Pro Glu Val Gln Lys Lys Lys Tyr Ala Phe Lys Cys His
    210                 215                 220

Arg Leu Lys Glu Asn Asn Ile Glu Gln Ile Tyr Pro Val Asn Ala Ile
225                 230                 235                 240

Ser Phe His Asn Ile His Asn Thr Phe Ala Thr Gly Gly Ser Asp Gly
                245                 250                 255

Phe Val Asn Ile Trp Asp Pro Phe Asn Lys Lys Arg Leu Cys Gln Phe
            260                 265                 270

His Arg Tyr Pro Thr Ser Ile Ala Ser Leu Ala Phe Ser Asn Asp Gly
        275                 280                 285

Thr Thr Leu Ala Ile Ala Ser Ser Tyr Met Tyr Glu Met Asp Asp Thr
    290                 295                 300

Glu His Pro Glu Asp Gly Ile Phe Ile Arg Gln Val Thr Asp Ala Glu
305                 310                 315                 320

Thr Lys Pro Lys Ser Pro Cys Thr
                325
```

<210> 10050
<211> 278
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2013; "

<220>
<221> source
<223> /note="Gene Symbol: BUB3; "

<220>
<221> source
<223> /note="Gene Name: BUB3 mitotic checkpoint prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000383941"

<400> 10050
Met Thr Gly Ser Asn Glu Phe Lys Leu Asn Gln Pro Pro Glu Asp Gly
1   5   10   15

Ile Ser Ser Val Lys Phe Ser Pro Asn Thr Ser Gln Phe Leu Leu Val
            20   25   30

Ser Ser Trp Asp Thr Ser Val Arg Leu Tyr Asp Val Pro Ala Asn Ser
        35   40   45

Met Arg Leu Lys Tyr Gln His Thr Gly Ala Val Leu Asp Cys Ala Phe
    50   55   60

Tyr Asp Pro Thr His Ala Trp Ser Gly Gly Leu Asp His Gln Leu Lys
65   70   75   80

Met His Asp Leu Asn Thr Asp Gln Glu Asn Leu Val Gly Thr His Asp
                85   90   95

Ala Pro Ile Arg Cys Val Glu Tyr Cys Pro Glu Val Asn Val Met Val
            100   105   110

Thr Gly Ser Trp Asp Gln Thr Val Lys Leu Trp Asp Pro Arg Thr Pro
        115   120   125

Cys Asn Ala Gly Thr Phe Ser Gln Pro Glu Lys Val Tyr Thr Leu Ser
    130   135   140

Val Ser Gly Asp Arg Leu Ile Val Gly Thr Ala Gly Arg Arg Val Leu
145   150   155   160

Val Trp Asp Leu Arg Asn Met Gly Tyr Val Gln Gln Arg Arg Glu Ser
                165   170   175

```
Ser Leu Lys Tyr Gln Thr Arg Cys Ile Arg Ala Phe Pro Asn Lys Gln
            180                 185                 190

Gly Tyr Val Leu Ser Ser Ile Glu Gly Arg Val Ala Val Glu Tyr Leu
        195                 200                 205

Asp Pro Ser Pro Glu Val Gln Lys Lys Lys Tyr Ala Phe Lys Cys His
    210                 215                 220

Arg Leu Lys Glu Asn Asn Ile Glu Gln Ile Tyr Pro Val Asn Ala Ile
225                 230                 235                 240

Ser Phe His Asn Ile His Asn Thr Phe Ala Thr Gly Gly Ser Asp Gly
                245                 250                 255

Phe Val Asn Ile Trp Asp Pro Phe Asn Lys Lys Arg Leu Cys Gln Phe
            260                 265                 270

His Arg Tyr Pro Thr Ser
        275


<210> 10051
<211> 619
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2014; "

<220>
<221> source
<223> /note="Gene Symbol: BUD13; "

<220>
<221> source
<223> /note="Gene Name: BUD13 homolog; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BRD0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260210"

<400> 10051
Met Ala Ala Ala Pro Pro Leu Ser Lys Ala Glu Tyr Leu Lys Arg Tyr
1               5                   10                  15
```

```
Leu Ser Gly Ala Asp Ala Gly Val Asp Arg Gly Ser Glu Ser Gly Arg
            20                  25                  30

Lys Arg Arg Lys Lys Arg Pro Lys Pro Gly Gly Ala Gly Gly Lys Gly
        35                  40                  45

Met Arg Ile Val Asp Asp Asp Val Ser Trp Thr Ala Ile Ser Thr Thr
    50                  55                  60

Lys Leu Glu Lys Glu Glu Glu Glu Asp Asp Gly Asp Leu Pro Val Val
65                  70                  75                  80

Ala Glu Phe Val Asp Glu Arg Pro Glu Glu Val Lys Gln Met Glu Ala
                85                  90                  95

Phe Arg Ser Ser Ala Lys Trp Lys Leu Leu Gly Gly His Asn Glu Asp
            100                 105                 110

Leu Pro Ser Asn Arg His Phe Arg His Asp Thr Pro Asp Ser Ser Pro
        115                 120                 125

Arg Arg Val Arg His Gly Thr Pro Asp Pro Ser Pro Arg Lys Asp Arg
    130                 135                 140

His Asp Thr Pro Asp Pro Ser Pro Arg Arg Ala Arg His Asp Thr Pro
145                 150                 155                 160

Asp Pro Ser Pro Leu Arg Gly Ala Arg His Asp Ser Asp Thr Ser Pro
                165                 170                 175

Pro Arg Arg Ile Arg His Asp Ser Ser Asp Thr Ser Pro Pro Arg Arg
            180                 185                 190

Ala Arg His Asp Ser Pro Asp Pro Ser Pro Pro Arg Arg Pro Gln His
        195                 200                 205

Asn Ser Ser Gly Ala Ser Pro Arg Arg Val Arg His Asp Ser Pro Asp
    210                 215                 220

Pro Ser Pro Pro Arg Arg Ala Arg His Gly Ser Ser Asp Ile Ser Ser
225                 230                 235                 240
```

```
Pro Arg Arg Val His Asn Asn Ser Pro Asp Thr Ser Arg Arg Thr Leu
                245                 250                 255

Gly Ser Ser Asp Thr Gln Gln Leu Arg Arg Ala Arg His Asp Ser Pro
            260                 265                 270

Asp Leu Ala Pro Asn Val Thr Tyr Ser Leu Pro Arg Thr Lys Ser Gly
        275                 280                 285

Lys Ala Pro Glu Arg Ala Ser Ser Lys Thr Ser Pro His Trp Lys Glu
    290                 295                 300

Ser Gly Ala Ser His Leu Ser Phe Pro Lys Asn Ser Lys Tyr Glu Tyr
305                 310                 315                 320

Asp Pro Asp Ile Ser Pro Pro Arg Lys Lys Gln Ala Lys Ser His Phe
                325                 330                 335

Gly Asp Lys Lys Gln Leu Asp Ser Lys Gly Asp Cys Gln Lys Ala Thr
            340                 345                 350

Asp Ser Asp Leu Ser Ser Pro Arg His Lys Gln Ser Pro Gly His Gln
        355                 360                 365

Asp Ser Asp Ser Asp Leu Ser Pro Pro Arg Asn Arg Pro Arg His Arg
    370                 375                 380

Ser Ser Asp Ser Asp Leu Ser Pro Pro Arg Arg Arg Gln Arg Thr Lys
385                 390                 395                 400

Ser Ser Asp Ser Asp Leu Ser Pro Pro Arg Arg Ser Gln Pro Pro Gly
                405                 410                 415

Lys Lys Ala Ala His Met Tyr Ser Gly Ala Lys Thr Gly Leu Val Leu
            420                 425                 430

Thr Asp Ile Gln Arg Glu Gln Gln Glu Leu Lys Glu Gln Asp Gln Glu
        435                 440                 445

Thr Met Ala Phe Glu Ala Glu Phe Gln Tyr Ala Glu Thr Val Phe Arg
    450                 455                 460
```

```
Asp Lys Ser Gly Arg Lys Arg Asn Leu Lys Leu Glu Arg Leu Glu Gln
465                 470                 475                 480

Arg Arg Lys Ala Glu Lys Asp Ser Glu Arg Asp Glu Leu Tyr Ala Gln
                485                 490                 495

Trp Gly Lys Gly Leu Ala Gln Ser Arg Gln Gln Gln Gln Asn Val Glu
            500                 505                 510

Asp Ala Met Lys Glu Met Gln Lys Pro Leu Ala Arg Tyr Ile Asp Asp
        515                 520                 525

Glu Asp Leu Asp Arg Met Leu Arg Glu Gln Glu Arg Glu Gly Asp Pro
    530                 535                 540

Met Ala Asn Phe Ile Lys Lys Asn Lys Ala Lys Glu Asn Lys Asn Lys
545                 550                 555                 560

Lys Val Arg Pro Arg Tyr Ser Gly Pro Ala Pro Pro Pro Asn Arg Phe
                565                 570                 575

Asn Ile Trp Pro Gly Tyr Arg Trp Asp Gly Val Asp Arg Ser Asn Gly
            580                 585                 590

Phe Glu Gln Lys Arg Phe Ala Arg Leu Ala Ser Lys Lys Ala Val Glu
        595                 600                 605

Glu Leu Ala Tyr Lys Trp Ser Val Glu Asp Met
    610                 615


<210> 10052
<211> 485
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2014; "

<220>
<221> source
<223> /note="Gene Symbol: BUD13; "

<220>
<221> source
<223> /note="Gene Name: BUD13 homolog; "
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<220>
<221> source
<223> /note="Uniprot ID: Q9BRD0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364594"

<400> 10052
Met Ala Ala Ala Pro Pro Leu Ser Lys Ala Glu Tyr Leu Lys Arg Tyr
1   5   10   15

Leu Ser Gly Ala Asp Ala Gly Val Asp Arg Gly Ser Glu Ser Gly Arg
            20   25   30

Lys Arg Arg Lys Lys Arg Pro Lys Pro Gly Gly Ala Gly Gly Lys Gly
        35   40   45

Met Arg Ile Val Asp Asp Asp Val Ser Trp Thr Ala Ile Ser Thr Thr
    50   55   60

Lys Leu Glu Lys Glu Glu Glu Glu Asp Asp Gly Asp Leu Pro Val Val
65   70   75   80

Ala Glu Phe Val Asp Glu Arg Pro Glu Glu Val Lys Gln Met Glu Ala
                85   90   95

Phe Arg Ser Ser Ala Lys Trp Lys Leu Leu Gly Gly His Asn Glu Asp
            100   105   110

Leu Pro Ser Asn Arg His Phe Arg His Asp Thr Pro Asp Ser Ser Pro
        115   120   125

Arg Arg Val Arg His Gly Thr Pro Asp Pro Ser Pro Arg Lys Asp Arg
    130   135   140

His Asp Thr Pro Asp Pro Ser Pro Arg Arg Ala Arg His Asp Thr Pro
145   150   155   160

Asp Pro Ser Pro Leu Arg Gly Ala Arg His Asp Ser Asp Thr Ser Pro
                165   170   175

Pro Arg Arg Ile Arg His Asp Ser Ser Asp Thr Ser Pro Pro Arg Arg
            180   185   190

```
Ala Arg His Asp Ser Pro Asp Pro Ser Pro Pro Arg Arg Pro Gln His
        195                 200                 205

Asn Ser Ser Gly Asp Cys Gln Lys Ala Thr Asp Ser Asp Leu Ser Ser
    210                 215                 220

Pro Arg His Lys Gln Ser Pro Gly His Gln Asp Ser Asp Ser Asp Leu
225                 230                 235                 240

Ser Pro Pro Arg Asn Arg Pro Arg His Arg Ser Ser Asp Ser Asp Leu
                245                 250                 255

Ser Pro Pro Arg Arg Arg Gln Arg Thr Lys Ser Ser Asp Ser Asp Leu
            260                 265                 270

Ser Pro Pro Arg Arg Ser Gln Pro Pro Gly Lys Lys Ala Ala His Met
        275                 280                 285

Tyr Ser Gly Ala Lys Thr Gly Leu Val Leu Thr Asp Ile Gln Arg Glu
    290                 295                 300

Gln Gln Glu Leu Lys Glu Gln Asp Gln Glu Thr Met Ala Phe Glu Ala
305                 310                 315                 320

Glu Phe Gln Tyr Ala Glu Thr Val Phe Arg Asp Lys Ser Gly Arg Lys
                325                 330                 335

Arg Asn Leu Lys Leu Glu Arg Leu Glu Gln Arg Arg Lys Ala Glu Lys
            340                 345                 350

Asp Ser Glu Arg Asp Glu Leu Tyr Ala Gln Trp Gly Lys Gly Leu Ala
        355                 360                 365

Gln Ser Arg Gln Gln Gln Gln Asn Val Glu Asp Ala Met Lys Glu Met
    370                 375                 380

Gln Lys Pro Leu Ala Arg Tyr Ile Asp Asp Glu Asp Leu Asp Arg Met
385                 390                 395                 400

Leu Arg Glu Gln Glu Arg Glu Gly Asp Pro Met Ala Asn Phe Ile Lys
                405                 410                 415

Lys Asn Lys Ala Lys Glu Asn Lys Asn Lys Lys Val Arg Pro Arg Tyr
```

420 425 430

Ser Gly Pro Ala Pro Pro Pro Asn Arg Phe Asn Ile Trp Pro Gly Tyr
435 440 445

Arg Trp Asp Gly Val Asp Arg Ser Asn Gly Phe Glu Gln Lys Arg Phe
450 455 460

Ala Arg Leu Ala Ser Lys Lys Ala Val Glu Glu Leu Ala Tyr Lys Trp
465 470 475 480

Ser Val Glu Asp Met
485

<210> 10053
<211> 118
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2014; "

<220>
<221> source
<223> /note="Gene Symbol: BUD13; "

<220>
<221> source
<223> /note="Gene Name: BUD13 homolog; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000415748"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10053
Xaa Ser Arg Arg Thr Leu Gly Ser Ser Asp Thr Gln Gln Leu Arg Arg
1 5 10 15

Ala Arg His Asp Ser Pro Asp Leu Ala Pro Asn Val Thr Tyr Ser Leu
20 25 30

Pro Arg Thr Lys Ser Gly Lys Ala Pro Glu Arg Ala Ser Ser Lys Thr
35 40 45

Ser Pro His Trp Lys Glu Ser Gly Ala Ser His Leu Ser Phe Pro Lys
    50   55   60

Asn Ser Lys Tyr Glu Tyr Asp Pro Asp Ile Ser Pro Pro Arg Lys Lys
65   70   75   80

Gln Ala Lys Ser His Phe Gly Asp Lys Lys Gln Leu Asp Ser Lys Glu
                85   90   95

Pro Ala Thr Ala Thr Lys Cys Gly Gly Cys Asn Glu Arg Asp Ala Lys
            100   105   110

Ala Ser Gly Pro Leu Tyr
        115

<210> 10054
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2015; "

<220>
<221> source
<223> /note="Gene Symbol: BUD31; "

<220>
<221> source
<223> /note="Gene Name: BUD31 homolog; "

<220>
<221> source
<223> /note="Uniprot ID: P41223; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000222969"

<400> 10054
Met Pro Lys Val Lys Arg Ser Arg Lys Ala Pro Pro Asp Gly Trp Glu
1   5   10   15

Leu Ile Glu Pro Thr Leu Asp Glu Leu Asp Gln Lys Met Arg Glu Ala
            20   25   30

Glu Thr Glu Pro His Glu Gly Lys Arg Lys Val Glu Ser Leu Trp Pro

```
        35                  40                  45

Ile Phe Arg Ile His His Gln Lys Thr Arg Tyr Ile Phe Asp Leu Phe
    50                  55                  60

Tyr Lys Arg Lys Ala Ile Ser Arg Glu Leu Tyr Glu Tyr Cys Ile Lys
65                  70                  75                  80

Glu Gly Tyr Ala Asp Lys Asn Leu Ile Ala Lys Trp Lys Lys Gln Gly
                85                  90                  95

Tyr Glu Asn Leu Cys Cys Leu Arg Cys Ile Gln Thr Arg Asp Thr Asn
            100                 105                 110

Phe Gly Thr Asn Cys Ile Cys Arg Val Pro Lys Ser Lys Leu Glu Val
        115                 120                 125

Gly Arg Ile Ile Glu Cys Thr His Cys Gly Cys Arg Gly Cys Ser Gly
    130                 135                 140


<210> 10055
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2015; "

<220>
<221> source
<223> /note="Gene Symbol: BUD31; "

<220>
<221> source
<223> /note="Gene Name: BUD31 homolog; "

<220>
<221> source
<223> /note="Uniprot ID:  P41223; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386023"

<400> 10055
Met Pro Lys Val Lys Arg Ser Arg Lys Ala Pro Pro Asp Gly Trp Glu
1               5                   10                  15
```

```
Leu Ile Glu Pro Thr Leu Asp Glu Leu Asp Gln Lys Met Arg Glu Ala
            20                  25                  30

Glu Thr Glu Pro His Glu Gly Lys Arg Lys Val Glu Ser Leu Trp Pro
        35                  40                  45

Ile Phe Arg Ile His His Gln Lys Thr Arg Tyr Ile Phe Asp Leu Phe
    50                  55                  60

Tyr Lys Arg Lys Ala Ile Ser Arg Glu Leu Tyr Glu Tyr Cys Ile Lys
65                  70                  75                  80

Glu Gly Tyr Ala Asp Lys Asn Leu Ile Ala Lys Trp Lys Lys Gln Gly
                85                  90                  95

Tyr Glu Asn Leu Cys Cys Leu Arg Cys Ile Gln Thr Arg Asp Thr Asn
            100                 105                 110

Phe Gly Thr Asn Cys Ile Cys Arg Val Pro Lys Ser Lys Leu Glu Val
        115                 120                 125

Gly Arg Ile Ile Glu Cys Thr His Cys Gly Cys Arg Gly Cys Ser Gly
    130                 135                 140


<210> 10056
<211> 103
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2015; "

<220>
<221> source
<223> /note="Gene Symbol: BUD31; "

<220>
<221> source
<223> /note="Gene Name: BUD31 homolog; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395269"

<400> 10056
Met Pro Lys Val Lys Arg Ser Arg Lys Ala Pro Pro Asp Gly Trp Glu
1               5                   10                  15
```

```
Leu Ile Glu Pro Thr Leu Asp Glu Leu Asp Gln Lys Met Arg Glu Glu
            20                  25                  30

Leu Tyr Glu Tyr Cys Ile Lys Glu Gly Tyr Ala Asp Lys Asn Leu Ile
        35                  40                  45

Ala Lys Trp Lys Lys Gln Gly Tyr Glu Asn Leu Cys Cys Leu Arg Cys
    50                  55                  60

Ile Gln Thr Arg Asp Thr Asn Phe Gly Thr Asn Cys Ile Cys Arg Val
65                  70                  75                  80

Pro Lys Ser Lys Leu Glu Val Gly Arg Ile Ile Glu Cys Thr His Cys
                85                  90                  95

Gly Cys Arg Gly Cys Ser Gly
            100


<210> 10057
<211> 115
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2015; "

<220>
<221> source
<223> /note="Gene Symbol: BUD31; "

<220>
<221> source
<223> /note="Gene Name: BUD31 homolog; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000408269"

<400> 10057
Met Ile Ala Glu Thr Glu Pro His Glu Gly Lys Arg Lys Val Glu Ser
1               5                   10                  15

Leu Trp Pro Ile Phe Arg Ile His His Gln Lys Thr Arg Tyr Ile Phe
            20                  25                  30

Asp Leu Phe Tyr Lys Arg Lys Ala Ile Ser Arg Glu Leu Tyr Glu Tyr
        35                  40                  45
```

```
Cys Ile Lys Glu Gly Tyr Ala Asp Lys Asn Leu Ile Ala Lys Trp Lys
    50                  55                  60

Lys Gln Gly Tyr Glu Asn Leu Cys Cys Leu Arg Cys Ile Gln Thr Arg
65                  70                  75                  80

Asp Thr Asn Phe Gly Thr Asn Cys Ile Cys Arg Val Pro Lys Ser Lys
                85                  90                  95

Leu Glu Val Gly Arg Ile Ile Glu Cys Thr His Cys Gly Cys Arg Gly
            100                 105                 110

Cys Ser Gly
        115


<210> 10058
<211> 37
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2015; "

<220>
<221> source
<223> /note="Gene Symbol: BUD31; "

<220>
<221> source
<223> /note="Gene Name: BUD31 homolog; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416698"

<400> 10058
Met Pro Lys Val Lys Arg Ser Arg Lys Ala Pro Pro Asp Gly Trp Glu
1               5                   10                  15

Leu Ile Glu Pro Thr Leu Asp Glu Leu Asp Gln Lys Met Arg Glu Gly
            20                  25                  30

Cys Ser Ala Val Ala
        35


<210> 10059
```

<211> 387
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2016; "

<220>
<221> source
<223> /note="Gene Symbol: BBOX1; "

<220>
<221> source
<223> /note="Gene Name: butyrobetaine
(gamma), 2-oxoglutarate dioxygenase
(gamma-butyrobetaine hydroxylase) 1; "

<220>
<221> source
<223> /note="Uniprot ID: O75936; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263182"

<400> 10059
Met Ala Cys Thr Ile Gln Lys Ala Glu Ala Leu Asp Gly Ala His Leu
1   5   10   15

Met Gln Ile Leu Trp Tyr Asp Glu Glu Glu Ser Leu Tyr Pro Ala Val
            20   25   30

Trp Leu Arg Asp Asn Cys Pro Cys Ser Asp Cys Tyr Leu Asp Ser Ala
        35   40   45

Lys Ala Arg Lys Leu Leu Val Glu Ala Leu Asp Val Asn Ile Gly Ile
    50   55   60

Lys Gly Leu Ile Phe Asp Arg Lys Lys Val Tyr Ile Thr Trp Pro Asp
65   70   75   80

Glu His Tyr Ser Glu Phe Gln Ala Asp Trp Leu Lys Lys Arg Cys Phe
                85   90   95

Ser Lys Gln Ala Arg Ala Lys Leu Gln Arg Glu Leu Phe Phe Pro Glu
            100   105   110

Cys Gln Tyr Trp Gly Ser Glu Leu Gln Leu Pro Thr Leu Asp Phe Glu
        115   120   125

```
Asp Val Leu Arg Tyr Asp Glu His Ala Tyr Lys Trp Leu Ser Thr Leu
    130                 135                 140

Lys Lys Val Gly Ile Val Arg Leu Thr Gly Ala Ser Asp Lys Pro Gly
145                 150                 155                 160

Glu Val Ser Lys Leu Gly Lys Arg Met Gly Phe Leu Tyr Leu Thr Phe
                165                 170                 175

Tyr Gly His Thr Trp Gln Val Gln Asp Lys Ile Asp Ala Asn Asn Val
            180                 185                 190

Ala Tyr Thr Thr Gly Lys Leu Ser Phe His Thr Asp Tyr Pro Ala Leu
        195                 200                 205

His His Pro Pro Gly Val Gln Leu Leu His Cys Ile Lys Gln Thr Val
    210                 215                 220

Thr Gly Gly Asp Ser Glu Ile Val Asp Gly Phe Asn Val Cys Gln Lys
225                 230                 235                 240

Leu Lys Lys Asn Asn Pro Gln Ala Phe Gln Ile Leu Ser Ser Thr Phe
                245                 250                 255

Val Asp Phe Thr Asp Ile Gly Val Asp Tyr Cys Asp Phe Ser Val Gln
            260                 265                 270

Ser Lys His Lys Ile Ile Glu Leu Asp Asp Lys Gly Gln Val Val Arg
        275                 280                 285

Ile Asn Phe Asn Asn Ala Thr Arg Asp Thr Ile Phe Asp Val Pro Val
    290                 295                 300

Glu Arg Val Gln Pro Phe Tyr Ala Ala Leu Lys Glu Phe Val Asp Leu
305                 310                 315                 320

Met Asn Ser Lys Glu Ser Lys Phe Thr Phe Lys Met Asn Pro Gly Asp
                325                 330                 335

Val Ile Thr Phe Asp Asn Trp Arg Leu Leu His Gly Arg Arg Ser Tyr
            340                 345                 350
```

Glu Ala Gly Thr Glu Ile Ser Arg His Leu Glu Gly Ala Tyr Ala Asp
        355   360   365

Trp Asp Val Val Met Ser Arg Leu Arg Ile Leu Arg Gln Arg Val Glu
    370   375   380

Asn Gly Asn
385

<210> 10060
<211> 387
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2016; "

<220>
<221> source
<223> /note="Gene Symbol: BBOX1; "

<220>
<221> source
<223> /note="Gene Name: butyrobetaine
      (gamma), 2-oxoglutarate dioxygenase
      (gamma-butyrobetaine hydroxylase) 1; "

<220>
<221> source
<223> /note="Uniprot ID: O75936; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433772"

<400> 10060
Met Ala Cys Thr Ile Gln Lys Ala Glu Ala Leu Asp Gly Ala His Leu
1   5   10   15

Met Gln Ile Leu Trp Tyr Asp Glu Glu Glu Ser Leu Tyr Pro Ala Val
            20   25   30

Trp Leu Arg Asp Asn Cys Pro Cys Ser Asp Cys Tyr Leu Asp Ser Ala
        35   40   45

Lys Ala Arg Lys Leu Leu Val Glu Ala Leu Asp Val Asn Ile Gly Ile
    50   55   60

Lys Gly Leu Ile Phe Asp Arg Lys Lys Val Tyr Ile Thr Trp Pro Asp
65 70 75 80

Glu His Tyr Ser Glu Phe Gln Ala Asp Trp Leu Lys Lys Arg Cys Phe
85 90 95

Ser Lys Gln Ala Arg Ala Lys Leu Gln Arg Glu Leu Phe Phe Pro Glu
100 105 110

Cys Gln Tyr Trp Gly Ser Glu Leu Gln Leu Pro Thr Leu Asp Phe Glu
115 120 125

Asp Val Leu Arg Tyr Asp Glu His Ala Tyr Lys Trp Leu Ser Thr Leu
130 135 140

Lys Lys Val Gly Ile Val Arg Leu Thr Gly Ala Ser Asp Lys Pro Gly
145 150 155 160

Glu Val Ser Lys Leu Gly Lys Arg Met Gly Phe Leu Tyr Leu Thr Phe
165 170 175

Tyr Gly His Thr Trp Gln Val Gln Asp Lys Ile Asp Ala Asn Asn Val
180 185 190

Ala Tyr Thr Thr Gly Lys Leu Ser Phe His Thr Asp Tyr Pro Ala Leu
195 200 205

His His Pro Pro Gly Val Gln Leu Leu His Cys Ile Lys Gln Thr Val
210 215 220

Thr Gly Gly Asp Ser Glu Ile Val Asp Gly Phe Asn Val Cys Gln Lys
225 230 235 240

Leu Lys Lys Asn Asn Pro Gln Ala Phe Gln Ile Leu Ser Ser Thr Phe
245 250 255

Val Asp Phe Thr Asp Ile Gly Val Asp Tyr Cys Asp Phe Ser Val Gln
260 265 270

Ser Lys His Lys Ile Ile Glu Leu Asp Asp Lys Gly Gln Val Val Arg
275 280 285

Ile Asn Phe Asn Asn Ala Thr Arg Asp Thr Ile Phe Asp Val Pro Val

```
    290                 295                 300

Glu Arg Val Gln Pro Phe Tyr Ala Ala Leu Lys Glu Phe Val Asp Leu
305                 310                 315                 320

Met Asn Ser Lys Glu Ser Lys Phe Thr Phe Lys Met Asn Pro Gly Asp
                325                 330                 335

Val Ile Thr Phe Asp Asn Trp Arg Leu Leu His Gly Arg Arg Ser Tyr
            340                 345                 350

Glu Ala Gly Thr Glu Ile Ser Arg His Leu Glu Gly Ala Tyr Ala Asp
        355                 360                 365

Trp Asp Val Val Met Ser Arg Leu Arg Ile Leu Arg Gln Arg Val Glu
    370                 375                 380

Asn Gly Asn
385


<210> 10061
<211> 387
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2016; "

<220>
<221> source
<223> /note="Gene Symbol: BBOX1; "

<220>
<221> source
<223> /note="Gene Name: butyrobetaine
      (gamma), 2-oxoglutarate dioxygenase
      (gamma-butyrobetaine hydroxylase) 1; "

<220>
<221> source
<223> /note="Uniprot ID:  O75936; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434918"

<400> 10061
Met Ala Cys Thr Ile Gln Lys Ala Glu Ala Leu Asp Gly Ala His Leu
1               5                   10                  15
```

```
Met Gln Ile Leu Trp Tyr Asp Glu Glu Glu Ser Leu Tyr Pro Ala Val
            20                  25                  30

Trp Leu Arg Asp Asn Cys Pro Cys Ser Asp Cys Tyr Leu Asp Ser Ala
        35                  40                  45

Lys Ala Arg Lys Leu Leu Val Glu Ala Leu Asp Val Asn Ile Gly Ile
    50                  55                  60

Lys Gly Leu Ile Phe Asp Arg Lys Lys Val Tyr Ile Thr Trp Pro Asp
65                  70                  75                  80

Glu His Tyr Ser Glu Phe Gln Ala Asp Trp Leu Lys Lys Arg Cys Phe
                85                  90                  95

Ser Lys Gln Ala Arg Ala Lys Leu Gln Arg Glu Leu Phe Phe Pro Glu
            100                 105                 110

Cys Gln Tyr Trp Gly Ser Glu Leu Gln Leu Pro Thr Leu Asp Phe Glu
        115                 120                 125

Asp Val Leu Arg Tyr Asp Glu His Ala Tyr Lys Trp Leu Ser Thr Leu
    130                 135                 140

Lys Lys Val Gly Ile Val Arg Leu Thr Gly Ala Ser Asp Lys Pro Gly
145                 150                 155                 160

Glu Val Ser Lys Leu Gly Lys Arg Met Gly Phe Leu Tyr Leu Thr Phe
                165                 170                 175

Tyr Gly His Thr Trp Gln Val Gln Asp Lys Ile Asp Ala Asn Asn Val
            180                 185                 190

Ala Tyr Thr Thr Gly Lys Leu Ser Phe His Thr Asp Tyr Pro Ala Leu
        195                 200                 205

His His Pro Pro Gly Val Gln Leu Leu His Cys Ile Lys Gln Thr Val
    210                 215                 220

Thr Gly Gly Asp Ser Glu Ile Val Asp Gly Phe Asn Val Cys Gln Lys
225                 230                 235                 240
```

```
Leu Lys Lys Asn Asn Pro Gln Ala Phe Gln Ile Leu Ser Ser Thr Phe
                245                 250                 255

Val Asp Phe Thr Asp Ile Gly Val Asp Tyr Cys Asp Phe Ser Val Gln
            260                 265                 270

Ser Lys His Lys Ile Ile Glu Leu Asp Asp Lys Gly Gln Val Val Arg
        275                 280                 285

Ile Asn Phe Asn Asn Ala Thr Arg Asp Thr Ile Phe Asp Val Pro Val
    290                 295                 300

Glu Arg Val Gln Pro Phe Tyr Ala Ala Leu Lys Glu Phe Val Asp Leu
305                 310                 315                 320

Met Asn Ser Lys Glu Ser Lys Phe Thr Phe Lys Met Asn Pro Gly Asp
                325                 330                 335

Val Ile Thr Phe Asp Asn Trp Arg Leu Leu His Gly Arg Arg Ser Tyr
            340                 345                 350

Glu Ala Gly Thr Glu Ile Ser Arg His Leu Glu Gly Ala Tyr Ala Asp
        355                 360                 365

Trp Asp Val Val Met Ser Arg Leu Arg Ile Leu Arg Gln Arg Val Glu
    370                 375                 380

Asn Gly Asn
385


<210> 10062
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2016; "

<220>
<221> source
<223> /note="Gene Symbol: BBOX1; "

<220>
<221> source
<223> /note="Gene Name: butyrobetaine
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(gamma), 2-oxoglutarate dioxygenase
(gamma-butyrobetaine hydroxylase) 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435369"

<400> 10062
Met Ala Cys Thr Ile Gln Lys Ala Glu Ala Leu Asp Gly Ala His Leu
1 5 10 15

Met Gln Ile Leu Trp Tyr Asp Glu Glu Glu Ser Leu Tyr Pro Ala Val
20 25 30

Trp Leu Arg Asp Asn Cys Pro Cys Ser Asp Cys Tyr Leu Asp Ser Ala
35 40 45

Lys Ala Arg Lys Leu Leu Val Glu Ala Leu Asp Val Asn Ile Gly Ile
50 55 60

Lys Gly Leu Ile
65

<210> 10063
<211> 387
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2016; "

<220>
<221> source
<223> /note="Gene Symbol: BBOX1; "

<220>
<221> source
<223> /note="Gene Name: butyrobetaine
(gamma), 2-oxoglutarate dioxygenase
(gamma-butyrobetaine hydroxylase) 1; "

<220>
<221> source
<223> /note="Uniprot ID: O75936; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435781"

<400> 10063
Met Ala Cys Thr Ile Gln Lys Ala Glu Ala Leu Asp Gly Ala His Leu

```
1               5                   10                  15

Met Gln Ile Leu Trp Tyr Asp Glu Glu Glu Ser Leu Tyr Pro Ala Val
            20                  25                  30

Trp Leu Arg Asp Asn Cys Pro Cys Ser Asp Cys Tyr Leu Asp Ser Ala
        35                  40                  45

Lys Ala Arg Lys Leu Leu Val Glu Ala Leu Asp Val Asn Ile Gly Ile
    50                  55                  60

Lys Gly Leu Ile Phe Asp Arg Lys Lys Val Tyr Ile Thr Trp Pro Asp
65                  70                  75                  80

Glu His Tyr Ser Glu Phe Gln Ala Asp Trp Leu Lys Lys Arg Cys Phe
                85                  90                  95

Ser Lys Gln Ala Arg Ala Lys Leu Gln Arg Glu Leu Phe Phe Pro Glu
            100                 105                 110

Cys Gln Tyr Trp Gly Ser Glu Leu Gln Leu Pro Thr Leu Asp Phe Glu
        115                 120                 125

Asp Val Leu Arg Tyr Asp Glu His Ala Tyr Lys Trp Leu Ser Thr Leu
    130                 135                 140

Lys Lys Val Gly Ile Val Arg Leu Thr Gly Ala Ser Asp Lys Pro Gly
145                 150                 155                 160

Glu Val Ser Lys Leu Gly Lys Arg Met Gly Phe Leu Tyr Leu Thr Phe
                165                 170                 175

Tyr Gly His Thr Trp Gln Val Gln Asp Lys Ile Asp Ala Asn Asn Val
            180                 185                 190

Ala Tyr Thr Thr Gly Lys Leu Ser Phe His Thr Asp Tyr Pro Ala Leu
        195                 200                 205

His His Pro Pro Gly Val Gln Leu Leu His Cys Ile Lys Gln Thr Val
    210                 215                 220

Thr Gly Gly Asp Ser Glu Ile Val Asp Gly Phe Asn Val Cys Gln Lys
225                 230                 235                 240
```

```
Leu Lys Lys Asn Asn Pro Gln Ala Phe Gln Ile Leu Ser Ser Thr Phe
                245                 250                 255

Val Asp Phe Thr Asp Ile Gly Val Asp Tyr Cys Asp Phe Ser Val Gln
            260                 265                 270

Ser Lys His Lys Ile Ile Glu Leu Asp Asp Lys Gly Gln Val Val Arg
        275                 280                 285

Ile Asn Phe Asn Asn Ala Thr Arg Asp Thr Ile Phe Asp Val Pro Val
    290                 295                 300

Glu Arg Val Gln Pro Phe Tyr Ala Ala Leu Lys Glu Phe Val Asp Leu
305                 310                 315                 320

Met Asn Ser Lys Glu Ser Lys Phe Thr Phe Lys Met Asn Pro Gly Asp
                325                 330                 335

Val Ile Thr Phe Asp Asn Trp Arg Leu Leu His Gly Arg Arg Ser Tyr
            340                 345                 350

Glu Ala Gly Thr Glu Ile Ser Arg His Leu Glu Gly Ala Tyr Ala Asp
        355                 360                 365

Trp Asp Val Val Met Ser Arg Leu Arg Ile Leu Arg Gln Arg Val Glu
    370                 375                 380

Asn Gly Asn
385


<210> 10064
<211> 526
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2017; "

<220>
<221> source
<223> /note="Gene Symbol: BTN1A1; "

<220>
<221> source
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<223> /note="Gene Name: butyrophilin, subfamily 1,
member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q13410; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000244513"

<400> 10064

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Met Ala Val Phe Pro Ser Ser Gly Leu Pro Arg Cys Leu Leu Thr Leu
1               5                  10                  15

Ile Leu Leu Gln Leu Pro Lys Leu Asp Ser Ala Pro Phe Asp Val Ile
            20                  25                  30

Gly Pro Pro Glu Pro Ile Leu Ala Val Val Gly Glu Asp Ala Glu Leu
        35                  40                  45

Pro Cys Arg Leu Ser Pro Asn Ala Ser Ala Glu His Leu Glu Leu Arg
    50                  55                  60

Trp Phe Arg Lys Lys Val Ser Pro Ala Val Leu Val His Arg Asp Gly
65                  70                  75                  80

Arg Glu Gln Glu Ala Glu Gln Met Pro Glu Tyr Arg Gly Arg Ala Thr
                85                  90                  95

Leu Val Gln Asp Gly Ile Ala Lys Gly Arg Val Ala Leu Arg Ile Arg
            100                 105                 110

Gly Val Arg Val Ser Asp Asp Gly Glu Tyr Thr Cys Phe Phe Arg Glu
        115                 120                 125

Asp Gly Ser Tyr Glu Glu Ala Leu Val His Leu Lys Val Ala Ala Leu
    130                 135                 140

Gly Ser Asp Pro His Ile Ser Met Gln Val Gln Glu Asn Gly Glu Ile
145                 150                 155                 160

Cys Leu Glu Cys Thr Ser Val Gly Trp Tyr Pro Glu Pro Gln Val Gln
                165                 170                 175

Trp Arg Thr Ser Lys Gly Glu Lys Phe Pro Ser Thr Ser Glu Ser Arg
```

```
            180                 185                 190

Asn Pro Asp Glu Glu Gly Leu Phe Thr Val Ala Ala Ser Val Ile Ile
        195                 200                 205

Arg Asp Thr Ser Ala Lys Asn Val Ser Cys Tyr Ile Gln Asn Leu Leu
    210                 215                 220

Leu Gly Gln Glu Lys Lys Val Glu Ile Ser Ile Pro Ala Ser Ser Leu
225                 230                 235                 240

Pro Arg Leu Thr Pro Trp Ile Val Ala Val Ala Val Ile Leu Met Val
                245                 250                 255

Leu Gly Leu Leu Thr Ile Gly Ser Ile Phe Phe Thr Trp Arg Leu Tyr
            260                 265                 270

Asn Glu Arg Pro Arg Glu Arg Arg Asn Glu Phe Ser Ser Lys Glu Arg
        275                 280                 285

Leu Leu Glu Glu Leu Lys Trp Lys Lys Ala Thr Leu His Ala Val Asp
    290                 295                 300

Val Thr Leu Asp Pro Asp Thr Ala His Pro His Leu Phe Leu Tyr Glu
305                 310                 315                 320

Asp Ser Lys Ser Val Arg Leu Glu Asp Ser Arg Gln Lys Leu Pro Glu
                325                 330                 335

Lys Thr Glu Arg Phe Asp Ser Trp Pro Cys Val Leu Gly Arg Glu Thr
            340                 345                 350

Phe Thr Ser Gly Arg His Tyr Trp Glu Val Glu Val Gly Asp Arg Thr
        355                 360                 365

Asp Trp Ala Ile Gly Val Cys Arg Glu Asn Val Met Lys Lys Gly Phe
    370                 375                 380

Asp Pro Met Thr Pro Glu Asn Gly Phe Trp Ala Val Glu Leu Tyr Gly
385                 390                 395                 400

Asn Gly Tyr Trp Ala Leu Thr Pro Leu Arg Thr Pro Leu Pro Leu Ala
                405                 410                 415
```

```
Gly Pro Pro Arg Arg Val Gly Ile Phe Leu Asp Tyr Glu Ser Gly Asp
            420                 425                 430

Ile Ser Phe Tyr Asn Met Asn Asp Gly Ser Asp Ile Tyr Thr Phe Ser
        435                 440                 445

Asn Val Thr Phe Ser Gly Pro Leu Arg Pro Phe Phe Cys Leu Trp Ser
    450                 455                 460

Ser Gly Lys Lys Pro Leu Thr Ile Cys Pro Ile Ala Asp Gly Pro Glu
465                 470                 475                 480

Arg Val Thr Val Ile Ala Asn Ala Gln Asp Leu Ser Lys Glu Ile Pro
                485                 490                 495

Leu Ser Pro Met Gly Glu Asp Ser Ala Pro Arg Asp Ala Asp Thr Leu
            500                 505                 510

His Ser Lys Leu Ile Pro Thr Gln Pro Ser Gln Gly Ala Pro
        515                 520                 525


<210> 10065
<211> 494
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2017; "

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<223> /note="Gene Symbol: BTN1A1; "

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<223> /note="Gene Name: butyrophilin, subfamily 1,
      member A1; "

<220>
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<223> /note="ENSP ID: ENSP00000484707"

<400> 10065
Met Ala Val Phe Pro Ser Ser Gly Leu Pro Arg Cys Leu Leu Thr Leu
1               5                   10                  15
```

```
Ile Leu Leu Gln Leu Pro Lys Leu Asp Ser Ala Pro Phe Asp Val Ile
            20                  25                  30

Gly Pro Pro Glu Pro Ile Leu Ala Val Val Gly Glu Asp Ala Glu Leu
        35                  40                  45

Pro Cys Arg Leu Ser Pro Asn Ala Ser Ala Glu His Leu Glu Leu Arg
    50                  55                  60

Trp Phe Arg Lys Lys Val Ser Pro Ala Val Leu Val His Arg Asp Gly
65                  70                  75                  80

Arg Glu Gln Glu Ala Glu Gln Met Pro Glu Tyr Arg Gly Arg Ala Thr
                85                  90                  95

Leu Val Gln Asp Gly Ile Ala Lys Gly Arg Val Ala Leu Arg Ile Arg
            100                 105                 110

Gly Val Arg Val Ser Asp Asp Gly Glu Tyr Thr Cys Phe Phe Arg Glu
        115                 120                 125

Asp Gly Ser Tyr Glu Glu Ala Leu Val His Leu Lys Val Ala Ala Leu
    130                 135                 140

Gly Ser Asp Pro His Ile Ser Met Gln Val Gln Glu Asn Gly Glu Ile
145                 150                 155                 160

Cys Leu Glu Cys Thr Ser Val Gly Trp Tyr Pro Glu Pro Gln Val Gln
                165                 170                 175

Trp Arg Thr Ser Lys Gly Glu Lys Phe Pro Ser Thr Ser Glu Ser Arg
            180                 185                 190

Asn Pro Asp Glu Glu Gly Leu Phe Thr Val Ala Ala Ser Val Ile Ile
        195                 200                 205

Arg Asp Thr Ser Ala Lys Asn Val Ser Cys Tyr Ile Gln Asn Leu Leu
    210                 215                 220

Leu Gly Gln Glu Lys Lys Val Glu Ile Ser Ile Pro Ala Ser Ser Leu
225                 230                 235                 240

Pro Arg Leu Thr Pro Trp Ile Val Ala Val Ala Val Ile Leu Met Val
```

```
                245                 250                 255

Leu Gly Leu Leu Thr Ile Gly Ser Ile Phe Phe Thr Trp Arg Leu Tyr
            260                 265                 270

Asn Glu Arg Pro Arg Glu Arg Arg Asn Glu Phe Ser Ser Lys Glu Arg
        275                 280                 285

Leu Leu Glu Glu Leu Lys Trp Lys Lys Ala Thr Leu His Ala Val Asp
    290                 295                 300

Val Thr Leu Asp Pro Asp Thr Ala His Pro His Leu Phe Leu Tyr Glu
305                 310                 315                 320

Asp Ser Lys Ser Val Arg Leu Glu Asp Ser Arg Gln Lys Leu Pro Glu
                325                 330                 335

Lys Thr Glu Arg Phe Asp Ser Trp Pro Cys Val Leu Gly Arg Glu Thr
            340                 345                 350

Phe Thr Ser Gly Arg His Tyr Trp Glu Val Glu Val Gly Asp Arg Thr
        355                 360                 365

Asp Trp Ala Ile Gly Val Cys Arg Glu Asn Val Met Lys Lys Gly Phe
    370                 375                 380

Asp Pro Met Thr Pro Glu Asn Gly Phe Trp Ala Val Glu Leu Tyr Gly
385                 390                 395                 400

Asn Gly Tyr Trp Ala Leu Thr Pro Leu Arg Thr Pro Leu Pro Leu Ala
                405                 410                 415

Gly Pro Pro Arg Arg Val Gly Ile Phe Leu Asp Tyr Glu Ser Gly Asp
            420                 425                 430

Ile Ser Phe Tyr Asn Met Asn Asp Gly Ser Asp Ile Tyr Thr Phe Ser
        435                 440                 445

Asn Val Thr Val Ile Ala Asn Ala Gln Asp Leu Ser Lys Glu Ile Pro
    450                 455                 460

Leu Ser Pro Met Gly Glu Asp Ser Ala Pro Arg Asp Ala Asp Thr Leu
465                 470                 475                 480
```

His Ser Lys Leu Ile Pro Thr Gln Pro Ser Gln Gly Ala Pro
485 490

<210> 10066
<211> 527
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2018; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A1; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q7KYR7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312158"

<400> 10066
Met Glu Ser Ala Ala Ala Leu His Phe Ser Arg Pro Ala Ser Leu Leu
1 5 10 15

Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala Gln Phe Ile Val
20 25 30

Val Gly Pro Thr Asp Pro Ile Leu Ala Thr Val Gly Glu Asn Thr Thr
35 40 45

Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu Asp Met Glu Val
50 55 60

Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe Val Tyr Lys Gly
65 70 75 80

Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr Arg Gly Arg Thr
85 90 95

```
Thr Phe Val Ser Lys Asp Ile Ser Arg Gly Ser Val Ala Leu Val Ile
            100                 105                 110

His Asn Ile Thr Ala Gln Glu Asn Gly Thr Tyr Arg Cys Tyr Phe Gln
        115                 120                 125

Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu His Leu Val Val Ala Gly
    130                 135                 140

Leu Gly Ser Lys Pro Leu Ile Ser Met Arg Gly His Glu Asp Gly Gly
145                 150                 155                 160

Ile Arg Leu Glu Cys Ile Ser Arg Gly Trp Tyr Pro Lys Pro Leu Thr
                165                 170                 175

Val Trp Arg Asp Pro Tyr Gly Gly Val Ala Pro Ala Leu Lys Glu Val
            180                 185                 190

Ser Met Pro Asp Ala Asp Gly Leu Phe Met Val Thr Thr Ala Val Ile
        195                 200                 205

Ile Arg Asp Lys Ser Val Arg Asn Met Ser Cys Ser Ile Asn Asn Thr
    210                 215                 220

Leu Leu Gly Gln Lys Lys Glu Ser Val Ile Phe Ile Pro Glu Ser Phe
225                 230                 235                 240

Met Pro Ser Val Ser Pro Cys Ala Val Ala Leu Pro Ile Ile Val Val
                245                 250                 255

Ile Leu Met Ile Pro Ile Ala Val Cys Ile Tyr Trp Ile Asn Lys Leu
            260                 265                 270

Gln Lys Glu Lys Lys Ile Leu Ser Gly Glu Lys Glu Phe Glu Arg Glu
        275                 280                 285

Thr Arg Glu Ile Ala Leu Lys Glu Leu Glu Lys Glu Arg Val Gln Lys
    290                 295                 300

Glu Glu Glu Leu Gln Val Lys Glu Lys Leu Gln Glu Glu Leu Arg Trp
305                 310                 315                 320

Arg Arg Thr Phe Leu His Ala Val Asp Val Val Leu Asp Pro Asp Thr
```

325 330 335

Ala His Pro Asp Leu Phe Leu Ser Glu Asp Arg Arg Ser Val Arg Arg
340 345 350

Cys Pro Phe Arg His Leu Gly Glu Ser Val Pro Asp Asn Pro Glu Arg
355 360 365

Phe Asp Ser Gln Pro Cys Val Leu Gly Arg Glu Ser Phe Ala Ser Gly
370 375 380

Lys His Tyr Trp Glu Val Glu Val Glu Asn Val Ile Glu Trp Thr Val
385 390 395 400

Gly Val Cys Arg Asp Ser Val Glu Arg Lys Gly Glu Val Leu Leu Ile
405 410 415

Pro Gln Asn Gly Phe Trp Thr Leu Glu Met His Lys Gly Gln Tyr Arg
420 425 430

Ala Val Ser Ser Pro Asp Arg Ile Leu Pro Leu Lys Glu Ser Leu Cys
435 440 445

Arg Val Gly Val Phe Leu Asp Tyr Glu Ala Gly Asp Val Ser Phe Tyr
450 455 460

Asn Met Arg Asp Arg Ser His Ile Tyr Thr Cys Pro Arg Ser Ala Phe
465 470 475 480

Ser Val Pro Val Arg Pro Phe Phe Arg Leu Gly Cys Glu Asp Ser Pro
485 490 495

Ile Phe Ile Cys Pro Ala Leu Thr Gly Ala Asn Gly Val Thr Val Pro
500 505 510

Glu Glu Gly Leu Thr Leu His Arg Val Gly Thr His Gln Ser Leu
515 520 525

<210> 10067
<211> 151
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2018; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A1; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366825"

<400> 10067

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Met Glu Ser Ala Ala Ala Leu His Phe Ser Arg Pro Ala Ser Leu Leu
1               5                  10                  15

Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala Gln Phe Ile Val
            20                  25                  30

Val Gly Pro Thr Asp Pro Ile Leu Ala Thr Val Gly Glu Asn Thr Thr
        35                  40                  45

Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu Asp Met Glu Val
    50                  55                  60

Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe Val Tyr Lys Gly
65                  70                  75                  80

Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr Arg Gly Arg Thr
                85                  90                  95

Thr Phe Val Ser Lys Asp Ile Ser Arg Gly Ser Val Ala Leu Val Ile
            100                 105                 110

His Asn Ile Thr Ala Gln Glu Asn Gly Thr Tyr Arg Cys Tyr Phe Gln
        115                 120                 125

Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu His Leu Val Val Ala Glu
    130                 135                 140

Leu Leu Glu Ala Glu Val Tyr
145                 150
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<210> 10068
<211> 334
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2018; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A1; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q7KYR7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416945"

<400> 10068
Met Glu Ser Ala Ala Ala Leu His Phe Ser Arg Pro Ala Ser Leu Leu
1   5   10   15

Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala Gln Phe Ile Val
            20   25   30

Val Gly Pro Thr Asp Pro Ile Leu Ala Thr Val Gly Glu Asn Thr Thr
        35   40   45

Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu Asp Met Glu Val
    50   55   60

Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe Val Tyr Lys Gly
65   70   75   80

Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr Arg Gly Arg Thr
                85   90   95

Thr Phe Val Ser Lys Asp Ile Ser Arg Gly Ser Val Ala Leu Val Ile
            100   105   110

His Asn Ile Thr Ala Gln Glu Asn Gly Thr Tyr Arg Cys Tyr Phe Gln
        115   120   125

```
Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu His Leu Val Val Ala Gly
    130                 135                 140

Leu Gly Ser Lys Pro Leu Ile Ser Met Arg Gly His Glu Asp Gly Gly
145                 150                 155                 160

Ile Arg Leu Glu Cys Ile Ser Arg Gly Trp Tyr Pro Lys Pro Leu Thr
                165                 170                 175

Val Trp Arg Asp Pro Tyr Gly Gly Val Ala Pro Ala Leu Lys Glu Val
            180                 185                 190

Ser Met Pro Asp Ala Asp Gly Leu Phe Met Val Thr Thr Ala Val Ile
        195                 200                 205

Ile Arg Asp Lys Ser Val Arg Asn Met Ser Cys Ser Ile Asn Asn Thr
    210                 215                 220

Leu Leu Gly Gln Lys Lys Glu Ser Val Ile Phe Ile Pro Glu Ser Phe
225                 230                 235                 240

Met Pro Ser Val Ser Pro Cys Ala Val Ala Leu Pro Ile Ile Val Val
                245                 250                 255

Ile Leu Met Ile Pro Ile Ala Val Cys Ile Tyr Trp Ile Asn Lys Leu
            260                 265                 270

Gln Lys Glu Lys Lys Ile Leu Ser Gly Glu Lys Glu Phe Glu Arg Glu
        275                 280                 285

Thr Arg Glu Ile Ala Leu Lys Glu Leu Glu Lys Glu Arg Val Gln Lys
    290                 295                 300

Glu Glu Glu Leu Gln Val Lys Glu Lys Leu Gln Glu Glu Leu Arg Trp
305                 310                 315                 320

Arg Arg Thr Phe Leu His Ala Glu Leu Gln Phe Phe Ser Asn
                325                 330
```

<210> 10069
<211> 78
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2018; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A1; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418936"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10069
Xaa Ile Ile Val Val Ile Leu Met Ile Pro Ile Ala Val Cys Ile Tyr
1 5 10 15

Trp Ile Asn Lys Leu Gln Lys Glu Lys Lys Ile Leu Ser Gly Glu Lys
20 25 30

Glu Phe Glu Arg Glu Thr Arg Glu Ile Ala Leu Lys Glu Leu Glu Lys
35 40 45

Glu Arg Val Gln Lys Glu Glu Glu Leu Gln Val Lys Glu Lys Leu Gln
50 55 60

Glu Glu Leu Arg Trp Arg Arg Thr Phe Leu His Ala Gly Trp
65 70 75

<210> 10070
<211> 330
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2018; "

<220>
<221> source

<223> /note="Gene Symbol: BTN2A1; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q7KYR7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419043"

<400> 10070
Met Glu Ser Ala Ala Ala Leu His Phe Ser Arg Pro Ala Ser Leu Leu
1   5   10   15

Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala Gln Phe Ile Val
            20   25   30

Val Gly Pro Thr Asp Pro Ile Leu Ala Thr Val Gly Glu Asn Thr Thr
        35   40   45

Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu Asp Met Glu Val
    50   55   60

Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe Val Tyr Lys Gly
65   70   75   80

Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr Arg Gly Arg Thr
                85   90   95

Thr Phe Val Ser Lys Asp Ile Ser Arg Gly Ser Val Ala Leu Val Ile
            100   105   110

His Asn Ile Thr Ala Gln Glu Asn Gly Thr Tyr Arg Cys Tyr Phe Gln
        115   120   125

Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu His Leu Val Val Ala Gly
    130   135   140

Leu Gly Ser Lys Pro Leu Ile Ser Met Arg Gly His Glu Asp Gly Gly
145   150   155   160

Ile Arg Leu Glu Cys Ile Ser Arg Gly Trp Tyr Pro Lys Pro Leu Thr

```
                165                 170                 175

Val Trp Arg Asp Pro Tyr Gly Gly Val Ala Pro Ala Leu Lys Glu Val
            180                 185                 190

Ser Met Pro Asp Ala Asp Gly Leu Phe Met Val Thr Thr Ala Val Ile
        195                 200                 205

Ile Arg Asp Lys Ser Val Arg Asn Met Ser Cys Ser Ile Asn Asn Thr
    210                 215                 220

Leu Leu Gly Gln Lys Lys Glu Ser Val Ile Phe Ile Pro Glu Ser Phe
225                 230                 235                 240

Met Pro Ser Val Ser Pro Cys Ala Val Ala Leu Pro Ile Ile Val Val
                245                 250                 255

Ile Leu Met Ile Pro Ile Ala Val Cys Ile Tyr Trp Ile Asn Lys Leu
            260                 265                 270

Gln Lys Glu Lys Lys Ile Leu Ser Gly Glu Lys Glu Phe Glu Arg Glu
        275                 280                 285

Thr Arg Glu Ile Ala Leu Lys Glu Leu Glu Lys Glu Arg Val Gln Lys
    290                 295                 300

Glu Glu Glu Leu Gln Val Lys Glu Lys Leu Gln Glu Glu Leu Arg Trp
305                 310                 315                 320

Arg Arg Thr Phe Leu His Ala Gly Pro Val
                325                 330


<210> 10071
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2018; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A1; "

<220>
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<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420447"

<400> 10071
Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe Val
1 5 10 15

Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr Arg
20 25 30

Gly Arg Thr Thr Phe Val Ser Lys Asp Ile Ser Arg Gly Ser Val Ala
35 40 45

Leu Val Ile His Asn Ile Thr Ala Gln Glu Asn Gly Thr Tyr Arg Cys
50 55 60

Tyr Phe Gln Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu His Leu Val
65 70 75 80

Val Ala Gly Leu Gly
85

<210> 10072
<211> 466
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2018; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A1; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A1; "

<220>
<221> source
<223> /note="Uniprot ID: Q7KYR7; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000443909"

<400> 10072

```
Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe Val
1               5                  10                  15

Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr Arg
            20                  25                  30

Gly Arg Thr Thr Phe Val Ser Lys Asp Ile Ser Arg Gly Ser Val Ala
        35                  40                  45

Leu Val Ile His Asn Ile Thr Ala Gln Glu Asn Gly Thr Tyr Arg Cys
    50                  55                  60

Tyr Phe Gln Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu His Leu Val
65                  70                  75                  80

Val Ala Gly Leu Gly Ser Lys Pro Leu Ile Ser Met Arg Gly His Glu
                85                  90                  95

Asp Gly Gly Ile Arg Leu Glu Cys Ile Ser Arg Gly Trp Tyr Pro Lys
            100                 105                 110

Pro Leu Thr Val Trp Arg Asp Pro Tyr Gly Gly Val Ala Pro Ala Leu
        115                 120                 125

Lys Glu Val Ser Met Pro Asp Ala Asp Gly Leu Phe Met Val Thr Thr
    130                 135                 140

Ala Val Ile Ile Arg Asp Lys Ser Val Arg Asn Met Ser Cys Ser Ile
145                 150                 155                 160

Asn Asn Thr Leu Leu Gly Gln Lys Lys Glu Ser Val Ile Phe Ile Pro
                165                 170                 175

Glu Ser Phe Met Pro Ser Val Ser Pro Cys Ala Val Ala Leu Pro Ile
            180                 185                 190

Ile Val Val Ile Leu Met Ile Pro Ile Ala Val Cys Ile Tyr Trp Ile
        195                 200                 205

Asn Lys Leu Gln Lys Glu Lys Lys Ile Leu Ser Gly Glu Lys Glu Phe
    210                 215                 220
```

```
Glu Arg Glu Thr Arg Glu Ile Ala Leu Lys Glu Leu Glu Lys Glu Arg
225                 230                 235                 240

Val Gln Lys Glu Glu Glu Leu Gln Val Lys Glu Lys Leu Gln Glu Glu
                245                 250                 255

Leu Arg Trp Arg Arg Thr Phe Leu His Ala Val Asp Val Val Leu Asp
            260                 265                 270

Pro Asp Thr Ala His Pro Asp Leu Phe Leu Ser Glu Asp Arg Arg Ser
        275                 280                 285

Val Arg Arg Cys Pro Phe Arg His Leu Gly Glu Ser Val Pro Asp Asn
    290                 295                 300

Pro Glu Arg Phe Asp Ser Gln Pro Cys Val Leu Gly Arg Glu Ser Phe
305                 310                 315                 320

Ala Ser Gly Lys His Tyr Trp Glu Val Glu Val Glu Asn Val Ile Glu
                325                 330                 335

Trp Thr Val Gly Val Cys Arg Asp Ser Val Glu Arg Lys Gly Glu Val
            340                 345                 350

Leu Leu Ile Pro Gln Asn Gly Phe Trp Thr Leu Glu Met His Lys Gly
        355                 360                 365

Gln Tyr Arg Ala Val Ser Ser Pro Asp Arg Ile Leu Pro Leu Lys Glu
    370                 375                 380

Ser Leu Cys Arg Val Gly Val Phe Leu Asp Tyr Glu Ala Gly Asp Val
385                 390                 395                 400

Ser Phe Tyr Asn Met Arg Asp Arg Ser His Ile Tyr Thr Cys Pro Arg
                405                 410                 415

Ser Ala Phe Ser Val Pro Val Arg Pro Phe Phe Arg Leu Gly Cys Glu
            420                 425                 430

Asp Ser Pro Ile Phe Ile Cys Pro Ala Leu Thr Gly Ala Asn Gly Val
        435                 440                 445
```

Thr Val Pro Glu Glu Gly Leu Thr Leu His Arg Val Gly Thr His Gln
    450   455   460

Ser Leu
465

<210> 10073
<211> 407
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
      member A2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WVV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000337117"

<400> 10073
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1   5   10   15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Gly
            20   25   30

Leu Gly Ser Lys Pro Leu Ile Glu Ile Lys Ala Gln Glu Asp Gly Ser
        35   40   45

Ile Trp Leu Glu Cys Ile Ser Gly Gly Trp Tyr Pro Glu Pro Leu Thr
    50   55   60

Val Trp Arg Asp Pro Tyr Gly Glu Val Val Pro Ala Leu Lys Glu Val
65   70   75   80

Ser Ile Ala Asp Ala Asp Gly Leu Phe Met Val Thr Thr Ala Val Ile

```
                85                  90                  95

Ile Arg Asp Lys Tyr Val Arg Asn Val Ser Cys Ser Val Asn Asn Thr
            100                 105                 110

Leu Leu Gly Gln Glu Lys Glu Thr Val Ile Phe Ile Pro Glu Ser Phe
        115                 120                 125

Met Pro Ser Ala Ser Pro Trp Met Val Ala Leu Ala Val Ile Leu Thr
    130                 135                 140

Ala Ser Pro Trp Met Val Ser Met Thr Val Ile Leu Ala Val Phe Ile
145                 150                 155                 160

Ile Phe Met Ala Val Ser Ile Cys Cys Ile Lys Lys Leu Gln Arg Glu
                165                 170                 175

Lys Lys Ile Leu Ser Gly Glu Lys Lys Val Glu Gln Glu Glu Lys Glu
            180                 185                 190

Ile Ala Gln Gln Leu Gln Glu Glu Leu Arg Trp Arg Arg Thr Phe Leu
        195                 200                 205

His Ala Ala Asp Val Val Leu Asp Pro Asp Thr Ala His Pro Glu Leu
    210                 215                 220

Phe Leu Ser Glu Asp Arg Arg Ser Val Arg Arg Gly Pro Tyr Arg Gln
225                 230                 235                 240

Arg Val Pro Asp Asn Pro Glu Arg Phe Asp Ser Gln Pro Cys Val Leu
                245                 250                 255

Gly Trp Glu Ser Phe Ala Ser Gly Lys His Tyr Trp Glu Val Glu Val
            260                 265                 270

Glu Asn Val Met Val Trp Thr Val Gly Val Cys Arg His Ser Val Glu
        275                 280                 285

Arg Lys Gly Glu Val Leu Leu Ile Pro Gln Asn Gly Phe Trp Thr Leu
    290                 295                 300

Glu Met Phe Gly Asn Gln Tyr Arg Ala Leu Ser Ser Pro Glu Arg Ile
305                 310                 315                 320
```

```
Leu Pro Leu Lys Glu Ser Leu Cys Arg Val Gly Val Phe Leu Asp Tyr
                325                 330                 335

Glu Ala Gly Asp Val Ser Phe Tyr Asn Met Arg Asp Arg Ser His Ile
            340                 345                 350

Tyr Thr Cys Pro Arg Ser Ala Phe Thr Val Pro Val Arg Pro Phe Phe
        355                 360                 365

Arg Leu Gly Ser Asp Asp Ser Pro Ile Phe Ile Cys Pro Ala Leu Thr
    370                 375                 380

Gly Ala Ser Gly Val Met Val Pro Glu Glu Gly Leu Lys Leu His Arg
385                 390                 395                 400

Val Gly Thr His Gln Ser Leu
                405
```

<210> 10074
<211> 523
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WVV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349143"

<400> 10074

```
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1               5                   10                  15
```

```
Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala
            20                  25                  30

Gln Phe Thr Val Val Gly Pro Ala Asn Pro Ile Leu Ala Met Val Gly
        35                  40                  45

Glu Asn Thr Thr Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu
    50                  55                  60

Asp Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe
65                  70                  75                  80

Val Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr
                85                  90                  95

Arg Gly Arg Ile Thr Phe Val Ser Lys Asp Ile Asn Arg Gly Ser Val
            100                 105                 110

Ala Leu Val Ile His Asn Val Thr Ala Gln Glu Asn Gly Ile Tyr Arg
        115                 120                 125

Cys Tyr Phe Gln Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu Arg Leu
    130                 135                 140

Val Val Ala Gly Leu Gly Ser Lys Pro Leu Ile Glu Ile Lys Ala Gln
145                 150                 155                 160

Glu Asp Gly Ser Ile Trp Leu Glu Cys Ile Ser Gly Gly Trp Tyr Pro
                165                 170                 175

Glu Pro Leu Thr Val Trp Arg Asp Pro Tyr Gly Glu Val Val Pro Ala
            180                 185                 190

Leu Lys Glu Val Ser Ile Ala Asp Ala Asp Gly Leu Phe Met Val Thr
        195                 200                 205

Thr Ala Val Ile Ile Arg Asp Lys Tyr Val Arg Asn Val Ser Cys Ser
    210                 215                 220

Val Asn Asn Thr Leu Leu Gly Gln Glu Lys Glu Thr Val Ile Phe Ile
225                 230                 235                 240

Pro Glu Ser Phe Met Pro Ser Ala Ser Pro Trp Met Val Ala Leu Ala
```

245 250 255

Val Ile Leu Thr Ala Ser Pro Trp Met Val Ser Met Thr Val Ile Leu
260 265 270

Ala Val Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys Ile Lys Lys
275 280 285

Leu Gln Arg Glu Lys Lys Ile Leu Ser Gly Glu Lys Lys Val Glu Gln
290 295 300

Glu Glu Lys Glu Ile Ala Gln Gln Leu Gln Glu Glu Leu Arg Trp Arg
305 310 315 320

Arg Thr Phe Leu His Ala Ala Asp Val Val Leu Asp Pro Asp Thr Ala
325 330 335

His Pro Glu Leu Phe Leu Ser Glu Asp Arg Arg Ser Val Arg Arg Gly
340 345 350

Pro Tyr Arg Gln Arg Val Pro Asp Asn Pro Glu Arg Phe Asp Ser Gln
355 360 365

Pro Cys Val Leu Gly Trp Glu Ser Phe Ala Ser Gly Lys His Tyr Trp
370 375 380

Glu Val Glu Val Glu Asn Val Met Val Trp Thr Val Gly Val Cys Arg
385 390 395 400

His Ser Val Glu Arg Lys Gly Glu Val Leu Leu Ile Pro Gln Asn Gly
405 410 415

Phe Trp Thr Leu Glu Met Phe Gly Asn Gln Tyr Arg Ala Leu Ser Ser
420 425 430

Pro Glu Arg Ile Leu Pro Leu Lys Glu Ser Leu Cys Arg Val Gly Val
435 440 445

Phe Leu Asp Tyr Glu Ala Gly Asp Val Ser Phe Tyr Asn Met Arg Asp
450 455 460

Arg Ser His Ile Tyr Thr Cys Pro Arg Ser Ala Phe Thr Val Pro Val
465 470 475 480

```
Arg Pro Phe Phe Arg Leu Gly Ser Asp Asp Ser Pro Ile Phe Ile Cys
                485                 490                 495

Pro Ala Leu Thr Gly Ala Ser Gly Val Met Val Pro Glu Glu Gly Leu
            500                 505                 510

Lys Leu His Arg Val Gly Thr His Gln Ser Leu
        515                 520
```

<210> 10075
<211> 256
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2019; "

<220>
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<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
member A2; "

<220>
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<223> /note="Uniprot ID: Q8WVV5; "

<220>
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<223> /note="ENSP ID: ENSP00000394241"

<400> 10075

```
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1               5                  10                  15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala
            20                  25                  30

Gln Phe Thr Val Val Gly Pro Ala Asn Pro Ile Leu Ala Met Val Gly
        35                  40                  45

Glu Asn Thr Thr Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu
    50                  55                  60
```

```
Asp Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe
65                  70                  75                  80

Val Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr
                85                  90                  95

Arg Gly Arg Ile Thr Phe Val Ser Lys Asp Ile Asn Arg Gly Ser Val
            100                 105                 110

Ala Leu Val Ile His Asn Val Thr Ala Gln Glu Asn Gly Ile Tyr Arg
        115                 120                 125

Cys Tyr Phe Gln Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu Arg Leu
    130                 135                 140

Val Val Ala Glu Ser Phe Met Pro Ser Ala Ser Pro Trp Met Val Ala
145                 150                 155                 160

Leu Ala Val Ile Leu Thr Ala Ser Pro Trp Met Val Ser Met Thr Val
                165                 170                 175

Ile Leu Ala Val Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys Ile
            180                 185                 190

Lys Lys Leu Gln Arg Glu Lys Lys Ile Leu Ser Gly Glu Lys Lys Val
        195                 200                 205

Glu Gln Glu Glu Lys Glu Ile Ala Gln Gln Leu Gln Glu Glu Leu Arg
    210                 215                 220

Trp Arg Arg Thr Phe Leu His Ala Gly Tyr Glu Leu Pro Gly Ile Arg
225                 230                 235                 240

Gly Pro Ser Trp Lys Arg Pro Leu His Gly Glu Pro Pro Ser Ala Phe
                245                 250                 255
```

<210> 10076
<211> 523
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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member A2; "

<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000399308"

<400> 10076

```
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1               5                  10                  15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala
            20                  25                  30

Gln Phe Thr Val Val Gly Pro Ala Asn Pro Ile Leu Ala Met Val Gly
        35                  40                  45

Glu Asn Thr Thr Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu
    50                  55                  60

Asp Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe
65                  70                  75                  80

Val Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr
                85                  90                  95

Arg Gly Arg Ile Thr Phe Val Ser Lys Asp Ile Asn Arg Gly Ser Val
            100                 105                 110

Ala Leu Val Ile His Asn Val Thr Ala Gln Glu Asn Gly Ile Tyr Arg
        115                 120                 125

Cys Tyr Phe Gln Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu Arg Leu
    130                 135                 140

Val Val Ala Gly Leu Gly Ser Lys Pro Leu Ile Glu Ile Lys Ala Gln
145                 150                 155                 160
```

```
Glu Asp Gly Ser Ile Trp Leu Glu Cys Ile Ser Gly Gly Trp Tyr Pro
                165                 170                 175

Glu Pro Leu Thr Val Trp Arg Asp Pro Tyr Gly Glu Val Val Pro Ala
            180                 185                 190

Leu Lys Glu Val Ser Ile Ala Asp Ala Asp Gly Leu Phe Met Val Thr
        195                 200                 205

Thr Ala Val Ile Ile Arg Asp Lys Tyr Val Arg Asn Val Ser Cys Ser
    210                 215                 220

Val Asn Asn Thr Leu Leu Gly Gln Glu Lys Glu Thr Val Ile Phe Ile
225                 230                 235                 240

Pro Glu Ser Phe Met Pro Ser Ala Ser Pro Trp Met Val Ala Leu Ala
                245                 250                 255

Val Ile Leu Thr Ala Ser Pro Trp Met Val Ser Met Thr Val Ile Leu
            260                 265                 270

Ala Val Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys Ile Lys Lys
        275                 280                 285

Leu Gln Arg Glu Lys Lys Ile Leu Ser Gly Glu Lys Lys Val Glu Gln
    290                 295                 300

Glu Glu Lys Glu Ile Ala Gln Gln Leu Gln Glu Glu Leu Arg Trp Arg
305                 310                 315                 320

Arg Thr Phe Leu His Ala Ala Asp Val Val Leu Asp Pro Asp Thr Ala
                325                 330                 335

His Pro Glu Leu Phe Leu Ser Glu Asp Arg Arg Ser Val Arg Arg Gly
            340                 345                 350

Pro Tyr Arg Gln Arg Val Pro Asp Asn Pro Glu Arg Phe Asp Ser Gln
        355                 360                 365

Pro Cys Val Leu Gly Trp Glu Ser Phe Ala Ser Gly Lys His Tyr Trp
    370                 375                 380
```

```
Glu Val Glu Val Glu Asn Val Met Val Trp Thr Val Gly Val Cys Arg
385                 390                 395                 400

His Ser Val Glu Arg Lys Gly Glu Val Leu Leu Ile Pro Gln Asn Gly
                405                 410                 415

Phe Trp Thr Leu Glu Met Phe Gly Asn Gln Tyr Arg Ala Leu Ser Ser
            420                 425                 430

Pro Glu Arg Ile Leu Pro Leu Lys Glu Ser Leu Cys Arg Val Gly Val
        435                 440                 445

Phe Leu Asp Tyr Glu Ala Gly Asp Val Ser Phe Tyr Asn Met Arg Asp
    450                 455                 460

Arg Ser His Ile Tyr Thr Cys Pro Arg Ser Ala Phe Thr Val Pro Val
465                 470                 475                 480

Arg Pro Phe Phe Arg Leu Gly Ser Asp Asp Ser Pro Ile Phe Ile Cys
                485                 490                 495

Pro Ala Leu Thr Gly Ala Ser Gly Val Met Val Pro Glu Glu Gly Leu
            500                 505                 510

Lys Leu His Arg Val Gly Thr His Gln Ser Leu
        515                 520


<210> 10077
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
      member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417129"
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<400> 10077
Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys Ile Lys Lys Leu Gln
1   5   10   15

Arg Glu Lys Lys Ile Leu Ser Gly Glu Lys Lys Val Glu Gln Glu Glu
            20   25   30

Lys Glu Ile Ala Gln Gln Leu Gln Glu Glu Leu Arg Trp Arg Arg Thr
        35   40   45

Phe Leu His Ala Gly Glu Cys Leu
    50   55

<210> 10078
<211> 336
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
      member A2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WVV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417472"

<400> 10078
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1   5   10   15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala
            20   25   30

Gln Phe Thr Val Val Gly Pro Ala Asn Pro Ile Leu Ala Met Val Gly
        35   40   45

```
Glu Asn Thr Thr Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu
    50                  55                  60

Asp Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe
65                  70                  75                  80

Val Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr
                85                  90                  95

Arg Gly Arg Ile Thr Phe Val Ser Lys Asp Ile Asn Arg Gly Ser Val
            100                 105                 110

Ala Leu Val Ile His Asn Val Thr Ala Gln Glu Asn Gly Ile Tyr Arg
        115                 120                 125

Cys Tyr Phe Gln Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu Arg Leu
    130                 135                 140

Val Val Ala Gly Leu Gly Ser Lys Pro Leu Ile Glu Ile Lys Ala Gln
145                 150                 155                 160

Glu Asp Gly Ser Ile Trp Leu Glu Cys Ile Ser Gly Gly Trp Tyr Pro
                165                 170                 175

Glu Pro Leu Thr Val Trp Arg Asp Pro Tyr Gly Glu Val Val Pro Ala
            180                 185                 190

Leu Lys Glu Val Ser Ile Ala Asp Ala Asp Gly Leu Phe Met Val Thr
        195                 200                 205

Thr Ala Val Ile Ile Arg Asp Lys Tyr Val Arg Asn Val Ser Cys Ser
    210                 215                 220

Val Asn Asn Thr Leu Leu Gly Gln Glu Lys Glu Thr Val Ile Phe Ile
225                 230                 235                 240

Pro Glu Ser Phe Met Pro Ser Ala Ser Pro Trp Met Val Ala Leu Ala
                245                 250                 255

Val Ile Leu Thr Ala Ser Pro Trp Met Val Ser Met Thr Val Ile Leu
            260                 265                 270

Ala Val Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys Ile Lys Lys
```

275 280 285

Leu Gln Arg Glu Lys Lys Ile Leu Ser Gly Glu Lys Lys Val Glu Gln
290 295 300

Glu Glu Lys Glu Ile Ala Gln Gln Leu Gln Glu Glu Leu Arg Trp Arg
305 310 315 320

Arg Thr Phe Leu His Ala Asp Val Asn Leu Thr Gly Leu Arg Asn Thr
325 330 335

<210> 10079
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
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<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417511"

<400> 10079
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1 5 10 15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala
20 25 30

Gln Phe Thr Val Val Gly Pro Ala Asn Pro Ile Leu Ala Met Val Gly
35 40 45

Glu Asn Thr Thr Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu
50 55 60

Asp Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe
65 70 75 80

```
Val Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr
                85                  90                  95


<210> 10080
<211> 80
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2019; "

<220>
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<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
      member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417676"

<400> 10080
Met Val Thr Thr Ala Val Ile Ile Arg Asp Lys Tyr Val Arg Asn Val
1               5                  10                  15


Ser Cys Ser Val Asn Asn Thr Leu Leu Gly Gln Glu Lys Glu Thr Val
            20                  25                  30


Ile Phe Ile Pro Glu Ser Phe Met Pro Ser Ala Ser Pro Trp Met Val
        35                  40                  45


Ala Leu Ala Val Ile Leu Thr Ala Ser Pro Trp Met Val Ser Met Thr
    50                  55                  60


Val Ile Leu Ala Val Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys
65                  70                  75                  80


<210> 10081
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "
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<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 2,
member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418176"

<400> 10081
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1 5 10 15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Gly
20 25 30

Leu Gly Ser Lys Pro Leu Ile Glu Ile Lys Ala Gln Glu Asp Gly Ser
35 40 45

Ile Trp Leu Glu Cys Ile Ser Gly Gly Trp Tyr Pro Glu Pro Leu Thr
50 55 60

Val Trp Arg Asp Pro Tyr Gly Glu Val Val Pro Ala Leu Lys Glu Val
65 70 75 80

Ser Ile Ala Asp Ala Asp Gly Leu Phe Met Val Thr Thr Ala Val Ile
85 90 95

Ile Arg Asp Lys Tyr Val Arg Asn Val Ser Cys Ser Val Asn Asn Thr
100 105 110

Leu Leu Gly Gln Glu Lys Glu Thr Val Ile Phe Ile Pro Glu Ser Phe
115 120 125

Met Pro Ser Ala Ser Pro Trp Met Val Ala Leu Ala Val Ile Leu Thr
130 135 140

Ala Ser Pro Trp Met Val Ser Met Thr Val Ile Leu Ala Val Phe Ile
145 150 155 160

Ile Phe Met Ala Val Ser Ile Cys Cys Ile Lys Lys Leu Gln Arg Glu
165 170 175

Lys Lys Ile Leu Ser Gly Glu Lys
180

<210> 10082
<211> 39
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
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<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418657"

<400> 10082
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1 5 10 15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Val
20 25 30

Leu Pro Arg Ser Val Cys Val
35

<210> 10083
<211> 239
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418857"

<400> 10083
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1   5   10   15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Ala
            20   25   30

Gln Phe Thr Val Val Gly Pro Ala Asn Pro Ile Leu Ala Met Val Gly
        35   40   45

Glu Asn Thr Thr Leu Arg Cys His Leu Ser Pro Glu Lys Asn Ala Glu
    50   55   60

Asp Met Glu Val Arg Trp Phe Arg Ser Gln Phe Ser Pro Ala Val Phe
65   70   75   80

Val Tyr Lys Gly Gly Arg Glu Arg Thr Glu Glu Gln Met Glu Glu Tyr
                85   90   95

Arg Gly Arg Ile Thr Phe Val Ser Lys Asp Ile Asn Arg Gly Ser Val
            100   105   110

Ala Leu Val Ile His Asn Val Thr Ala Gln Glu Asn Gly Ile Tyr Arg
        115   120   125

Cys Tyr Phe Gln Glu Gly Arg Ser Tyr Asp Glu Ala Ile Leu Arg Leu
    130   135   140

Val Val Ala Gly Leu Gly Ser Lys Pro Leu Ile Glu Ile Lys Ala Gln
145   150   155   160

Glu Asp Gly Ser Ile Trp Leu Glu Cys Ile Ser Gly Gly Trp Tyr Pro
                165   170   175

Glu Pro Leu Thr Val Trp Arg Asp Pro Tyr Gly Glu Val Val Pro Ala
            180   185   190

Leu Lys Glu Val Ser Ile Ala Asp Ala Asp Gly Leu Phe Met Val Thr
        195   200   205

```
Thr Ala Val Ile Ile Arg Asp Lys Tyr Val Arg Asn Val Ser Cys Ser
    210                 215                 220

Val Asn Asn Thr Leu Leu Gly Gln Glu Lys Glu Thr Val Ile Phe
225                 230                 235
```

<210> 10084
<211> 237
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
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member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418965"

<400> 10084

```
Met Val Thr Thr Ala Val Ile Ile Arg Asp Lys Tyr Val Arg Asn Val
1               5                   10                  15

Ser Cys Ser Val Asn Asn Thr Leu Leu Gly Gln Glu Lys Glu Thr Val
            20                  25                  30

Ile Phe Ile Pro Glu Ser Phe Met Pro Ser Ala Ser Pro Trp Met Val
        35                  40                  45

Ala Leu Ala Val Ile Leu Thr Ala Ser Pro Trp Met Val Ser Met Thr
    50                  55                  60

Val Ile Leu Ala Val Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys
65                  70                  75                  80

Ile Lys Lys Leu Gln Arg Glu Lys Lys Ile Leu Ser Gly Glu Lys Lys
                85                  90                  95

Val Glu Gln Glu Glu Lys Glu Ile Ala Gln Gln Leu Gln Glu Glu Leu
```

```
            100                 105                 110

Arg Trp Arg Arg Thr Phe Leu His Ala Ala Asp Val Val Leu Asp Pro
        115                 120                 125

Asp Thr Ala His Pro Glu Leu Phe Leu Ser Glu Asp Arg Arg Ser Val
    130                 135                 140

Arg Arg Gly Pro Tyr Arg Gln Arg Val Pro Asp Asn Pro Glu Arg Phe
145                 150                 155                 160

Asp Ser Gln Pro Cys Val Leu Gly Trp Glu Ser Phe Ala Ser Gly Lys
                165                 170                 175

His Tyr Trp Glu Val Glu Val Glu Asn Val Met Val Trp Thr Val Gly
            180                 185                 190

Val Cys Arg His Ser Val Glu Arg Lys Gly Glu Val Leu Leu Ile Pro
        195                 200                 205

Gln Asn Gly Phe Trp Thr Leu Glu Met Phe Gly Asn Gln Tyr Arg Ala
    210                 215                 220

Leu Ser Ser Pro Glu Arg Ile Leu Pro Leu Lys Glu Ser
225                 230                 235


<210> 10085
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
      member A2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419226"
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<400> 10085
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu
1   5   10   15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Gly
            20   25   30

Leu Gly Ser Lys Pro Leu Ile Glu Ile Lys Ala Gln Glu Asp Gly Ser
        35   40   45

Ile Trp Leu Glu Cys Ile Ser Gly Gly Trp Tyr Pro Glu Pro Leu Thr
    50   55   60

Val Trp Arg Asp Pro Tyr Gly Glu Val Val Pro Ala Leu Lys Glu Val
65   70   75   80

Ser Ile Ala Asp Ala Asp Gly Leu Phe Met Val Thr Thr Ala Val Ile
                85   90   95

Ile Arg Asp Lys Tyr Val Arg Asn Val Ser Cys Ser Val Asn
            100   105   110

<210> 10086
<211> 313
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2019; "

<220>
<221> source
<223> /note="Gene Symbol: BTN2A2; "

<220>
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<223> /note="Gene Name: butyrophilin, subfamily 2,
      member A2; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WVV5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419451"

<400> 10086
Met Glu Pro Ala Ala Ala Leu His Phe Ser Leu Pro Ala Ser Leu Leu

```
1               5                   10                  15

Leu Leu Leu Leu Leu Leu Leu Leu Ser Leu Cys Ala Leu Val Ser Glu
            20                  25                  30

Ser Phe Met Pro Ser Ala Ser Pro Trp Met Val Ala Leu Ala Val Ile
        35                  40                  45

Leu Thr Ala Ser Pro Trp Met Val Ser Met Thr Val Ile Leu Ala Val
    50                  55                  60

Phe Ile Ile Phe Met Ala Val Ser Ile Cys Cys Ile Lys Lys Leu Gln
65                  70                  75                  80

Arg Glu Lys Lys Ile Leu Ser Gly Glu Lys Lys Val Glu Gln Glu Glu
                85                  90                  95

Lys Glu Ile Ala Gln Gln Leu Gln Glu Glu Leu Arg Trp Arg Arg Thr
            100                 105                 110

Phe Leu His Ala Ala Asp Val Val Leu Asp Pro Asp Thr Ala His Pro
        115                 120                 125

Glu Leu Phe Leu Ser Glu Asp Arg Arg Ser Val Arg Arg Gly Pro Tyr
    130                 135                 140

Arg Gln Arg Val Pro Asp Asn Pro Glu Arg Phe Asp Ser Gln Pro Cys
145                 150                 155                 160

Val Leu Gly Trp Glu Ser Phe Ala Ser Gly Lys His Tyr Trp Glu Val
                165                 170                 175

Glu Val Glu Asn Val Met Val Trp Thr Val Gly Val Cys Arg His Ser
            180                 185                 190

Val Glu Arg Lys Gly Glu Val Leu Leu Ile Pro Gln Asn Gly Phe Trp
        195                 200                 205

Thr Leu Glu Met Phe Gly Asn Gln Tyr Arg Ala Leu Ser Ser Pro Glu
    210                 215                 220

Arg Ile Leu Pro Leu Lys Glu Ser Leu Cys Arg Val Gly Val Phe Leu
225                 230                 235                 240
```

```
Asp Tyr Glu Ala Gly Asp Val Ser Phe Tyr Asn Met Arg Asp Arg Ser
                245                 250                 255

His Ile Tyr Thr Cys Pro Arg Ser Ala Phe Thr Val Pro Val Arg Pro
            260                 265                 270

Phe Phe Arg Leu Gly Ser Asp Asp Ser Pro Ile Phe Ile Cys Pro Ala
        275                 280                 285

Leu Thr Gly Ala Ser Gly Val Met Val Pro Glu Glu Gly Leu Lys Leu
    290                 295                 300

His Arg Val Gly Thr His Gln Ser Leu
305                 310
```

<210> 10087
<211> 513
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2020; "

<220>
<221> source
<223> /note="Gene Symbol: BTN3A1; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin, subfamily 3,
member A1; "

<220>
<221> source
<223> /note="Uniprot ID: O00481; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000289361"

<400> 10087

```
Met Lys Met Ala Ser Phe Leu Ala Phe Leu Leu Leu Asn Phe Arg Val
1               5                   10                  15

Cys Leu Leu Leu Leu Gln Leu Leu Met Pro His Ser Ala Gln Phe Ser
            20                  25                  30
```

```
Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35                  40                  45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50                  55                  60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65                  70                  75                  80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85                  90                  95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100                 105                 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115                 120                 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asp Leu His Val Asp Val Lys Gly Tyr Lys Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Gln Trp Ser Asn Asn Lys Gly Glu Asn Ile Pro Thr Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Ala Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Ser Ser Gly Glu Gly Val Ser Cys Thr Ile Arg Ser
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Arg Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255

Pro Val Leu Leu Leu Leu Leu Gly Gly Ala Gly Tyr Phe Leu Trp Gln
```

```
            260                 265                 270

Gln Gln Glu Glu Lys Lys Thr Gln Phe Arg Lys Lys Lys Arg Glu Gln
        275                 280                 285

Glu Leu Arg Glu Met Ala Trp Ser Thr Met Lys Gln Glu Gln Ser Thr
    290                 295                 300

Arg Val Lys Leu Leu Glu Glu Leu Arg Trp Arg Ser Ile Gln Tyr Ala
305                 310                 315                 320

Ser Arg Gly Glu Arg His Ser Ala Tyr Asn Glu Trp Lys Lys Ala Leu
                325                 330                 335

Phe Lys Pro Ala Asp Val Ile Leu Asp Pro Lys Thr Ala Asn Pro Ile
            340                 345                 350

Leu Leu Val Ser Glu Asp Gln Arg Ser Val Gln Arg Ala Lys Glu Pro
        355                 360                 365

Gln Asp Leu Pro Asp Asn Pro Glu Arg Phe Asn Trp His Tyr Cys Val
    370                 375                 380

Leu Gly Cys Glu Ser Phe Ile Ser Gly Arg His Tyr Trp Glu Val Glu
385                 390                 395                 400

Val Gly Asp Arg Lys Glu Trp His Ile Gly Val Cys Ser Lys Asn Val
                405                 410                 415

Gln Arg Lys Gly Trp Val Lys Met Thr Pro Glu Asn Gly Phe Trp Thr
            420                 425                 430

Met Gly Leu Thr Asp Gly Asn Lys Tyr Arg Thr Leu Thr Glu Pro Arg
        435                 440                 445

Thr Asn Leu Lys Leu Pro Lys Pro Pro Lys Lys Val Gly Val Phe Leu
    450                 455                 460

Asp Tyr Glu Thr Gly Asp Ile Ser Phe Tyr Asn Ala Val Asp Gly Ser
465                 470                 475                 480

His Ile His Thr Phe Leu Asp Val Ser Phe Ser Glu Ala Leu Tyr Pro
                485                 490                 495
```

Val Phe Arg Ile Leu Thr Leu Glu Pro Thr Ala Leu Thr Ile Cys Pro
500 505 510

Ala

<210> 10088
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2020; "

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member A1; "

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<400> 10088
Met Lys Met Ala Ser Phe Leu Ala Phe Leu Leu Leu Asn Phe Arg Val
1 5 10 15

Cys Leu Leu Leu Leu Gln Leu Leu Met Pro His Ser Ala Gln Phe Ser
20 25 30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
35 40 45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
50 55 60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65 70 75 80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
85 90 95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
100 105 110

Ile His Asn Val Thr Ala Ser
115

<210> 10089
<211> 378
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: O00481; "

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<400> 10089
Met Lys Met Ala Ser Phe Leu Ala Phe Leu Leu Leu Asn Phe Arg Val
1 5 10 15

Cys Leu Leu Leu Leu Gln Leu Leu Met Pro His Ser Ala Gln Phe Ser
20 25 30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
35 40 45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
50 55 60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65 70 75 80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
85 90 95

```
Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100                 105                 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115                 120                 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asp Leu His Val Asp Val Lys Gly Tyr Lys Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Gln Trp Ser Asn Asn Lys Gly Glu Asn Ile Pro Thr Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Ala Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Ser Ser Gly Glu Gly Val Ser Cys Thr Ile Arg Ser
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Arg Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255

Pro Val Leu Leu Leu Leu Leu Gly Gly Ala Gly Tyr Phe Leu Trp Gln
            260                 265                 270

Gln Gln Glu Glu Lys Lys Thr Gln Phe Arg Lys Lys Lys Arg Glu Gln
        275                 280                 285

Glu Leu Arg Glu Met Ala Trp Ser Thr Met Lys Gln Glu Gln Ser Thr
    290                 295                 300

Arg Val Lys Leu Leu Glu Glu Leu Arg Trp Arg Ser Ile Gln Tyr Ala
305                 310                 315                 320
```

Ser Arg Gly Glu Arg His Ser Ala Tyr Asn Glu Trp Lys Lys Ala Leu
325 330 335

Phe Lys Pro Gly Pro Pro Ile Gly Gln Thr Gln Gln Gln Thr Arg Gly
340 345 350

Gln Gly Ser Pro Val Ala Leu Ser Gln Glu Ser Ala Gln Arg Thr Asp
355 360 365

Ser Trp Gly Pro Glu Glu Gly Gly Glu Ser
370 375

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<220>
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<400> 10090
Met Lys Met Ala Ser Phe Leu Ala Phe Leu Leu Leu Asn Phe Arg Val
1 5 10 15

Cys Leu Leu Leu Leu Gln Leu Leu Met Pro His Ser Ala Gln Phe Ser
20 25 30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met
35 40

<210> 10091
<211> 461
<212> PRT
<213> Homo sapiens

<220>
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<400> 10091
Met Lys Met Ala Ser Phe Leu Ala Phe Leu Leu Leu Asn Phe Arg Val
1   5   10   15

Cys Leu Leu Leu Leu Gln Leu Leu Met Pro His Ser Ala Gln Phe Ser
            20   25   30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35   40   45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50   55   60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65   70   75   80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85   90   95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100   105   110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115   120   125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130   135   140

```
Asp Gly Val Gly Leu Tyr Ala Val Ala Ala Ser Val Ile Met Arg Gly
145                 150                 155                 160

Ser Ser Gly Glu Gly Val Ser Cys Thr Ile Arg Ser Ser Leu Leu Gly
                165                 170                 175

Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro Phe Phe Arg Ser
            180                 185                 190

Ala Gln Arg Trp Ile Ala Ala Leu Ala Gly Thr Leu Pro Val Leu Leu
        195                 200                 205

Leu Leu Leu Gly Gly Ala Gly Tyr Phe Leu Trp Gln Gln Gln Glu Glu
    210                 215                 220

Lys Lys Thr Gln Phe Arg Lys Lys Lys Arg Glu Gln Glu Leu Arg Glu
225                 230                 235                 240

Met Ala Trp Ser Thr Met Lys Gln Glu Gln Ser Thr Arg Val Lys Leu
                245                 250                 255

Leu Glu Glu Leu Arg Trp Arg Ser Ile Gln Tyr Ala Ser Arg Gly Glu
            260                 265                 270

Arg His Ser Ala Tyr Asn Glu Trp Lys Lys Ala Leu Phe Lys Pro Ala
        275                 280                 285

Asp Val Ile Leu Asp Pro Lys Thr Ala Asn Pro Ile Leu Leu Val Ser
    290                 295                 300

Glu Asp Gln Arg Ser Val Gln Arg Ala Lys Glu Pro Gln Asp Leu Pro
305                 310                 315                 320

Asp Asn Pro Glu Arg Phe Asn Trp His Tyr Cys Val Leu Gly Cys Glu
                325                 330                 335

Ser Phe Ile Ser Gly Arg His Tyr Trp Glu Val Glu Val Gly Asp Arg
            340                 345                 350

Lys Glu Trp His Ile Gly Val Cys Ser Lys Asn Val Gln Arg Lys Gly
        355                 360                 365
```

```
Trp Val Lys Met Thr Pro Glu Asn Gly Phe Trp Thr Met Gly Leu Thr
    370                 375                 380

Asp Gly Asn Lys Tyr Arg Thr Leu Thr Glu Pro Arg Thr Asn Leu Lys
385                 390                 395                 400

Leu Pro Lys Pro Pro Lys Lys Val Gly Val Phe Leu Asp Tyr Glu Thr
                405                 410                 415

Gly Asp Ile Ser Phe Tyr Asn Ala Val Asp Gly Ser His Ile His Thr
            420                 425                 430

Phe Leu Asp Val Ser Phe Ser Glu Ala Leu Tyr Pro Val Phe Arg Ile
        435                 440                 445

Leu Thr Leu Glu Pro Thr Ala Leu Thr Ile Cys Pro Ala
    450                 455                 460
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<210> 10092
<211> 352
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000420010"

<400> 10092

```
Met Lys Met Ala Ser Phe Leu Ala Phe Leu Leu Leu Asn Phe Arg Val
1               5                   10                  15

Cys Leu Leu Leu Leu Gln Leu Leu Met Pro His Ser Ala Gln Phe Ser
            20                  25                  30
```

```
Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35                  40                  45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50                  55                  60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65                  70                  75                  80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85                  90                  95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100                 105                 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115                 120                 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asp Leu His Val Asp Val Lys Gly Tyr Lys Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Gln Trp Ser Asn Asn Lys Gly Glu Asn Ile Pro Thr Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Ala Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Ser Ser Gly Glu Gly Val Ser Cys Thr Ile Arg Ser
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Arg Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255
```

```
Pro Val Leu Leu Leu Leu Gly Gly Ala Gly Tyr Phe Leu Trp Gln
            260                 265                 270

Gln Gln Glu Glu Lys Lys Thr Gln Phe Arg Lys Lys Lys Arg Glu Gln
        275                 280                 285

Glu Leu Arg Glu Met Ala Trp Ser Thr Met Lys Gln Glu Gln Ser Thr
    290                 295                 300

Arg Val Lys Leu Leu Glu Glu Leu Arg Trp Arg Ser Ile Gln Tyr Ala
305                 310                 315                 320

Ser Arg Gly Glu Arg His Ser Ala Tyr Asn Glu Trp Lys Lys Ala Leu
                325                 330                 335

Phe Lys Pro Gly Glu Glu Met Leu Gln Met Arg Leu His Phe Val Lys
            340                 345                 350


<210> 10093
<211> 91
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2020; "

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<400> 10093
Met Lys Met Ala Ser Phe Leu Ala Phe Leu Leu Leu Asn Phe Arg Val
1               5                   10                  15

Cys Leu Leu Leu Leu Gln Leu Leu Met Pro His Ser Ala Gln Phe Ser
            20                  25                  30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
```

```
        35                  40                  45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50                  55                  60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65                  70                  75                  80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala
                85                  90
```

<210> 10094
<211> 334
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Uniprot ID: P78410; "

<220>
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<223> /note="ENSP ID: ENSP00000348751"

<400> 10094

```
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1               5                   10                  15

Ser Leu Leu Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser
            20                  25                  30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35                  40                  45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50                  55                  60
```

```
Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65                  70                  75                  80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85                  90                  95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100                 105                 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115                 120                 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asn Leu His Val Glu Val Lys Gly Tyr Glu Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Gln Trp Ser Asn Ala Lys Gly Glu Asn Ile Pro Ala Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Glu Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Gly Ser Gly Glu Gly Val Ser Cys Ile Ile Arg Asn
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255

Pro Ile Leu Leu Leu Leu Leu Ala Gly Ala Ser Tyr Phe Leu Trp Arg
            260                 265                 270

Gln Gln Lys Glu Ile Thr Ala Leu Ser Ser Glu Ile Glu Ser Glu Gln
        275                 280                 285
```

```
Glu Met Lys Glu Met Gly Tyr Ala Ala Thr Glu Arg Glu Ile Ser Leu
    290                 295                 300

Arg Glu Ser Leu Gln Glu Glu Leu Lys Arg Lys Lys Ile Gln Tyr Leu
305                 310                 315                 320

Thr Arg Gly Glu Glu Ser Ser Ser Asp Thr Asn Lys Ser Ala
                325                 330


<210> 10095
<211> 334
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID:  P78410; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366937"

<400> 10095
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1               5                   10                  15

Ser Leu Leu Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser
            20                  25                  30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35                  40                  45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50                  55                  60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65                  70                  75                  80
```

```
Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85                  90                  95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100                 105                 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115                 120                 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asn Leu His Val Glu Val Lys Gly Tyr Glu Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Gln Trp Ser Asn Ala Lys Gly Glu Asn Ile Pro Ala Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Glu Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Gly Ser Gly Glu Gly Val Ser Cys Ile Ile Arg Asn
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255

Pro Ile Leu Leu Leu Leu Leu Ala Gly Ala Ser Tyr Phe Leu Trp Arg
            260                 265                 270

Gln Gln Lys Glu Ile Thr Ala Leu Ser Ser Glu Ile Glu Ser Glu Gln
        275                 280                 285

Glu Met Lys Glu Met Gly Tyr Ala Ala Thr Glu Arg Glu Ile Ser Leu
    290                 295                 300
```

```
Arg Glu Ser Leu Gln Glu Glu Leu Lys Arg Lys Lys Ile Gln Tyr Leu
305                 310                 315                 320


Thr Arg Gly Glu Glu Ser Ser Ser Asp Thr Asn Lys Ser Ala
                325                 330


<210> 10096
<211> 311
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Uniprot ID:  P78410; "

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<400> 10096
Met Gly Ile Pro Arg Ala Gln Phe Ser Val Leu Gly Pro Ser Gly Pro
1               5                   10                  15


Ile Leu Ala Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe
            20                  25                  30


Pro Thr Met Ser Ala Glu Thr Met Glu Leu Lys Trp Val Ser Ser Ser
        35                  40                  45


Leu Arg Gln Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp
    50                  55                  60


Arg Gln Ser Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly
65                  70                  75                  80


Ile Thr Ala Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser
```

```
                85                  90                  95

Asp Ser Gly Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu
            100                 105                 110

Lys Ala Leu Val Glu Leu Lys Val Ala Ala Leu Gly Ser Asn Leu His
        115                 120                 125

Val Glu Val Lys Gly Tyr Glu Asp Gly Gly Ile His Leu Glu Cys Arg
    130                 135                 140

Ser Thr Gly Trp Tyr Pro Gln Pro Gln Ile Gln Trp Ser Asn Ala Lys
145                 150                 155                 160

Gly Glu Asn Ile Pro Ala Val Glu Ala Pro Val Val Ala Asp Gly Val
                165                 170                 175

Gly Leu Tyr Glu Val Ala Ala Ser Val Ile Met Arg Gly Gly Ser Gly
            180                 185                 190

Glu Gly Val Ser Cys Ile Ile Arg Asn Ser Leu Leu Gly Leu Glu Lys
        195                 200                 205

Thr Ala Ser Ile Ser Ile Ala Asp Pro Phe Phe Arg Ser Ala Gln Pro
    210                 215                 220

Trp Ile Ala Ala Leu Ala Gly Thr Leu Pro Ile Leu Leu Leu Leu Leu
225                 230                 235                 240

Ala Gly Ala Ser Tyr Phe Leu Trp Arg Gln Gln Lys Glu Ile Thr Ala
                245                 250                 255

Leu Ser Ser Glu Ile Glu Ser Glu Gln Glu Met Lys Glu Met Gly Tyr
            260                 265                 270

Ala Ala Thr Glu Arg Glu Ile Ser Leu Arg Glu Ser Leu Gln Glu Glu
        275                 280                 285

Leu Lys Arg Lys Lys Ile Gln Tyr Leu Thr Arg Gly Glu Glu Ser Ser
    290                 295                 300

Ser Asp Thr Asn Lys Ser Ala
305                 310
```

<210> 10097
<211> 334
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: P78410; "

<220>
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<223> /note="ENSP ID: ENSP00000380152"

<400> 10097
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1   5   10   15

Ser Leu Leu Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser
            20   25   30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35   40   45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50   55   60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65   70   75   80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85   90   95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100   105   110

```
Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115                 120                 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asn Leu His Val Glu Val Lys Gly Tyr Glu Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Gln Trp Ser Asn Ala Lys Gly Glu Asn Ile Pro Ala Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Glu Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Gly Ser Gly Glu Gly Val Ser Cys Ile Ile Arg Asn
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255

Pro Ile Leu Leu Leu Leu Leu Ala Gly Ala Ser Tyr Phe Leu Trp Arg
            260                 265                 270

Gln Gln Lys Glu Ile Thr Ala Leu Ser Ser Glu Ile Glu Ser Glu Gln
        275                 280                 285

Glu Met Lys Glu Met Gly Tyr Ala Ala Thr Glu Arg Glu Ile Ser Leu
    290                 295                 300

Arg Glu Ser Leu Gln Glu Glu Leu Lys Arg Lys Lys Ile Gln Tyr Leu
305                 310                 315                 320

Thr Arg Gly Glu Glu Ser Ser Ser Asp Thr Asn Lys Ser Ala
                325                 330
```

<210> 10098

<211> 334
<212> PRT
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<220>
<221> source
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<220>
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<223> /note="Uniprot ID: P78410; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432138"

<400> 10098

Met	Lys	Met	Ala	Ser	Ser	Leu	Ala	Phe	Leu	Leu	Leu	Asn	Phe	His	Val
1				5				10						15	

Ser	Leu	Leu	Leu	Val	Gln	Leu	Leu	Thr	Pro	Cys	Ser	Ala	Gln	Phe	Ser
			20					25					30		

Val	Leu	Gly	Pro	Ser	Gly	Pro	Ile	Leu	Ala	Met	Val	Gly	Glu	Asp	Ala
		35					40					45			

Asp	Leu	Pro	Cys	His	Leu	Phe	Pro	Thr	Met	Ser	Ala	Glu	Thr	Met	Glu
	50					55					60				

Leu	Lys	Trp	Val	Ser	Ser	Ser	Leu	Arg	Gln	Val	Val	Asn	Val	Tyr	Ala
65					70					75					80

Asp	Gly	Lys	Glu	Val	Glu	Asp	Arg	Gln	Ser	Ala	Pro	Tyr	Arg	Gly	Arg
				85					90					95	

Thr	Ser	Ile	Leu	Arg	Asp	Gly	Ile	Thr	Ala	Gly	Lys	Ala	Ala	Leu	Arg
			100					105					110		

Ile	His	Asn	Val	Thr	Ala	Ser	Asp	Ser	Gly	Lys	Tyr	Leu	Cys	Tyr	Phe
		115					120					125			

```
Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asn Leu His Val Glu Val Lys Gly Tyr Glu Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Gln Trp Ser Asn Ala Lys Gly Glu Asn Ile Pro Ala Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Glu Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Gly Ser Gly Glu Gly Val Ser Cys Ile Ile Arg Asn
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255

Pro Ile Leu Leu Leu Leu Leu Ala Gly Ala Ser Tyr Phe Leu Trp Arg
            260                 265                 270

Gln Gln Lys Glu Ile Thr Ala Leu Ser Ser Glu Ile Glu Ser Glu Gln
        275                 280                 285

Glu Met Lys Glu Met Gly Tyr Ala Ala Thr Glu Arg Glu Ile Ser Leu
    290                 295                 300

Arg Glu Ser Leu Gln Glu Glu Leu Lys Arg Lys Lys Ile Gln Tyr Leu
305                 310                 315                 320

Thr Arg Gly Glu Glu Ser Ser Ser Asp Thr Asn Lys Ser Ala
                325                 330
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<210> 10099
<211> 159
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<400> 10099
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1 5 10 15

Ser Leu Leu Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser
20 25 30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
35 40 45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
50 55 60

Leu Lys Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65 70 75 80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
85 90 95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
100 105 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
115 120 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
130 135 140

Asp Pro Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala Ala Leu Ala
145 150 155

<210> 10100
<211> 43
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<400> 10100
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1 5 10 15

Ser Leu Leu Leu Val Gln Leu Leu Thr Pro Cys Ser Gly Leu Cys Ser
20 25 30

Pro Leu Gly Ser Leu Tyr Leu Ala Phe Pro Val
35 40

<210> 10101
<211> 115
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<400> 10101
Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1 5 10 15

Ser Ala Glu Thr Met Glu Leu Lys Trp Val Ser Ser Ser Leu Arg Gln
20 25 30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
35 40 45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
50 55 60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65 70 75 80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
85 90 95

Val Glu Leu Lys Val Ala Ala Leu Gly Ser Asn Leu His Val Glu Val
100 105 110

Lys Gly Tyr
115

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<400> 10102
Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1 5 10 15

Ser Ala Glu Thr Met Glu Leu Lys Trp Val Ser Ser Ser Leu Arg Gln
20 25 30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
35 40 45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
50 55 60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65 70 75 80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
85 90 95

Val Glu Leu Lys Val Ala Ala Leu Gly Ser Asn Leu His Val Glu Val
100 105 110

Lys Gly Tyr Glu Asp Gly Gly Ile His Leu Glu Cys Arg Ser Thr Gly
115 120 125

Trp Tyr Pro Gln Pro Gln Ile Gln Trp Ser Asn Ala Lys Gly Glu Asn
130 135 140

Ile Pro Ala Val Glu Ala Pro Val Val Ala Asp Gly Val Gly Leu Tyr
145 150 155 160

Glu Val Ala Ala Ser Val Ile Met Arg Gly Gly Ser Gly Glu Gly Val
165 170 175

Ser Cys Ile Ile Arg Asn Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser
180 185 190

Ile Ser Ile Ala
195

<210> 10103
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<400> 10103
Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1   5   10   15

Ser Ala Glu Thr Met Glu Leu Lys Trp Val Ser Ser Ser Leu Arg Gln
            20   25   30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
        35   40   45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
    50   55   60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65   70   75   80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
                85   90   95

Val Glu Leu Lys Val Ala Ala Leu Gly Ser Asn Leu His Val Glu Val
            100   105   110

Lys Gly Tyr Glu Asp Gly Gly Ile His Leu Glu Cys Arg Ser Thr Gly
        115   120   125

Trp Tyr Pro Gln Pro Gln Ile Gln Trp Ser Asn Ala Lys Gly Glu Asn
    130   135   140

```
Ile Pro Ala Val Glu Ala Pro Val Val Ala Asp Gly Val Gly Leu Tyr
145                 150                 155                 160

Glu Val Ala Ala Ser Val Ile Met Arg Gly Gly Ser Gly Glu Gly Val
                165                 170                 175

Ser Cys Ile Ile Arg Asn Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser
            180                 185                 190

Ile Ser Ile Ala Asp Pro Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala
        195                 200                 205

Ala Leu Ala Gly Thr Leu Pro Ile Leu Leu Leu Leu Leu Ala Gly Ala
    210                 215                 220

Ser Tyr Phe Leu Trp Arg Gln Gln Lys Glu Ile Thr Ala Leu Ser Ser
225                 230                 235                 240

Glu Ile Glu Ser Glu Gln Glu Met Lys Glu Met Gly Tyr Ala Ala Thr
                245                 250                 255

Glu Arg Glu Ile Ser Leu Arg Glu Ser Leu Gln Glu Glu Leu Lys Arg
            260                 265                 270

Lys Lys Ile Gln Tyr Leu Thr Arg Gly Glu Glu Ser Ser Ser Asp Thr
        275                 280                 285

Asn Lys Ser Ala
    290
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<210> 10104
<211> 115
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<223> /note="Gene Name: butyrophilin, subfamily 3,
member A2; "

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<223> /note="ENSP ID: ENSP00000474533"

<400> 10104
Arg Gly Gly Ser Gly Glu Gly Val Ser Cys Ile Ile Arg Asn Ser Leu
1 5 10 15

Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro Phe Phe
20 25 30

Arg Ser Ala Gln Pro Trp Ile Ala Ala Leu Ala Gly Thr Leu Pro Ile
35 40 45

Leu Leu Leu Leu Leu Ala Gly Ala Ser Tyr Phe Leu Trp Arg Gln Gln
50 55 60

Lys Glu Ile Thr Ala Leu Ser Ser Glu Ile Glu Ser Glu Gln Glu Met
65 70 75 80

Lys Glu Met Gly Tyr Ala Ala Thr Glu Arg Glu Ile Ser Leu Arg Glu
85 90 95

Ser Leu Gln Glu Glu Leu Lys Arg Lys Lys Ile Gln Tyr Leu Thr Arg
100 105 110

Glu Trp Leu
115

<210> 10105
<211> 584
<212> PRT
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<223> /note="Uniprot ID: O00478; "

<220>
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<223> /note="ENSP ID: ENSP00000244519"

<400> 10105
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1   5   10   15

Ser Leu Phe Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser
            20   25   30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35   40   45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50   55   60

Leu Arg Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65   70   75   80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85   90   95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100   105   110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115   120   125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130   135   140

Ala Leu Gly Ser Asp Leu His Ile Glu Val Lys Gly Tyr Glu Asp Gly
145   150   155   160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165   170   175

Ile Lys Trp Ser Asp Thr Lys Gly Glu Asn Ile Pro Ala Val Glu Ala
            180   185   190

```
Pro Val Val Ala Asp Gly Val Gly Leu Tyr Ala Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Ser Ser Gly Gly Gly Val Ser Cys Ile Ile Arg Asn
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile Ala Asp Pro
225                 230                 235                 240

Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala Ala Leu Ala Gly Thr Leu
                245                 250                 255

Pro Ile Ser Leu Leu Leu Leu Ala Gly Ala Ser Tyr Phe Leu Trp Arg
            260                 265                 270

Gln Gln Lys Glu Lys Ile Ala Leu Ser Arg Glu Thr Glu Arg Glu Arg
        275                 280                 285

Glu Met Lys Glu Met Gly Tyr Ala Ala Thr Glu Gln Glu Ile Ser Leu
    290                 295                 300

Arg Glu Lys Leu Gln Glu Glu Leu Lys Trp Arg Lys Ile Gln Tyr Met
305                 310                 315                 320

Ala Arg Gly Glu Lys Ser Leu Ala Tyr His Glu Trp Lys Met Ala Leu
                325                 330                 335

Phe Lys Pro Ala Asp Val Ile Leu Asp Pro Asp Thr Ala Asn Ala Ile
            340                 345                 350

Leu Leu Val Ser Glu Asp Gln Arg Ser Val Gln Arg Ala Glu Glu Pro
        355                 360                 365

Arg Asp Leu Pro Asp Asn Pro Glu Arg Phe Glu Trp Arg Tyr Cys Val
    370                 375                 380

Leu Gly Cys Glu Asn Phe Thr Ser Gly Arg His Tyr Trp Glu Val Glu
385                 390                 395                 400

Val Gly Asp Arg Lys Glu Trp His Ile Gly Val Cys Ser Lys Asn Val
                405                 410                 415
```

```
Glu Arg Lys Lys Gly Trp Val Lys Met Thr Pro Glu Asn Gly Tyr Trp
            420                 425                 430

Thr Met Gly Leu Thr Asp Gly Asn Lys Tyr Arg Ala Leu Thr Glu Pro
        435                 440                 445

Arg Thr Asn Leu Lys Leu Pro Glu Pro Pro Arg Lys Val Gly Ile Phe
    450                 455                 460

Leu Asp Tyr Glu Thr Gly Glu Ile Ser Phe Tyr Asn Ala Thr Asp Gly
465                 470                 475                 480

Ser His Ile Tyr Thr Phe Pro His Ala Ser Phe Ser Glu Pro Leu Tyr
                485                 490                 495

Pro Val Phe Arg Ile Leu Thr Leu Glu Pro Thr Ala Leu Thr Ile Cys
            500                 505                 510

Pro Ile Pro Lys Glu Val Glu Ser Ser Pro Asp Pro Asp Leu Val Pro
        515                 520                 525

Asp His Ser Leu Glu Thr Pro Leu Thr Pro Gly Leu Ala Asn Glu Ser
    530                 535                 540

Gly Glu Pro Gln Ala Glu Val Thr Ser Leu Leu Leu Pro Ala His Pro
545                 550                 555                 560

Gly Ala Glu Val Ser Pro Ser Ala Thr Thr Asn Gln Asn His Lys Leu
                565                 570                 575

Gln Ala Arg Thr Glu Ala Leu Tyr
            580


<210> 10106
<211> 535
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 2022; "

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<220>
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<400> 10106

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Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1               5                  10                  15

Ser Ala Glu Thr Met Glu Leu Arg Trp Val Ser Ser Ser Leu Arg Gln
            20                  25                  30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
        35                  40                  45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
    50                  55                  60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65                  70                  75                  80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
                85                  90                  95

Val Glu Leu Lys Val Ala Ala Leu Gly Ser Asp Leu His Ile Glu Val
            100                 105                 110

Lys Gly Tyr Glu Asp Gly Gly Ile His Leu Glu Cys Arg Ser Thr Gly
        115                 120                 125

Trp Tyr Pro Gln Pro Gln Ile Lys Trp Ser Asp Thr Lys Gly Glu Asn
    130                 135                 140

Ile Pro Ala Val Glu Ala Pro Val Val Ala Asp Gly Val Gly Leu Tyr
145                 150                 155                 160

Ala Val Ala Ala Ser Val Ile Met Arg Gly Ser Ser Gly Gly Gly Val
                165                 170                 175
```

```
Ser Cys Ile Ile Arg Asn Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser
            180                 185                 190

Ile Ser Ile Ala Asp Pro Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala
        195                 200                 205

Ala Leu Ala Gly Thr Leu Pro Ile Ser Leu Leu Leu Leu Ala Gly Ala
    210                 215                 220

Ser Tyr Phe Leu Trp Arg Gln Gln Lys Glu Lys Ile Ala Leu Ser Arg
225                 230                 235                 240

Glu Thr Glu Arg Glu Arg Glu Met Lys Glu Met Gly Tyr Ala Ala Thr
                245                 250                 255

Glu Gln Glu Ile Ser Leu Arg Glu Trp Arg Lys Ile Gln Tyr Met Ala
            260                 265                 270

Arg Gly Glu Lys Ser Leu Ala Tyr His Glu Trp Lys Met Ala Leu Phe
        275                 280                 285

Lys Pro Ala Asp Val Ile Leu Asp Pro Asp Thr Ala Asn Ala Ile Leu
    290                 295                 300

Leu Val Ser Glu Asp Gln Arg Ser Val Gln Arg Ala Glu Glu Pro Arg
305                 310                 315                 320

Asp Leu Pro Asp Asn Pro Glu Arg Phe Glu Trp Arg Tyr Cys Val Leu
                325                 330                 335

Gly Cys Glu Asn Phe Thr Ser Gly Arg His Tyr Trp Glu Val Glu Val
            340                 345                 350

Gly Asp Arg Lys Glu Trp His Ile Gly Val Cys Ser Lys Asn Val Glu
        355                 360                 365

Arg Lys Lys Gly Trp Val Lys Met Thr Pro Glu Asn Gly Tyr Trp Thr
    370                 375                 380

Met Gly Leu Thr Asp Gly Asn Lys Tyr Arg Ala Leu Thr Glu Pro Arg
385                 390                 395                 400
```

```
Thr Asn Leu Lys Leu Pro Glu Pro Pro Arg Lys Val Gly Ile Phe Leu
                405                 410                 415

Asp Tyr Glu Thr Gly Glu Ile Ser Phe Tyr Asn Ala Thr Asp Gly Ser
            420                 425                 430

His Ile Tyr Thr Phe Pro His Ala Ser Phe Ser Glu Pro Leu Tyr Pro
        435                 440                 445

Val Phe Arg Ile Leu Thr Leu Glu Pro Thr Ala Leu Thr Ile Cys Pro
    450                 455                 460

Ile Pro Lys Glu Val Glu Ser Ser Pro Asp Pro Asp Leu Val Pro Asp
465                 470                 475                 480

His Ser Leu Glu Thr Pro Leu Thr Pro Gly Leu Ala Asn Glu Ser Gly
                485                 490                 495

Glu Pro Gln Ala Glu Val Thr Ser Leu Leu Leu Pro Ala His Pro Gly
            500                 505                 510

Ala Glu Val Ser Pro Ser Ala Thr Thr Asn Gln Asn His Lys Leu Gln
        515                 520                 525

Ala Arg Thr Glu Ala Leu Tyr
    530                 535


<210> 10107
<211> 137
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 10107
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1 5 10 15

Ser Leu Phe Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser
20 25 30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
35 40 45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
50 55 60

Leu Arg Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65 70 75 80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
85 90 95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
100 105 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
115 120 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala
130 135

<210> 10108
<211> 140
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000417717"

<400> 10108
Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1 5 10 15

Ser Ala Glu Thr Met Glu Leu Arg Trp Val Ser Ser Ser Leu Arg Gln
20 25 30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
35 40 45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
50 55 60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65 70 75 80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
85 90 95

Val Glu Leu Lys Val Ala Ala Leu Gly Ser Asp Leu His Ile Glu Val
100 105 110

Lys Gly Tyr Glu Asp Gly Gly Ile His Leu Glu Cys Arg Ser Thr Gly
115 120 125

Trp Tyr Pro Gln Pro Gln Ile Lys Trp Ser Asp Thr
130 135 140

<210> 10109
<211> 127
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2022; "

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<220>
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<223> /note="ENSP ID: ENSP00000419312"

<400> 10109
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val
1   5   10   15

Ser Leu Phe Leu Val Gln Leu Leu Thr Pro Cys Ser Asp Ala Asp Leu
            20   25   30

Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu Leu Arg
        35   40   45

Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala Asp Gly
    50   55   60

Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg Thr Ser
65   70   75   80

Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg Ile His
                85   90   95

Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe Gln Asp
            100   105   110

Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala Ala
        115   120   125

<210> 10110
<211> 250
<212> PRT
<213> Homo sapiens

<220>
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<220>

<221> source
<223> /note="ENSP ID: ENSP00000419445"

<400> 10110
Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1 5 10 15

Ser Ala Glu Thr Met Glu Leu Arg Trp Val Ser Ser Ser Leu Arg Gln
20 25 30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
35 40 45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
50 55 60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65 70 75 80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
85 90 95

Val Glu Leu Lys Val Ala Ala Leu Gly Ser Asp Leu His Ile Glu Val
100 105 110

Lys Gly Tyr Glu Asp Gly Gly Ile His Leu Glu Cys Arg Ser Thr Gly
115 120 125

Trp Tyr Pro Gln Pro Gln Ile Lys Trp Ser Asp Thr Lys Gly Glu Asn
130 135 140

Ile Pro Ala Val Glu Ala Pro Val Val Ala Asp Gly Val Gly Leu Tyr
145 150 155 160

Ala Val Ala Ala Ser Val Ile Met Arg Gly Ser Ser Gly Gly Gly Val
165 170 175

Ser Cys Ile Ile Arg Asn Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser
180 185 190

Ile Ser Ile Ala Asp Pro Phe Phe Arg Ser Ala Gln Pro Trp Ile Ala
195 200 205

Ala Leu Ala Gly Thr Leu Pro Ile Ser Leu Leu Leu Leu Ala Gly Ala

210 215 220

Ser Tyr Phe Leu Trp Arg Gln Gln Lys Glu Lys Ile Ala Leu Ser Arg
225 230 235 240

Glu Thr Glu Arg Glu Arg Glu Met Lys Glu
245 250

<210> 10111
<211> 210
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: butyrophilin, subfamily 3,
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<220>
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<223> /note="ENSP ID: ENSP00000419736"

<400> 10111
Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1 5 10 15

Ser Ala Glu Thr Met Glu Leu Arg Trp Val Ser Ser Ser Leu Arg Gln
20 25 30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
35 40 45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
50 55 60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65 70 75 80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
85 90 95

```
Val Glu Leu Lys Val Ala Glu Trp Arg Lys Ile Gln Tyr Met Ala Arg
            100                 105                 110

Gly Glu Lys Ser Leu Ala Tyr His Glu Trp Lys Met Ala Leu Phe Lys
        115                 120                 125

Pro Ala Asp Val Ile Leu Asp Pro Asp Thr Ala Asn Ala Ile Leu Leu
    130                 135                 140

Val Ser Glu Asp Gln Arg Ser Val Gln Arg Ala Glu Glu Pro Arg Asp
145                 150                 155                 160

Leu Pro Asp Asn Pro Glu Arg Phe Glu Trp Arg Tyr Cys Val Leu Gly
                165                 170                 175

Cys Glu Asn Phe Thr Ser Gly Arg His Tyr Trp Glu Val Glu Val Gly
            180                 185                 190

Asp Arg Lys Glu Trp His Ile Gly Val Cys Ser Lys Asn Val Glu Arg
        195                 200                 205

Lys Lys
    210
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<210> 10112
<211> 237
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: butyrophilin, subfamily 3,
member A3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000420147"

<400> 10112
Met Lys Met Ala Ser Ser Leu Ala Phe Leu Leu Leu Asn Phe His Val

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1               5                   10                  15

Ser Leu Phe Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser
            20                  25                  30

Val Leu Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala
        35                  40                  45

Asp Leu Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu
    50                  55                  60

Leu Arg Trp Val Ser Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala
65                  70                  75                  80

Asp Gly Lys Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg
                85                  90                  95

Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg
            100                 105                 110

Ile His Asn Val Thr Ala Ser Asp Ser Gly Lys Tyr Leu Cys Tyr Phe
        115                 120                 125

Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu Val Glu Leu Lys Val Ala
    130                 135                 140

Ala Leu Gly Ser Asp Leu His Ile Glu Val Lys Gly Tyr Glu Asp Gly
145                 150                 155                 160

Gly Ile His Leu Glu Cys Arg Ser Thr Gly Trp Tyr Pro Gln Pro Gln
                165                 170                 175

Ile Lys Trp Ser Asp Thr Lys Gly Glu Asn Ile Pro Ala Val Glu Ala
            180                 185                 190

Pro Val Val Ala Asp Gly Val Gly Leu Tyr Ala Val Ala Ala Ser Val
        195                 200                 205

Ile Met Arg Gly Ser Ser Gly Gly Gly Val Ser Cys Ile Ile Arg Asn
    210                 215                 220

Ser Leu Leu Gly Leu Glu Lys Thr Ala Ser Ile Ser Ile
225                 230                 235
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<210> 10113
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Symbol: BTN3A3; "

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<223> /note="Gene Name: butyrophilin, subfamily 3,
member A3; "

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<223> /note="ENSP ID: ENSP00000420339"

<400> 10113
Met Val Gly Glu Asp Ala Asp Leu Pro Cys His Leu Phe Pro Thr Met
1 5 10 15

Ser Ala Glu Thr Met Glu Leu Arg Trp Val Ser Ser Ser Leu Arg Gln
20 25 30

Val Val Asn Val Tyr Ala Asp Gly Lys Glu Val Glu Asp Arg Gln Ser
35 40 45

Ala Pro Tyr Arg Gly Arg Thr Ser Ile Leu Arg Asp Gly Ile Thr Ala
50 55 60

Gly Lys Ala Ala Leu Arg Ile His Asn Val Thr Ala Ser Asp Ser Gly
65 70 75 80

Lys Tyr Leu Cys Tyr Phe Gln Asp Gly Asp Phe Tyr Glu Lys Ala Leu
85 90 95

Val Glu Leu Lys
100

<210> 10114
<211> 455
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2023; "

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<223> /note="Gene Symbol: BTNL2; "

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="Uniprot ID: Q9UIR0; "

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<223> /note="ENSP ID: ENSP00000364132"

<400> 10114
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20   25   30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35   40   45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50   55   60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65   70   75   80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85   90   95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100   105   110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115   120   125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130   135   140

```
Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365
```

```
Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Gly Trp
    450                 455
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<210> 10115
<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2023; "

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000387852"

<400> 10115

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Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                   10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
            20                  25                  30

Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
        35                  40                  45
```

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
    50   55   60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65   70   75   80

Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
                85   90   95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
            100   105

<210> 10116
<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000388434"

<400> 10116
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
            20   25   30

Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
        35   40   45

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
    50   55   60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65   70   75   80

```
Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
                85                  90                  95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
            100                 105


<210> 10117
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390613"

<400> 10117
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                   10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20                  25                  30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35                  40                  45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50                  55                  60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65                  70                  75                  80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85                  90                  95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
```

```
            100                 105                 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335
```

```
Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
    450                 455                 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
465                 470                 475                 480

Arg Ser
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<210> 10118
<211> 68
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2023; "

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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000394258"

<400> 10118
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20   25   30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35   40   45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50   55   60

Glu Thr Pro Asp
65

<210> 10119
<211> 68
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2023; "

<220>
<221> source
<223> /note="Gene Symbol: BTNL2; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394365"

<400> 10119
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20   25   30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Glu Thr Pro Asp
65

<210> 10120
<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394378"

<400> 10120
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
20 25 30

Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
35 40 45

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
50 55 60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65 70 75 80

Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
85 90 95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
100 105

<210> 10121
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000394970"

<400> 10121
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Glu Thr Pro Asp
65

<210> 10122
<211> 68
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: BTNL2; "

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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396343"

<400> 10122
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20   25   30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35   40   45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50   55   60

Glu Thr Pro Asp
65

<210> 10123
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399884"

<400> 10123
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

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Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20                  25                  30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35                  40                  45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50                  55                  60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65                  70                  75                  80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85                  90                  95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100                 105                 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240
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Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
    450                 455                 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
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465 470 475 480

Arg Ser

<210> 10124
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: BTNL2; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402639"

<400> 10124
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
100 105 110

```
Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Glu Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
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340 345 350

Ser Leu Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr
355 360 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
370 375 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385 390 395 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
405 410 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
420 425 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
435 440 445

Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
450 455 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
465 470 475 480

Arg Ser

<210> 10125
<211> 482
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2023; "

<220>
<221> source
<223> /note="Gene Symbol: BTNL2; "

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000405794"

<400> 10125
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
100 105 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
115 120 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
130 135 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145 150 155 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
165 170 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
180 185 190

Ile Gln Asp Glu Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
195 200 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val

```
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445
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Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
450 455 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
465 470 475 480

Arg Ser

<210> 10126
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: BTNL2; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409507"

<400> 10126
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Glu Thr Pro Asp
65

<210> 10127

<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: BTNL2; "

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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000411385"

<400> 10127
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
            20   25   30

Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
        35   40   45

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
    50   55   60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65   70   75   80

Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
                85   90   95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
            100   105

<210> 10128
<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000411676"

<400> 10128
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
            20   25   30

Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
        35   40   45

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
    50   55   60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65   70   75   80

Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
                85   90   95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
            100   105

<210> 10129
<211> 108
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<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000411765"

<400> 10129
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
            20   25   30

Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
        35   40   45

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
    50   55   60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65   70   75   80

Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
                85   90   95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
            100   105

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<400> 10130

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Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                   10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
            20                  25                  30

Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
        35                  40                  45

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
    50                  55                  60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65                  70                  75                  80

Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
                85                  90                  95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
            100                 105
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<210> 10131
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<400> 10131

```
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                   10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20                  25                  30
```

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Glu Thr Pro Asp
65

<210> 10132
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000414407"

<400> 10132
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

```
Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100                 105                 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Glu Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320
```

```
Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
    450                 455                 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
465                 470                 475                 480

Arg Ser
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<210> 10133
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 10133
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20   25   30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35   40   45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50   55   60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65   70   75   80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85   90   95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100   105   110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115   120   125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130   135   140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145   150   155   160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165   170   175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180   185   190

```
Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415
```

```
Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
    450                 455                 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
465                 470                 475                 480

Arg Ser
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<210> 10134
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<400> 10134

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Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                   10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20                  25                  30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35                  40                  45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50                  55                  60
```

```
Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65                  70                  75                  80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85                  90                  95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100                 105                 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285
```

```
Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
    450                 455                 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
465                 470                 475                 480

Arg Ser
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<210> 10135
<211> 482
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 10135
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20   25   30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35   40   45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50   55   60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65   70   75   80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85   90   95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100   105   110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115   120   125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130   135   140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145   150   155   160

```
Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
```

385 390 395 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
405 410 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
420 425 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
435 440 445

Thr Phe Ser Leu Ser Glu Ser Arg Met Thr Phe Leu Trp Lys Thr Leu
450 455 460

Leu Val Trp Gly Leu Leu Leu Ala Val Ala Val Gly Leu Pro Arg Lys
465 470 475 480

Arg Ser

<210> 10136
<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000416987"

<400> 10136
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Asp Phe Arg Val Ile Gly
20 25 30

```
Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu Thr
        35                  40                  45

Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg Trp
    50                  55                  60

Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly Val
65                  70                  75                  80

Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu Trp
                85                  90                  95

Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu
            100                 105


<210> 10137
<211> 68
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="ENSP ID: ENSP00000420063"

<400> 10137
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                   10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20                  25                  30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35                  40                  45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50                  55                  60
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Glu Thr Pro Asp
65

<210> 10138
<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q9UIR0; "

<220>
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<223> /note="ENSP ID: ENSP00000443364"

<400> 10138
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1   5   10   15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
            20   25   30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
        35   40   45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
    50   55   60

Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65   70   75   80

Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
                85   90   95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
            100   105   110

```
Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
        115                 120                 125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
    130                 135                 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145                 150                 155                 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
                165                 170                 175

Gly Trp
```

<210> 10139
<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000446794"

<400> 10139

```
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1               5                   10                  15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
            20                  25                  30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
```

35 40 45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
50 55 60

Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65 70 75 80

Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
85 90 95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
100 105 110

Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
115 120 125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
130 135 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145 150 155 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
165 170 175

Gly Trp

<210> 10140
<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q9UIR0; "

<220>
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<223> /note="ENSP ID: ENSP00000446915"

<400> 10140
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1   5   10   15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
            20   25   30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
        35   40   45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
    50   55   60

Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65   70   75   80

Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
                85   90   95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
            100   105   110

Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
        115   120   125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
    130   135   140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145   150   155   160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
                165   170   175

Gly Trp

<210> 10141

<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<400> 10141
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1   5   10   15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
            20   25   30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
        35   40   45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
    50   55   60

Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65   70   75   80

Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
                85   90   95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
            100   105   110

Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
        115   120   125

```
Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
    130                 135                 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145                 150                 155                 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
                165                 170                 175

Gly Trp
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<210> 10142
<211> 178
<212> PRT
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<400> 10142

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Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1               5                   10                  15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
            20                  25                  30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
        35                  40                  45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
    50                  55                  60
```

```
Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65                  70                  75                  80

Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
                85                  90                  95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
            100                 105                 110

Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
        115                 120                 125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
    130                 135                 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145                 150                 155                 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
                165                 170                 175

Gly Trp
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<210> 10143
<211> 245
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<400> 10143
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Lys Leu Gln Thr Glu
20 25 30

Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu Val Arg
35 40 45

Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys Ala Asn
50 55 60

Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala
65 70 75 80

Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala
85 90 95

Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly
100 105 110

Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln
115 120 125

Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu
130 135 140

Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr Val Glu
145 150 155 160

Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp
165 170 175

Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile
180 185 190

Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His
195 200 205

Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr
210 215 220

Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe
225 230 235 240

Ser Leu Ser Gly Trp
245

<210> 10144
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<212> PRT
<213> Homo sapiens

<220>
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<400> 10144
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

```
Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100                 105                 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320
```

```
Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Gly Trp
    450                 455


<210> 10145
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Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
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Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
100 105 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
115 120 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
130 135 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145 150 155 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
165 170 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
180 185 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
195 200 205

```
Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430
```

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
435 440 445

Thr Phe Ser Leu Ser Gly Trp
450 455

<210> 10146
<211> 455
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000448277"

<400> 10146
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
100 105 110

```
Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Glu Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335
```

```
Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Gly Trp
    450                 455


<210> 10147
<211> 178
<212> PRT
<213> Homo sapiens

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<223> /note="Uniprot ID:  Q9UIR0; "

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<400> 10147
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1 5 10 15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
20 25 30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
35 40 45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
50 55 60

Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65 70 75 80

Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
85 90 95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
100 105 110

Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
115 120 125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
130 135 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145 150 155 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
165 170 175

Gly Trp

<210> 10148
<211> 245
<212> PRT
<213> Homo sapiens

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<223> /note="Uniprot ID: Q9UIR0; "

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<223> /note="ENSP ID: ENSP00000448852"

<400> 10148
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Lys Leu Gln Thr Glu
            20   25   30

Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu Val Arg
        35   40   45

Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys Ala Asn
    50   55   60

Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala
65   70   75   80

Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala
                85   90   95

Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly
            100   105   110

Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln
        115   120   125

Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu
    130   135   140

Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr Val Glu
145   150   155   160

```
Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp
                165                 170                 175

Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile
            180                 185                 190

Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His
        195                 200                 205

Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr
    210                 215                 220

Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe
225                 230                 235                 240

Ser Leu Ser Gly Trp
                245
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<210> 10149
<211> 455
<212> PRT
<213> Homo sapiens

<220>
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<400> 10149

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Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                   10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20                  25                  30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35                  40                  45
```

```
Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50                  55                  60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65                  70                  75                  80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85                  90                  95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100                 105                 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Glu Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270
```

```
Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Gly Trp
    450                 455


<210> 10150
<211> 455
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

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<223> /note="ENSP ID: ENSP00000449292"

<400> 10150
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20   25   30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35   40   45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50   55   60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65   70   75   80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85   90   95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100   105   110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115   120   125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130   135   140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145   150   155   160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165   170   175

```
Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Glu Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400
```

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
405 410 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
420 425 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
435 440 445

Thr Phe Ser Leu Ser Gly Trp
450 455

<210> 10151
<211> 178
<212> PRT
<213> Homo sapiens

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<400> 10151
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1 5 10 15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
20 25 30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
35 40 45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
50 55 60

```
Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65                  70                  75                  80

Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
                85                  90                  95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
            100                 105                 110

Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
        115                 120                 125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
    130                 135                 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145                 150                 155                 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
                165                 170                 175

Gly Trp
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<210> 10152
<211> 455
<212> PRT
<213> Homo sapiens

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<400> 10152
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
100 105 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
115 120 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
130 135 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145 150 155 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
165 170 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
180 185 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
195 200 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
210 215 220

```
Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445
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Thr Phe Ser Leu Ser Gly Trp
450 455

<210> 10153
<211> 455
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="Uniprot ID: Q9UIR0; "

<220>
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<400> 10153
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1 5 10 15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
20 25 30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
35 40 45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
50 55 60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65 70 75 80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
85 90 95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
100 105 110

```
Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220

Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335
```

```
Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445

Thr Phe Ser Leu Ser Gly Trp
    450                 455


<210> 10154
<211> 178
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Uniprot ID:  Q9UIR0; "

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<400> 10154
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1 5 10 15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
20 25 30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
35 40 45

Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
50 55 60

Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65 70 75 80

Val Val Ser Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
85 90 95

Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp Phe Pro Gln
100 105 110

Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
115 120 125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
130 135 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145 150 155 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
165 170 175

Gly Trp

<210> 10155
<211> 245
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

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<220>
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<400> 10155
Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1   5   10   15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Lys Leu Gln Thr Glu
            20   25   30

Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu Val Arg
        35   40   45

Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys Ala Asn
    50   55   60

Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala
65   70   75   80

Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala
                85   90   95

Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly
            100   105   110

Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln
        115   120   125

Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu
    130   135   140

Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr Val Glu
145   150   155   160

```
Gly Gln Glu Asp Gly Glu Met Gln Pro Met Cys Ser Ser Asp Gly Trp
                165                 170                 175

Phe Pro Gln Pro His Val Pro Trp Arg Asp Met Glu Gly Lys Thr Ile
            180                 185                 190

Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His
        195                 200                 205

Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr
    210                 215                 220

Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe
225                 230                 235                 240

Ser Leu Ser Gly Trp
                245
```

<210> 10156
<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000479046"

<400> 10156

```
Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr Pro Ala Val His Val
1               5                   10                  15

Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln Met Ala Glu Tyr Arg
            20                  25                  30

Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp Glu Gly Arg Leu Thr
        35                  40                  45
```

```
Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp Gly Gln Tyr Arg Cys
    50                  55                  60

Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala Ser Leu Asp Leu Lys
65                  70                  75                  80

Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr Val Glu Gly Gln Glu
                85                  90                  95

Asp Gly Glu Met Gln Leu Ile Cys Ser Ser Asp Gly Trp Phe Pro Gln
            100                 105                 110

Pro His Val Gln Trp Arg Asp Met Glu Gly Lys Thr Ile Pro Ser Ser
        115                 120                 125

Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu Phe His Val Gln Thr
    130                 135                 140

Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp Val Thr Cys Ser Ile
145                 150                 155                 160

Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala Thr Phe Ser Leu Ser
                165                 170                 175

Gly Trp
```

<210> 10157
<211> 455
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 2; "

<220>
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<223> /note="ENSP ID: ENSP00000483322"

<400> 10157

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Met Val Asp Phe Pro Gly Tyr Asn Leu Ser Gly Ala Val Ala Ser Phe
1               5                  10                  15

Leu Phe Ile Leu Leu Thr Met Lys Gln Ser Glu Asp Phe Arg Val Ile
            20                  25                  30

Gly Pro Ala His Pro Ile Leu Ala Gly Val Gly Glu Asp Ala Leu Leu
        35                  40                  45

Thr Cys Gln Leu Leu Pro Lys Arg Thr Thr Met His Val Glu Val Arg
    50                  55                  60

Trp Tyr Arg Ser Glu Pro Ser Thr Pro Val Phe Val His Arg Asp Gly
65                  70                  75                  80

Val Glu Val Thr Glu Met Gln Met Glu Glu Tyr Arg Gly Trp Val Glu
                85                  90                  95

Trp Ile Glu Asn Gly Ile Ala Lys Gly Asn Val Ala Leu Lys Ile His
            100                 105                 110

Asn Ile Gln Pro Ser Asp Asn Gly Gln Tyr Trp Cys His Phe Gln Asp
        115                 120                 125

Gly Asn Tyr Cys Gly Glu Thr Ser Leu Leu Leu Lys Val Ala Gly Leu
    130                 135                 140

Gly Ser Ala Pro Ser Ile His Met Glu Gly Pro Gly Glu Ser Gly Val
145                 150                 155                 160

Gln Leu Val Cys Thr Ala Arg Gly Trp Phe Pro Glu Pro Gln Val Tyr
                165                 170                 175

Trp Glu Asp Ile Arg Gly Glu Lys Leu Leu Ala Val Ser Glu His Arg
            180                 185                 190

Ile Gln Asp Lys Asp Gly Leu Phe Tyr Ala Glu Ala Thr Leu Val Val
        195                 200                 205

Arg Asn Ala Ser Ala Glu Ser Val Ser Cys Leu Val His Asn Pro Val
    210                 215                 220
```

```
Leu Thr Glu Glu Lys Gly Ser Val Ile Ser Leu Pro Glu Lys Leu Gln
225                 230                 235                 240

Thr Glu Leu Ala Ser Leu Lys Val Asn Gly Pro Ser Gln Pro Ile Leu
                245                 250                 255

Val Arg Val Gly Glu Asp Ile Gln Leu Thr Cys Tyr Leu Ser Pro Lys
            260                 265                 270

Ala Asn Ala Gln Ser Met Glu Val Arg Trp Asp Arg Ser His Arg Tyr
        275                 280                 285

Pro Ala Val His Val Tyr Met Asp Gly Asp His Val Ala Gly Glu Gln
    290                 295                 300

Met Ala Glu Tyr Arg Gly Arg Thr Val Leu Val Ser Asp Ala Ile Asp
305                 310                 315                 320

Glu Gly Arg Leu Thr Leu Gln Ile Leu Ser Ala Arg Pro Ser Asp Asp
                325                 330                 335

Gly Gln Tyr Arg Cys Leu Phe Glu Lys Asp Asp Val Tyr Gln Glu Ala
            340                 345                 350

Ser Leu Asp Leu Lys Val Val Gly Leu Gly Ser Ser Pro Leu Ile Thr
        355                 360                 365

Val Glu Gly Gln Glu Asp Gly Glu Met Gln Leu Ile Cys Ser Ser Asp
    370                 375                 380

Gly Trp Phe Pro Gln Pro His Val Gln Trp Arg Asp Met Glu Gly Lys
385                 390                 395                 400

Thr Ile Pro Ser Ser Ser Gln Ala Leu Thr Gln Gly Ser His Gly Leu
                405                 410                 415

Phe His Val Gln Thr Leu Leu Arg Val Thr Asn Ile Ser Ala Val Asp
            420                 425                 430

Val Thr Cys Ser Ile Ser Ile Pro Phe Leu Gly Glu Glu Lys Ile Ala
        435                 440                 445
```

Thr Phe Ser Leu Ser Gly Trp
450 455

<210> 10158
<211> 466
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2024; "

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<223> /note="Gene Symbol: BTNL3; "

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<223> /note="Gene Name: butyrophilin-like 3; "

<220>
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<223> /note="Uniprot ID: Q6UXE8; "

<220>
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<223> /note="ENSP ID: ENSP00000341787"

<400> 10158
Met Ala Phe Val Leu Ile Leu Val Leu Ser Phe Tyr Glu Leu Val Ser
1 5 10 15

Gly Gln Trp Gln Val Thr Gly Pro Gly Lys Phe Val Gln Ala Leu Val
20 25 30

Gly Glu Asp Ala Val Phe Ser Cys Ser Leu Phe Pro Glu Thr Ser Ala
35 40 45

Glu Ala Met Glu Val Arg Phe Phe Arg Asn Gln Phe His Ala Val Val
50 55 60

His Leu Tyr Arg Asp Gly Glu Asp Trp Glu Ser Lys Gln Met Pro Gln
65 70 75 80

Tyr Arg Gly Arg Thr Glu Phe Val Lys Asp Ser Ile Ala Gly Gly Arg
85 90 95

Val Ser Leu Arg Leu Lys Asn Ile Thr Pro Ser Asp Ile Gly Leu Tyr
100 105 110

```
Gly Cys Trp Phe Ser Ser Gln Ile Tyr Asp Glu Glu Ala Thr Trp Glu
        115                 120                 125

Leu Arg Val Ala Ala Leu Gly Ser Leu Pro Leu Ile Ser Ile Val Gly
    130                 135                 140

Tyr Val Asp Gly Gly Ile Gln Leu Leu Cys Leu Ser Ser Gly Trp Phe
145                 150                 155                 160

Pro Gln Pro Thr Ala Lys Trp Lys Gly Pro Gln Gly Gln Asp Leu Ser
                165                 170                 175

Ser Asp Ser Arg Ala Asn Ala Asp Gly Tyr Ser Leu Tyr Asp Val Glu
            180                 185                 190

Ile Ser Ile Ile Val Gln Glu Asn Ala Gly Ser Ile Leu Cys Ser Ile
        195                 200                 205

His Leu Ala Glu Gln Ser His Glu Val Glu Ser Lys Val Leu Ile Gly
    210                 215                 220

Glu Thr Phe Phe Gln Pro Ser Pro Trp Arg Leu Ala Ser Ile Leu Leu
225                 230                 235                 240

Gly Leu Leu Cys Gly Ala Leu Cys Gly Val Val Met Gly Met Ile Ile
                245                 250                 255

Val Phe Phe Lys Ser Lys Gly Lys Ile Gln Ala Glu Leu Asp Trp Arg
            260                 265                 270

Arg Lys His Gly Gln Ala Glu Leu Arg Asp Ala Arg Lys His Ala Val
        275                 280                 285

Glu Val Thr Leu Asp Pro Glu Thr Ala His Pro Lys Leu Cys Val Ser
    290                 295                 300

Asp Leu Lys Thr Val Thr His Arg Lys Ala Pro Gln Glu Val Pro His
305                 310                 315                 320

Ser Glu Lys Arg Phe Thr Arg Lys Ser Val Val Ala Ser Gln Gly Phe
                325                 330                 335
```

```
Gln Ala Gly Lys His Tyr Trp Glu Val Asp Val Gly Gln Asn Val Gly
            340                 345                 350

Trp Tyr Val Gly Val Cys Arg Asp Asp Val Asp Arg Gly Lys Asn Asn
        355                 360                 365

Val Thr Leu Ser Pro Asn Asn Gly Tyr Trp Val Leu Arg Leu Thr Thr
    370                 375                 380

Glu His Leu Tyr Phe Thr Phe Asn Pro His Phe Ile Ser Leu Pro Pro
385                 390                 395                 400

Ser Thr Pro Pro Thr Arg Val Gly Val Phe Leu Asp Tyr Glu Gly Gly
                405                 410                 415

Thr Ile Ser Phe Phe Asn Thr Asn Asp Gln Ser Leu Ile Tyr Thr Leu
            420                 425                 430

Leu Thr Cys Gln Phe Glu Gly Leu Leu Arg Pro Tyr Ile Gln His Ala
        435                 440                 445

Met Tyr Asp Glu Glu Lys Gly Thr Pro Ile Phe Ile Cys Pro Val Ser
    450                 455                 460

Trp Gly
465


<210> 10159
<211> 347
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 8; "

<220>
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<223> /note="Uniprot ID:  Q6UX41; "
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<220>
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<223> /note="ENSP ID: ENSP00000231229"

<400> 10159
Met Ala Leu Met Leu Ser Leu Val Leu Ser Leu Leu Lys Leu Gly Ser
1   5   10   15

Gly Gln Trp Gln Val Phe Gly Pro Asp Lys Pro Val Gln Ala Leu Val
            20   25   30

Gly Glu Asp Ala Ala Phe Ser Cys Phe Leu Ser Pro Lys Thr Asn Ala
        35   40   45

Glu Ala Met Glu Val Arg Phe Phe Arg Gly Gln Phe Ser Ser Val Val
    50   55   60

His Leu Tyr Arg Asp Gly Lys Asp Gln Pro Phe Met Gln Met Pro Gln
65   70   75   80

Tyr Gln Gly Arg Thr Lys Leu Val Lys Asp Ser Ile Ala Glu Gly Arg
                85   90   95

Ile Ser Leu Arg Leu Glu Asn Ile Thr Val Leu Asp Ala Gly Leu Tyr
            100   105   110

Gly Cys Arg Ile Ser Ser Gln Ser Tyr Tyr Gln Lys Ala Ile Trp Glu
        115   120   125

Leu Gln Val Ser Ala Leu Gly Ser Val Pro Leu Ile Ser Ile Thr Gly
    130   135   140

Tyr Val Asp Arg Asp Ile Gln Leu Leu Cys Gln Ser Ser Gly Trp Phe
145   150   155   160

Pro Arg Pro Thr Ala Lys Trp Lys Gly Pro Gln Gly Gln Asp Leu Ser
                165   170   175

Thr Asp Ser Arg Thr Asn Arg Asp Met His Gly Leu Phe Asp Val Glu
            180   185   190

Ile Ser Leu Thr Val Gln Glu Asn Ala Gly Ser Ile Ser Cys Ser Met
        195   200   205

```
Arg His Ala His Leu Ser Arg Glu Val Glu Ser Arg Val Gln Ile Gly
    210                 215                 220

Asp Thr Phe Phe Glu Pro Ile Ser Trp His Leu Ala Thr Lys Val Leu
225                 230                 235                 240

Gly Ile Leu Cys Cys Gly Leu Phe Phe Gly Ile Val Gly Leu Lys Ile
                245                 250                 255

Phe Phe Ser Lys Phe Gln Cys Lys Arg Glu Arg Glu Ala Trp Ala Gly
            260                 265                 270

Ala Leu Phe Met Val Pro Ala Gly Thr Gly Ser Glu Met Leu Pro His
        275                 280                 285

Pro Ala Ala Ser Leu Leu Leu Val Leu Ala Ser Arg Gly Pro Gly Pro
    290                 295                 300

Lys Lys Glu Asn Pro Gly Gly Thr Gly Leu Glu Lys Lys Ala Arg Thr
305                 310                 315                 320

Gly Arg Ile Glu Arg Arg Pro Glu Thr Arg Ser Gly Gly Asp Ser Gly
                325                 330                 335

Ser Arg Asp Gly Ser Pro Glu Ala Leu Arg Phe
            340                 345


<210> 10160
<211> 500
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2025; "

<220>
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<220>
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<220>
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<223> /note="Uniprot ID:  Q6UX41; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000342197"

<400> 10160
Met Ala Leu Met Leu Ser Leu Val Leu Ser Leu Leu Lys Leu Gly Ser
1   5   10   15

Gly Gln Trp Gln Val Phe Gly Pro Asp Lys Pro Val Gln Ala Leu Val
            20   25   30

Gly Glu Asp Ala Ala Phe Ser Cys Phe Leu Ser Pro Lys Thr Asn Ala
        35   40   45

Glu Ala Met Glu Val Arg Phe Phe Arg Gly Gln Phe Ser Ser Val Val
    50   55   60

His Leu Tyr Arg Asp Gly Lys Asp Gln Pro Phe Met Gln Met Pro Gln
65   70   75   80

Tyr Gln Gly Arg Thr Lys Leu Val Lys Asp Ser Ile Ala Glu Gly Arg
                85   90   95

Ile Ser Leu Arg Leu Glu Asn Ile Thr Val Leu Asp Ala Gly Leu Tyr
            100   105   110

Gly Cys Arg Ile Ser Ser Gln Ser Tyr Tyr Gln Lys Ala Ile Trp Glu
        115   120   125

Leu Gln Val Ser Ala Leu Gly Ser Val Pro Leu Ile Ser Ile Thr Gly
    130   135   140

Tyr Val Asp Arg Asp Ile Gln Leu Leu Cys Gln Ser Ser Gly Trp Phe
145   150   155   160

Pro Arg Pro Thr Ala Lys Trp Lys Gly Pro Gln Gly Gln Asp Leu Ser
                165   170   175

Thr Asp Ser Arg Thr Asn Arg Asp Met His Gly Leu Phe Asp Val Glu
            180   185   190

Ile Ser Leu Thr Val Gln Glu Asn Ala Gly Ser Ile Ser Cys Ser Met
        195   200   205

```
Arg His Ala His Leu Ser Arg Glu Val Glu Ser Arg Val Gln Ile Gly
    210                 215                 220

Asp Thr Phe Phe Glu Pro Ile Ser Trp His Leu Ala Thr Lys Val Leu
225                 230                 235                 240

Gly Ile Leu Cys Cys Gly Leu Phe Phe Gly Ile Val Gly Leu Lys Ile
                245                 250                 255

Phe Phe Ser Lys Phe Gln Trp Lys Ile Gln Ala Glu Leu Asp Trp Arg
            260                 265                 270

Arg Lys His Gly Gln Ala Glu Leu Arg Asp Ala Arg Lys His Ala Val
        275                 280                 285

Glu Val Thr Leu Asp Pro Glu Thr Ala His Pro Lys Leu Cys Val Ser
    290                 295                 300

Asp Leu Lys Thr Val Thr His Arg Lys Ala Pro Gln Glu Val Pro His
305                 310                 315                 320

Ser Glu Lys Arg Phe Thr Arg Lys Ser Val Val Ala Ser Gln Ser Phe
                325                 330                 335

Gln Ala Gly Lys His Tyr Trp Glu Val Asp Gly Gly His Asn Lys Arg
            340                 345                 350

Trp Arg Val Gly Val Cys Arg Asp Asp Val Asp Arg Arg Lys Glu Tyr
        355                 360                 365

Val Thr Leu Ser Pro Asp His Gly Tyr Trp Val Leu Arg Leu Asn Gly
    370                 375                 380

Glu His Leu Tyr Phe Thr Leu Asn Pro Arg Phe Ile Ser Val Phe Pro
385                 390                 395                 400

Arg Thr Pro Pro Thr Lys Ile Gly Val Phe Leu Asp Tyr Glu Cys Gly
                405                 410                 415

Thr Ile Ser Phe Phe Asn Ile Asn Asp Gln Ser Leu Ile Tyr Thr Leu
            420                 425                 430
```

```
Thr Cys Arg Phe Glu Gly Leu Leu Arg Pro Tyr Ile Glu Tyr Pro Ser
        435                 440                 445

Tyr Asn Glu Gln Asn Gly Thr Pro Ile Val Ile Cys Pro Val Thr Gln
    450                 455                 460

Glu Ser Glu Lys Glu Ala Ser Trp Gln Arg Ala Ser Ala Ile Pro Glu
465                 470                 475                 480

Thr Ser Asn Ser Glu Ser Ser Ser Gln Ala Thr Thr Pro Phe Leu Pro
                485                 490                 495

Arg Gly Glu Met
            500


<210> 10161
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2025; "

<220>
<221> source
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<223> /note="Gene Name: butyrophilin-like 8; "

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<223> /note="Uniprot ID:  Q6UX41; "

<220>
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<223> /note="ENSP ID: ENSP00000383543"

<400> 10161
Met Trp Thr Trp Phe Val Lys Ser Leu Gly Ser Val Pro Leu Ile Ser
1               5                   10                  15

Ile Thr Gly Tyr Val Asp Arg Asp Ile Gln Leu Leu Cys Gln Ser Ser
            20                  25                  30

Gly Trp Phe Pro Arg Pro Thr Ala Lys Trp Lys Gly Pro Gln Gly Gln
        35                  40                  45
```

```
Asp Leu Ser Thr Asp Ser Arg Thr Asn Arg Asp Met His Gly Leu Phe
    50                  55                  60

Asp Val Glu Ile Ser Leu Thr Val Gln Glu Asn Ala Gly Ser Ile Ser
65                  70                  75                  80

Cys Ser Met Arg His Ala His Leu Ser Arg Glu Val Glu Ser Arg Val
                85                  90                  95

Gln Ile Gly Asp Thr Phe Phe Glu Pro Ile Ser Trp His Leu Ala Thr
            100                 105                 110

Lys Val Leu Gly Ile Leu Cys Cys Gly Leu Phe Phe Gly Ile Val Gly
        115                 120                 125

Leu Lys Ile Phe Phe Ser Lys Phe Gln Trp Lys Ile Gln Ala Glu Leu
    130                 135                 140

Asp Trp Arg Arg Lys His Gly Gln Ala Glu Leu Arg Asp Ala Arg Lys
145                 150                 155                 160

His Ala Val Glu Val Thr Leu Asp Pro Glu Thr Ala His Pro Lys Leu
                165                 170                 175

Cys Val Ser Asp Leu Lys Thr Val Thr His Arg Lys Ala Pro Gln Glu
            180                 185                 190

Val Pro His Ser Glu Lys Arg Phe Thr Arg Lys Ser Val Val Ala Ser
        195                 200                 205

Gln Ser Phe Gln Ala Gly Lys His Tyr Trp Glu Val Asp Gly Gly His
    210                 215                 220

Asn Lys Arg Trp Arg Val Gly Val Cys Arg Asp Asp Val Asp Arg Arg
225                 230                 235                 240

Lys Glu Tyr Val Thr Leu Ser Pro Asp His Gly Tyr Trp Val Leu Arg
                245                 250                 255

Leu Asn Gly Glu His Leu Tyr Phe Thr Leu Asn Pro Arg Phe Ile Ser
            260                 265                 270
```

```
Val Phe Pro Arg Thr Pro Pro Thr Lys Ile Gly Val Phe Leu Asp Tyr
        275                 280                 285

Glu Cys Gly Thr Ile Ser Phe Phe Asn Ile Asn Asp Gln Ser Leu Ile
    290                 295                 300

Tyr Thr Leu Thr Cys Arg Phe Glu Gly Leu Leu Arg Pro Tyr Ile Glu
305                 310                 315                 320

Tyr Pro Ser Tyr Asn Glu Gln Asn Gly Thr Pro Ile Val Ile Cys Pro
                325                 330                 335

Val Thr Gln Glu Ser Glu Lys Glu Ala Ser Trp Gln Arg Ala Ser Ala
            340                 345                 350

Ile Pro Glu Thr Ser Asn Ser Glu Ser Ser Ser Gln Ala Thr Thr Pro
        355                 360                 365

Phe Leu Pro Arg Gly Glu Met
    370                 375


<210> 10162
<211> 41
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2025; "

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<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 8; "

<220>
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<223> /note="ENSP ID: ENSP00000422069"

<400> 10162
Met His Gly Leu Phe Asp Val Glu Ile Ser Leu Thr Val Gln Glu Asn
1               5                   10                  15

Ala Gly Ser Ile Ser Cys Ser Met Arg His Ala His Leu Ser Arg Glu
            20                  25                  30
```

Val Glu Ser Arg Val Gln Ile Gly Val
35 40

<210> 10163
<211> 340
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000424585"

<400> 10163
Met Ala Leu Met Leu Ser Leu Val Leu Ser Leu Leu Lys Leu Gly Ser
1 5 10 15

Gly Gln Trp Gln Val Phe Gly Pro Asp Lys Pro Val Gln Ala Leu Val
20 25 30

Gly Glu Asp Ala Ala Phe Ser Cys Phe Leu Ser Pro Lys Thr Asn Ala
35 40 45

Glu Ala Met Glu Val Arg Phe Phe Arg Gly Gln Phe Ser Ser Val Val
50 55 60

His Leu Tyr Arg Asp Gly Lys Asp Gln Pro Phe Met Gln Met Pro Gln
65 70 75 80

Tyr Gln Gly Arg Thr Lys Leu Val Lys Asp Ser Ile Ala Glu Gly Arg
85 90 95

Ile Ser Leu Arg Leu Glu Asn Ile Thr Val Leu Asp Ala Gly Leu Tyr
100 105 110

```
Gly Cys Arg Ile Ser Ser Gln Ser Tyr Tyr Gln Lys Ala Ile Trp Glu
        115                 120                 125

Leu Gln Val Ser Ala Leu Gly Ser Val Pro Leu Ile Ser Ile Thr Gly
    130                 135                 140

Tyr Val Asp Arg Asp Ile Gln Leu Leu Cys Gln Ser Ser Gly Trp Phe
145                 150                 155                 160

Pro Arg Pro Thr Ala Lys Trp Lys Gly Pro Gln Gly Gln Asp Leu Ser
                165                 170                 175

Thr Asp Ser Arg Thr Asn Arg Asp Met His Gly Leu Phe Asp Val Glu
            180                 185                 190

Ile Ser Leu Thr Val Gln Glu Asn Ala Gly Ser Ile Ser Cys Ser Met
        195                 200                 205

Arg His Ala His Leu Ser Arg Glu Val Glu Ser Arg Val Gln Ile Gly
    210                 215                 220

Asp Thr Phe Phe Glu Pro Ile Ser Trp His Leu Ala Thr Lys Val Leu
225                 230                 235                 240

Gly Ile Leu Cys Cys Gly Leu Phe Phe Gly Ile Val Gly Leu Lys Ile
                245                 250                 255

Phe Phe Ser Lys Phe Gln Cys Lys Arg Glu Arg Glu Ala Trp Ala Gly
            260                 265                 270

Ala Leu Phe Met Val Pro Ala Gly Thr Gly Ser Glu Met Leu Pro His
        275                 280                 285

Pro Ala Ala Ser Leu Leu Leu Val Leu Ala Ser Arg Gly Pro Gly Pro
    290                 295                 300

Lys Lys Leu Glu Lys Lys Ala Arg Thr Gly Arg Ile Glu Arg Arg Pro
305                 310                 315                 320

Glu Thr Arg Ser Gly Gly Asp Ser Gly Ser Arg Asp Gly Ser Pro Glu
                325                 330                 335
```

Ala Leu Arg Phe
340

<210> 10164
<211> 384
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: butyrophilin-like 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UX41; "

<220>
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<223> /note="ENSP ID: ENSP00000425207"

<400> 10164
Met Ala Leu Met Leu Ser Leu Val Leu Ser Leu Leu Lys Leu Gly Ser
1 5 10 15

Ala Leu Gly Ser Val Pro Leu Ile Ser Ile Thr Gly Tyr Val Asp Arg
20 25 30

Asp Ile Gln Leu Leu Cys Gln Ser Ser Gly Trp Phe Pro Arg Pro Thr
35 40 45

Ala Lys Trp Lys Gly Pro Gln Gly Gln Asp Leu Ser Thr Asp Ser Arg
50 55 60

Thr Asn Arg Asp Met His Gly Leu Phe Asp Val Glu Ile Ser Leu Thr
65 70 75 80

Val Gln Glu Asn Ala Gly Ser Ile Ser Cys Ser Met Arg His Ala His
85 90 95

Leu Ser Arg Glu Val Glu Ser Arg Val Gln Ile Gly Asp Thr Phe Phe
100 105 110

```
Glu Pro Ile Ser Trp His Leu Ala Thr Lys Val Leu Gly Ile Leu Cys
        115                 120                 125

Cys Gly Leu Phe Phe Gly Ile Val Gly Leu Lys Ile Phe Phe Ser Lys
    130                 135                 140

Phe Gln Trp Lys Ile Gln Ala Glu Leu Asp Trp Arg Arg Lys His Gly
145                 150                 155                 160

Gln Ala Glu Leu Arg Asp Ala Arg Lys His Ala Val Glu Val Thr Leu
                165                 170                 175

Asp Pro Glu Thr Ala His Pro Lys Leu Cys Val Ser Asp Leu Lys Thr
            180                 185                 190

Val Thr His Arg Lys Ala Pro Gln Glu Val Pro His Ser Glu Lys Arg
        195                 200                 205

Phe Thr Arg Lys Ser Val Val Ala Ser Gln Ser Phe Gln Ala Gly Lys
    210                 215                 220

His Tyr Trp Glu Val Asp Gly Gly His Asn Lys Arg Trp Arg Val Gly
225                 230                 235                 240

Val Cys Arg Asp Asp Val Asp Arg Arg Lys Glu Tyr Val Thr Leu Ser
                245                 250                 255

Pro Asp His Gly Tyr Trp Val Leu Arg Leu Asn Gly Glu His Leu Tyr
            260                 265                 270

Phe Thr Leu Asn Pro Arg Phe Ile Ser Val Phe Pro Arg Thr Pro Pro
        275                 280                 285

Thr Lys Ile Gly Val Phe Leu Asp Tyr Glu Cys Gly Thr Ile Ser Phe
    290                 295                 300

Phe Asn Ile Asn Asp Gln Ser Leu Ile Tyr Thr Leu Thr Cys Arg Phe
305                 310                 315                 320

Glu Gly Leu Leu Arg Pro Tyr Ile Glu Tyr Pro Ser Tyr Asn Glu Gln
                325                 330                 335
```

```
Asn Gly Thr Pro Ile Val Ile Cys Pro Val Thr Gln Glu Ser Glu Lys
            340                 345                 350

Glu Ala Ser Trp Gln Arg Ala Ser Ala Ile Pro Glu Thr Ser Asn Ser
        355                 360                 365

Glu Ser Ser Ser Gln Ala Thr Thr Pro Phe Leu Pro Arg Gly Glu Met
    370                 375                 380
```

<210> 10165
<211> 293
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2025; "

<220>
<221> source
<223> /note="Gene Symbol: BTNL8; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427441"

<400> 10165

```
Met Arg His Ala His Leu Ser Arg Glu Val Glu Ser Arg Val Gln Ile
1               5                   10                  15

Gly Asp Thr Phe Phe Glu Pro Ile Ser Trp His Leu Ala Thr Lys Val
            20                  25                  30

Leu Gly Ile Leu Cys Cys Gly Leu Phe Phe Gly Ile Val Gly Leu Lys
        35                  40                  45

Ile Phe Phe Ser Lys Phe Gln Trp Lys Ile Gln Ala Glu Leu Asp Trp
    50                  55                  60

Arg Arg Lys His Gly Gln Ala Glu Leu Arg Asp Ala Arg Lys His Ala
65                  70                  75                  80

Val Glu Val Thr Leu Asp Pro Glu Thr Ala His Pro Lys Leu Cys Val
                85                  90                  95
```

```
Ser Asp Leu Lys Thr Val Thr His Arg Lys Ala Pro Gln Glu Val Pro
            100                 105                 110

His Ser Glu Lys Arg Phe Thr Arg Lys Ser Val Val Ala Ser Gln Ser
        115                 120                 125

Phe Gln Ala Gly Lys His Tyr Trp Glu Val Asp Gly Gly His Asn Lys
    130                 135                 140

Arg Trp Arg Val Gly Val Cys Arg Asp Asp Val Asp Arg Arg Lys Glu
145                 150                 155                 160

Tyr Val Thr Leu Ser Pro Asp His Gly Tyr Trp Val Leu Arg Leu Asn
                165                 170                 175

Gly Glu His Leu Tyr Phe Thr Leu Asn Pro Arg Phe Ile Ser Val Phe
            180                 185                 190

Pro Arg Thr Pro Pro Thr Lys Ile Gly Val Phe Leu Asp Tyr Glu Cys
        195                 200                 205

Gly Thr Ile Ser Phe Phe Asn Ile Asn Asp Gln Ser Leu Ile Tyr Thr
    210                 215                 220

Leu Thr Cys Arg Phe Glu Gly Leu Leu Arg Pro Tyr Ile Glu Tyr Pro
225                 230                 235                 240

Ser Tyr Asn Glu Gln Asn Gly Thr Pro Ile Val Ile Cys Pro Val Thr
                245                 250                 255

Gln Glu Ser Glu Lys Glu Ala Ser Trp Gln Arg Ala Ser Ala Ile Pro
            260                 265                 270

Glu Thr Ser Asn Ser Glu Ser Ser Ser Gln Ala Thr Thr Pro Phe Leu
        275                 280                 285

Pro Arg Gly Glu Met
    290
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<210> 10166
<211> 316
<212> PRT

<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: BTNL8; "

<220>
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<223> /note="Gene Name: butyrophilin-like 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UX41; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435098"

<400> 10166

```
Met His Gly Leu Phe Asp Val Glu Ile Ser Leu Thr Val Gln Glu Asn
1               5                   10                  15


Ala Gly Ser Ile Ser Cys Ser Met Arg His Ala His Leu Ser Arg Glu
            20                  25                  30


Val Glu Ser Arg Val Gln Ile Gly Asp Thr Phe Phe Glu Pro Ile Ser
        35                  40                  45


Trp His Leu Ala Thr Lys Val Leu Gly Ile Leu Cys Cys Gly Leu Phe
    50                  55                  60


Phe Gly Ile Val Gly Leu Lys Ile Phe Phe Ser Lys Phe Gln Trp Lys
65                  70                  75                  80


Ile Gln Ala Glu Leu Asp Trp Arg Arg Lys His Gly Gln Ala Glu Leu
                85                  90                  95


Arg Asp Ala Arg Lys His Ala Val Glu Val Thr Leu Asp Pro Glu Thr
            100                 105                 110


Ala His Pro Lys Leu Cys Val Ser Asp Leu Lys Thr Val Thr His Arg
        115                 120                 125


Lys Ala Pro Gln Glu Val Pro His Ser Glu Lys Arg Phe Thr Arg Lys
    130                 135                 140
```

```
Ser Val Val Ala Ser Gln Ser Phe Gln Ala Gly Lys His Tyr Trp Glu
145                 150                 155                 160

Val Asp Gly Gly His Asn Lys Arg Trp Arg Val Gly Val Cys Arg Asp
                165                 170                 175

Asp Val Asp Arg Arg Lys Glu Tyr Val Thr Leu Ser Pro Asp His Gly
            180                 185                 190

Tyr Trp Val Leu Arg Leu Asn Gly Glu His Leu Tyr Phe Thr Leu Asn
        195                 200                 205

Pro Arg Phe Ile Ser Val Phe Pro Arg Thr Pro Pro Thr Lys Ile Gly
    210                 215                 220

Val Phe Leu Asp Tyr Glu Cys Gly Thr Ile Ser Phe Phe Asn Ile Asn
225                 230                 235                 240

Asp Gln Ser Leu Ile Tyr Thr Leu Thr Cys Arg Phe Glu Gly Leu Leu
                245                 250                 255

Arg Pro Tyr Ile Glu Tyr Pro Ser Tyr Asn Glu Gln Asn Gly Thr Pro
            260                 265                 270

Ile Val Ile Cys Pro Val Thr Gln Glu Ser Glu Lys Glu Ala Ser Trp
        275                 280                 285

Gln Arg Ala Ser Ala Ile Pro Glu Thr Ser Asn Ser Glu Ser Ser Ser
    290                 295                 300

Gln Ala Thr Thr Pro Phe Leu Pro Arg Gly Glu Met
305                 310                 315


<210> 10167
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2025; "

<220>
<221> source
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<223> /note="Gene Symbol: BTNL8; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UX41; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483717"

<400> 10167

```
Met Trp Thr Trp Phe Val Lys Ser Leu Gly Ser Val Pro Leu Ile Ser
1               5                  10                  15

Ile Thr Gly Tyr Val Asp Arg Asp Ile Gln Leu Leu Cys Gln Ser Ser
            20                  25                  30

Gly Trp Phe Pro Arg Pro Thr Ala Lys Trp Lys Gly Pro Gln Gly Gln
        35                  40                  45

Asp Leu Ser Thr Asp Ser Arg Thr Asn Arg Asp Met His Gly Leu Phe
    50                  55                  60

Asp Val Glu Ile Ser Leu Thr Val Gln Glu Asn Ala Gly Ser Ile Ser
65                  70                  75                  80

Cys Ser Met Arg His Ala His Leu Ser Arg Glu Val Glu Ser Arg Val
                85                  90                  95

Gln Ile Gly Asp Thr Phe Phe Glu Pro Ile Ser Trp His Leu Ala Thr
            100                 105                 110

Lys Val Leu Gly Ile Leu Cys Cys Gly Leu Phe Phe Gly Ile Val Gly
        115                 120                 125

Leu Lys Ile Phe Phe Ser Lys Phe Gln Trp Lys Ile Gln Ala Glu Leu
    130                 135                 140

Asp Trp Arg Arg Lys His Gly Gln Ala Glu Leu Arg Asp Ala Arg Lys
145                 150                 155                 160

His Ala Val Glu Val Thr Leu Asp Pro Glu Thr Ala His Pro Lys Leu
                165                 170                 175
```

```
Cys Val Ser Asp Leu Lys Thr Val Thr His Arg Lys Ala Pro Gln Glu
            180                 185                 190

Val Pro His Ser Glu Lys Arg Phe Thr Arg Lys Ser Val Val Ala Ser
        195                 200                 205

Gln Ser Phe Gln Ala Gly Lys His Tyr Trp Glu Val Asp Gly Gly His
    210                 215                 220

Asn Lys Arg Trp Arg Val Gly Val Cys Arg Asp Asp Val Asp Arg Arg
225                 230                 235                 240

Lys Glu Tyr Val Thr Leu Ser Pro Asp His Gly Tyr Trp Val Leu Arg
                245                 250                 255

Leu Asn Gly Glu His Leu Tyr Phe Thr Leu Asn Pro Arg Phe Ile Ser
            260                 265                 270

Val Phe Pro Arg Thr Pro Pro Thr Lys Ile Gly Val Phe Leu Asp Tyr
        275                 280                 285

Glu Cys Gly Thr Ile Ser Phe Phe Asn Ile Asn Asp Gln Ser Leu Ile
    290                 295                 300

Tyr Thr Leu Thr Cys Arg Phe Glu Gly Leu Leu Arg Pro Tyr Ile Glu
305                 310                 315                 320

Tyr Pro Ser Tyr Asn Glu Gln Asn Gly Thr Pro Ile Val Ile Cys Pro
                325                 330                 335

Val Thr Gln Glu Ser Glu Lys Glu Ala Ser Trp Gln Arg Ala Ser Ala
            340                 345                 350

Ile Pro Glu Thr Ser Asn Ser Glu Ser Ser Ser Gln Ala Thr Thr Pro
        355                 360                 365

Phe Leu Pro Arg Gly Glu Met
    370                 375
```

<210> 10168
<211> 535
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2026; "

<220>
<221> source
<223> /note="Gene Symbol: BTNL9; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UXG8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000330200"

<400> 10168

```
Met Val Asp Leu Ser Val Ser Pro Asp Ser Leu Lys Pro Val Ser Leu
1               5                   10                  15

Thr Ser Ser Leu Val Phe Leu Met His Leu Leu Leu Leu Gln Pro Gly
            20                  25                  30

Glu Pro Ser Ser Glu Val Lys Val Leu Gly Pro Glu Tyr Pro Ile Leu
        35                  40                  45

Ala Leu Val Gly Glu Glu Val Glu Phe Pro Cys His Leu Trp Pro Gln
    50                  55                  60

Leu Asp Ala Gln Gln Met Glu Ile Arg Trp Phe Arg Ser Gln Thr Phe
65                  70                  75                  80

Asn Val Val His Leu Tyr Gln Glu Gln Gln Glu Leu Pro Gly Arg Gln
                85                  90                  95

Met Pro Ala Phe Arg Asn Arg Thr Lys Leu Val Lys Asp Asp Ile Ala
            100                 105                 110

Tyr Gly Ser Val Val Leu Gln Leu His Ser Ile Ile Pro Ser Asp Lys
        115                 120                 125

Gly Thr Tyr Gly Cys Arg Phe His Ser Asp Asn Phe Ser Gly Glu Ala
    130                 135                 140
```

```
Leu Trp Glu Leu Glu Val Ala Gly Leu Gly Ser Asp Pro His Leu Ser
145                 150                 155                 160

Leu Glu Gly Phe Lys Glu Gly Gly Ile Gln Leu Arg Leu Arg Ser Ser
                165                 170                 175

Gly Trp Tyr Pro Lys Pro Lys Val Gln Trp Arg Asp His Gln Gly Gln
            180                 185                 190

Cys Leu Pro Pro Glu Phe Glu Ala Ile Val Trp Asp Ala Gln Asp Leu
        195                 200                 205

Phe Ser Leu Glu Thr Ser Val Val Val Arg Ala Gly Ala Leu Ser Asn
    210                 215                 220

Val Ser Val Ser Ile Gln Asn Leu Leu Leu Ser Gln Lys Lys Glu Leu
225                 230                 235                 240

Val Val Gln Ile Ala Asp Val Phe Val Pro Gly Ala Ser Ala Trp Lys
                245                 250                 255

Ser Ala Phe Val Ala Thr Leu Pro Leu Leu Leu Val Leu Ala Ala Leu
            260                 265                 270

Ala Leu Gly Val Leu Arg Lys Gln Arg Arg Ser Arg Glu Lys Leu Arg
        275                 280                 285

Lys Gln Ala Glu Lys Arg Gln Glu Lys Leu Thr Ala Glu Leu Glu Lys
    290                 295                 300

Leu Gln Thr Glu Leu Asp Trp Arg Arg Ala Glu Gly Gln Ala Glu Trp
305                 310                 315                 320

Arg Ala Ala Gln Lys Tyr Ala Val Asp Val Thr Leu Asp Pro Ala Ser
                325                 330                 335

Ala His Pro Ser Leu Glu Val Ser Glu Asp Gly Lys Ser Val Ser Ser
            340                 345                 350

Arg Gly Ala Pro Pro Gly Pro Ala Pro Gly His Pro Gln Arg Phe Ser
        355                 360                 365
```

```
Glu Gln Thr Cys Ala Leu Ser Leu Glu Arg Phe Ser Ala Gly Arg His
    370                 375                 380

Tyr Trp Glu Val His Val Gly Arg Arg Ser Arg Trp Phe Leu Gly Ala
385                 390                 395                 400

Cys Leu Ala Ala Val Pro Arg Ala Gly Pro Ala Arg Leu Ser Pro Ala
                405                 410                 415

Ala Gly Tyr Trp Val Leu Gly Leu Trp Asn Gly Cys Glu Tyr Phe Val
            420                 425                 430

Leu Ala Pro His Arg Val Ala Leu Thr Leu Arg Val Pro Pro Arg Arg
        435                 440                 445

Leu Gly Val Phe Leu Asp Tyr Glu Ala Gly Glu Leu Ser Phe Phe Asn
    450                 455                 460

Val Ser Asp Gly Ser His Ile Phe Thr Phe His Asp Thr Phe Ser Gly
465                 470                 475                 480

Ala Leu Cys Ala Tyr Phe Arg Pro Arg Ala His Asp Gly Gly Glu His
                485                 490                 495

Pro Asp Pro Leu Thr Ile Cys Pro Leu Pro Val Arg Gly Thr Gly Val
            500                 505                 510

Pro Glu Glu Asn Asp Ser Asp Thr Trp Leu Gln Pro Tyr Glu Pro Ala
        515                 520                 525

Asp Pro Ala Leu Asp Trp Trp
    530                 535
```

<210> 10169
<211> 344
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2026; "

<220>
<221> source
<223> /note="Gene Symbol: BTNL9; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UXG8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366037"

<400> 10169
Met Val Asp Leu Ser Val Ser Pro Asp Ser Leu Lys Pro Val Ser Leu
1   5   10   15

Thr Ser Ser Leu Val Phe Leu Met His Leu Leu Leu Leu Gln Pro Gly
            20   25   30

Glu Pro Ser Ser Glu Val Lys Val Leu Gly Pro Glu Tyr Pro Ile Leu
        35   40   45

Ala Leu Val Gly Glu Glu Val Glu Phe Pro Cys His Leu Trp Pro Gln
    50   55   60

Leu Asp Ala Gln Gln Met Glu Ile Arg Trp Phe Arg Ser Gln Thr Phe
65   70   75   80

Asn Val Val His Leu Tyr Gln Glu Gln Gln Glu Leu Pro Gly Arg Gln
                85   90   95

Met Pro Ala Phe Arg Asn Arg Thr Lys Leu Val Lys Asp Asp Ile Ala
            100   105   110

Tyr Gly Ser Val Val Leu Gln Leu His Ser Ile Ile Pro Ser Asp Lys
        115   120   125

Gly Thr Tyr Gly Cys Arg Phe His Ser Asp Asn Phe Ser Gly Glu Ala
    130   135   140

Leu Trp Glu Leu Glu Val Ala Gly Leu Gly Ser Asp Pro His Leu Ser
145   150   155   160

Leu Glu Gly Phe Lys Glu Gly Gly Ile Gln Leu Arg Leu Arg Ser Ser
                165   170   175

```
Gly Trp Tyr Pro Lys Pro Lys Val Gln Trp Arg Asp His Gln Gly Gln
            180                 185                 190

Cys Leu Pro Pro Glu Phe Glu Ala Ile Val Trp Asp Ala Gln Asp Leu
        195                 200                 205

Phe Ser Leu Glu Thr Ser Val Val Val Arg Ala Gly Ala Leu Ser Asn
    210                 215                 220

Val Ser Val Ser Ile Gln Asn Leu Leu Leu Ser Gln Lys Lys Glu Leu
225                 230                 235                 240

Val Val Gln Ile Ala Asp Val Phe Val Pro Gly Ala Ser Ala Trp Lys
                245                 250                 255

Ser Ala Phe Val Ala Thr Leu Pro Leu Leu Leu Val Leu Ala Ala Leu
            260                 265                 270

Ala Leu Gly Val Leu Arg Lys Gln Arg Arg Ser Arg Glu Lys Leu Arg
        275                 280                 285

Lys Gln Ala Glu Lys Arg Gln Glu Lys Leu Thr Ala Glu Leu Glu Lys
    290                 295                 300

Leu Gln Thr Glu Leu Asp Trp Arg Arg Ala Glu Gly Gln Ala Glu Cys
305                 310                 315                 320

Phe Val Leu Ala Ser His Pro Pro Gly Glu Gly Ile Gln Ala Ala Ser
                325                 330                 335

Asn Ser Thr Thr Thr Leu Asn Ala
            340


<210> 10170
<211> 315
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2026; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 9; "

<220>
<221> source
<223> /note="Uniprot ID: Q6UXG8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425424"

<400> 10170
Met Val Asp Leu Ser Val Ser Pro Asp Ser Leu Lys Pro Val Ser Leu
1   5   10   15

Thr Ser Ser Leu Val Phe Leu Met His Leu Leu Leu Leu Gln Pro Gly
            20   25   30

Glu Pro Ser Ser Glu Val Lys Val Leu Gly Pro Glu Tyr Pro Ile Leu
        35   40   45

Ala Leu Val Gly Glu Glu Val Glu Phe Pro Cys His Leu Trp Pro Gln
    50   55   60

Leu Asp Ala Gln Gln Met Glu Ile Arg Trp Phe Arg Ser Gln Thr Phe
65   70   75   80

Asn Val Val His Leu Tyr Gln Glu Gln Gln Glu Leu Pro Gly Arg Gln
                85   90   95

Met Pro Ala Phe Arg Asn Arg Thr Lys Leu Val Lys Asp Asp Ile Ala
            100   105   110

Tyr Gly Ser Val Val Leu Gln Leu His Ser Ile Ile Pro Ser Asp Lys
        115   120   125

Gly Thr Tyr Gly Cys Arg Phe His Ser Asp Asn Phe Ser Gly Glu Ala
    130   135   140

Leu Trp Glu Leu Glu Val Ala Gly Leu Gly Ser Asp Pro His Leu Ser
145   150   155   160

Leu Glu Gly Phe Lys Glu Gly Gly Ile Gln Leu Arg Leu Arg Ser Ser
                165   170   175

```
Gly Trp Tyr Pro Lys Pro Lys Val Gln Trp Arg Asp His Gln Gly Gln
            180                 185                 190

Cys Leu Pro Pro Glu Phe Glu Ala Ile Val Trp Asp Ala Gln Asp Leu
        195                 200                 205

Phe Ser Leu Glu Thr Ser Val Val Val Arg Ala Gly Ala Leu Ser Asn
    210                 215                 220

Val Ser Val Ser Ile Gln Asn Leu Leu Leu Ser Gln Lys Lys Glu Leu
225                 230                 235                 240

Val Val Gln Ile Ala Asp Val Phe Val Pro Gly Ala Ser Ala Trp Lys
                245                 250                 255

Ser Ala Phe Val Ala Thr Leu Pro Leu Leu Leu Val Leu Ala Ala Leu
            260                 265                 270

Ala Leu Gly Val Leu Arg Lys Gln Arg Arg Ser Arg Glu Lys Leu Arg
        275                 280                 285

Lys Gln Ala Glu Lys Arg Gln Gly Glu Arg Gly Gln Gly Val Leu His
    290                 295                 300

Ala Pro Ala Gln Val Pro Lys Pro Ala Val Ile
305                 310                 315


<210> 10171
<211> 246
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2026; "

<220>
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<223> /note="Gene Symbol: BTNL9; "

<220>
<221> source
<223> /note="Gene Name: butyrophilin-like 9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427345"
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<400> 10171
Met Glu Ile Arg Trp Phe Arg Ser Gln Thr Phe Asn Val Val His Leu
1 5 10 15

Tyr Gln Glu Gln Gln Glu Leu Pro Gly Arg Gln Met Pro Ala Phe Arg
20 25 30

Asn Arg Thr Lys Leu Val Lys Asp Asp Ile Ala Tyr Gly Ser Val Val
35 40 45

Leu Gln Leu His Ser Ile Ile Pro Ser Asp Lys Gly Thr Tyr Gly Cys
50 55 60

Arg Phe His Ser Asp Asn Phe Ser Gly Glu Ala Leu Trp Glu Leu Glu
65 70 75 80

Val Ala Gly Leu Gly Ser Asp Pro His Leu Ser Leu Glu Gly Phe Lys
85 90 95

Glu Gly Gly Ile Gln Leu Arg Leu Arg Ser Ser Gly Trp Tyr Pro Lys
100 105 110

Pro Lys Val Gln Trp Arg Asp His Gln Gly Gln Cys Leu Pro Pro Glu
115 120 125

Phe Glu Ala Ile Val Trp Asp Ala Gln Asp Leu Phe Ser Leu Glu Thr
130 135 140

Ser Val Val Val Arg Ala Gly Ala Leu Ser Asn Val Ser Val Ser Ile
145 150 155 160

Gln Asn Leu Leu Leu Ser Gln Lys Lys Glu Leu Val Val Gln Ile Ala
165 170 175

Asp Val Phe Val Pro Gly Ala Ser Ala Trp Lys Ser Ala Phe Val Ala
180 185 190

Thr Leu Pro Leu Leu Leu Val Leu Ala Ala Leu Ala Leu Gly Val Leu
195 200 205

Arg Lys Gln Arg Arg Ser Arg Glu Lys Leu Arg Lys Gln Ala Glu Lys
210 215 220

Arg Gln Gly Glu Arg Gly Gln Gly Val Leu His Ala Pro Ala Gln Val
225 230 235 240

Pro Lys Pro Ala Val Ile
245

<210> 10172
<211> 602
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2027; "

<220>
<221> source
<223> /note="Gene Symbol: BCHE; "

<220>
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<223> /note="Gene Name: butyrylcholinesterase; "

<220>
<221> source
<223> /note="Uniprot ID: P06276; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000264381"

<400> 10172
Met His Ser Lys Val Thr Ile Ile Cys Ile Arg Phe Leu Phe Trp Phe
1 5 10 15

Leu Leu Leu Cys Met Leu Ile Gly Lys Ser His Thr Glu Asp Asp Ile
20 25 30

Ile Ile Ala Thr Lys Asn Gly Lys Val Arg Gly Met Asn Leu Thr Val
35 40 45

Phe Gly Gly Thr Val Thr Ala Phe Leu Gly Ile Pro Tyr Ala Gln Pro
50 55 60

Pro Leu Gly Arg Leu Arg Phe Lys Lys Pro Gln Ser Leu Thr Lys Trp
65 70 75 80

Ser Asp Ile Trp Asn Ala Thr Lys Tyr Ala Asn Ser Cys Cys Gln Asn
85 90 95

```
Ile Asp Gln Ser Phe Pro Gly Phe His Gly Ser Glu Met Trp Asn Pro
            100                 105                 110

Asn Thr Asp Leu Ser Glu Asp Cys Leu Tyr Leu Asn Val Trp Ile Pro
        115                 120                 125

Ala Pro Lys Pro Lys Asn Ala Thr Val Leu Ile Trp Ile Tyr Gly Gly
    130                 135                 140

Gly Phe Gln Thr Gly Thr Ser Ser Leu His Val Tyr Asp Gly Lys Phe
145                 150                 155                 160

Leu Ala Arg Val Glu Arg Val Ile Val Val Ser Met Asn Tyr Arg Val
                165                 170                 175

Gly Ala Leu Gly Phe Leu Ala Leu Pro Gly Asn Pro Glu Ala Pro Gly
            180                 185                 190

Asn Met Gly Leu Phe Asp Gln Gln Leu Ala Leu Gln Trp Val Gln Lys
        195                 200                 205

Asn Ile Ala Ala Phe Gly Gly Asn Pro Lys Ser Val Thr Leu Phe Gly
    210                 215                 220

Glu Ser Ala Gly Ala Ala Ser Val Ser Leu His Leu Leu Ser Pro Gly
225                 230                 235                 240

Ser His Ser Leu Phe Thr Arg Ala Ile Leu Gln Ser Gly Ser Phe Asn
                245                 250                 255

Ala Pro Trp Ala Val Thr Ser Leu Tyr Glu Ala Arg Asn Arg Thr Leu
            260                 265                 270

Asn Leu Ala Lys Leu Thr Gly Cys Ser Arg Glu Asn Glu Thr Glu Ile
        275                 280                 285

Ile Lys Cys Leu Arg Asn Lys Asp Pro Gln Glu Ile Leu Leu Asn Glu
    290                 295                 300

Ala Phe Val Val Pro Tyr Gly Thr Pro Leu Ser Val Asn Phe Gly Pro
305                 310                 315                 320
```

```
Thr Val Asp Gly Asp Phe Leu Thr Asp Met Pro Asp Ile Leu Leu Glu
                325                 330                 335

Leu Gly Gln Phe Lys Lys Thr Gln Ile Leu Val Gly Val Asn Lys Asp
            340                 345                 350

Glu Gly Thr Ala Phe Leu Val Tyr Gly Ala Pro Gly Phe Ser Lys Asp
        355                 360                 365

Asn Asn Ser Ile Ile Thr Arg Lys Glu Phe Gln Glu Gly Leu Lys Ile
    370                 375                 380

Phe Phe Pro Gly Val Ser Glu Phe Gly Lys Glu Ser Ile Leu Phe His
385                 390                 395                 400

Tyr Thr Asp Trp Val Asp Asp Gln Arg Pro Glu Asn Tyr Arg Glu Ala
                405                 410                 415

Leu Gly Asp Val Val Gly Asp Tyr Asn Phe Ile Cys Pro Ala Leu Glu
            420                 425                 430

Phe Thr Lys Lys Phe Ser Glu Trp Gly Asn Asn Ala Phe Phe Tyr Tyr
        435                 440                 445

Phe Glu His Arg Ser Ser Lys Leu Pro Trp Pro Glu Trp Met Gly Val
    450                 455                 460

Met His Gly Tyr Glu Ile Glu Phe Val Phe Gly Leu Pro Leu Glu Arg
465                 470                 475                 480

Arg Asp Asn Tyr Thr Lys Ala Glu Glu Ile Leu Ser Arg Ser Ile Val
                485                 490                 495

Lys Arg Trp Ala Asn Phe Ala Lys Tyr Gly Asn Pro Asn Glu Thr Gln
            500                 505                 510

Asn Asn Ser Thr Ser Trp Pro Val Phe Lys Ser Thr Glu Gln Lys Tyr
        515                 520                 525

Leu Thr Leu Asn Thr Glu Ser Thr Arg Ile Met Thr Lys Leu Arg Ala
    530                 535                 540
```

```
Gln Gln Cys Arg Phe Trp Thr Ser Phe Phe Pro Lys Val Leu Glu Met
545                 550                 555                 560


Thr Gly Asn Ile Asp Glu Ala Glu Trp Glu Trp Lys Ala Gly Phe His
                565                 570                 575


Arg Trp Asn Asn Tyr Met Met Asp Trp Lys Asn Gln Phe Asn Asp Tyr
            580                 585                 590


Thr Ser Lys Lys Glu Ser Cys Val Gly Leu
        595                 600


<210> 10173
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2027; "

<220>
<221> source
<223> /note="Gene Symbol: BCHE; "

<220>
<221> source
<223> /note="Gene Name: butyrylcholinesterase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418325"

<400> 10173
Ala Val Gln Phe Thr Gly Trp Ser Ser Ser Cys Ile Leu His Phe Pro
1               5                   10                  15


Glu Val Leu His Asp Phe His Ser Leu Gln Thr Leu Pro Ser Leu Leu
            20                  25                  30


Gln Arg Ile Gly Asn Pro Asn Glu Thr Gln Asn Asn Ser Thr Ser Trp
        35                  40                  45


Pro Val Phe Lys Ser Thr Glu Gln Lys Tyr Leu Thr Leu Asn Thr Glu
    50                  55                  60


Ser Thr Arg Ile Met Thr Lys Leu Arg Ala Gln Gln Cys Arg Phe Trp
65                  70                  75                  80
```

Thr Ser Phe Phe Pro Lys Val Leu Glu Met Thr Gly Asn Ile Asp Glu
85 90 95

Ala Glu Trp Glu Trp Lys Ala Gly Phe His Arg Trp Asn Asn Tyr Met
100 105 110

Met Asp Trp Lys Asn Gln Phe Asn Asp Tyr Thr Ser Lys Lys Glu Ser
115 120 125

Cys Val Gly Leu
130

<210> 10174
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2027; "

<220>
<221> source
<223> /note="Gene Symbol: BCHE; "

<220>
<221> source
<223> /note="Gene Name: butyrylcholinesterase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418504"

<400> 10174
Ala Val Gln Phe Thr Gly Trp Ser Ser Ser Cys Ile Leu His Phe Pro
1 5 10 15

Glu Val Leu His Asp Phe His Ser Leu Gln Thr Leu Pro Ser Leu Leu
20 25 30

Gln Arg Ile Gly Asn Pro Asn Glu Thr Gln Asn Asn Ser Thr Ser Trp
35 40 45

Pro Val Phe Lys Ser Thr Glu Gln Lys Tyr Leu Thr Leu Asn Thr Glu
50 55 60

Ser Thr Arg Ile Met Thr Lys Leu Arg Ala Gln Gln Cys Arg Phe Trp
65 70 75 80

```
Thr Ser Phe Phe Pro Lys Val Leu Glu Met Thr Glu Pro Ile Cys Cys
                85                  90                  95

Tyr Cys Glu Pro Gly Thr Ala Leu Ala Ala Arg Ala Ala Gln Met Lys
            100                 105                 110

Met Thr Gly Ser Ala Tyr Ser Gln
        115                 120


<210> 10175
<211> 562
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2027; "

<220>
<221> source
<223> /note="Gene Symbol: BCHE; "

<220>
<221> source
<223> /note="Gene Name: butyrylcholinesterase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419505"

<400> 10175
Met His Ser Lys Val Thr Ile Ile Cys Ile Arg Phe Leu Phe Trp Phe
1               5                   10                  15

Leu Leu Leu Cys Met Leu Ile Gly Lys Ser His Thr Glu Asp Asp Ile
            20                  25                  30

Ile Ile Ala Thr Lys Asn Gly Lys Val Arg Gly Met Asn Leu Thr Val
        35                  40                  45

Phe Gly Gly Thr Val Thr Ala Phe Leu Gly Ile Pro Tyr Ala Gln Pro
    50                  55                  60

Pro Leu Gly Arg Leu Arg Phe Lys Lys Pro Gln Ser Leu Thr Lys Trp
65                  70                  75                  80

Ser Asp Ile Trp Asn Ala Thr Lys Tyr Ala Asn Ser Cys Cys Gln Asn
```

85 90 95

Ile Asp Gln Ser Phe Pro Gly Phe His Gly Ser Glu Met Trp Asn Pro
100 105 110

Asn Thr Asp Leu Ser Glu Asp Cys Leu Tyr Leu Asn Val Trp Ile Pro
115 120 125

Ala Pro Lys Pro Lys Asn Ala Thr Val Leu Ile Trp Ile Tyr Gly Gly
130 135 140

Gly Phe Gln Thr Gly Thr Ser Ser Leu His Val Tyr Asp Gly Lys Phe
145 150 155 160

Leu Ala Arg Val Glu Arg Val Ile Val Val Ser Met Asn Tyr Arg Val
165 170 175

Gly Ala Leu Gly Phe Leu Ala Leu Pro Gly Asn Pro Glu Ala Pro Gly
180 185 190

Asn Met Gly Leu Phe Asp Gln Gln Leu Ala Leu Gln Trp Val Gln Lys
195 200 205

Asn Ile Ala Ala Phe Gly Gly Asn Pro Lys Ser Val Thr Leu Phe Gly
210 215 220

Glu Ser Ala Gly Ala Ala Ser Val Ser Leu His Leu Leu Ser Pro Gly
225 230 235 240

Ser His Ser Leu Phe Thr Arg Ala Ile Leu Gln Ser Gly Ser Phe Asn
245 250 255

Ala Pro Trp Ala Val Thr Ser Leu Tyr Glu Ala Arg Asn Arg Thr Leu
260 265 270

Asn Leu Ala Lys Leu Thr Gly Cys Ser Arg Glu Asn Glu Thr Glu Ile
275 280 285

Ile Lys Cys Leu Arg Asn Lys Asp Pro Gln Glu Ile Leu Leu Asn Glu
290 295 300

Ala Phe Val Val Pro Tyr Gly Thr Pro Leu Ser Val Asn Phe Gly Pro
305 310 315 320

Thr Val Asp Gly Asp Phe Leu Thr Asp Met Pro Asp Ile Leu Leu Glu
325 330 335

Leu Gly Gln Phe Lys Lys Thr Gln Ile Leu Val Gly Val Asn Lys Asp
340 345 350

Glu Gly Thr Ala Phe Leu Val Tyr Gly Ala Pro Gly Phe Ser Lys Asp
355 360 365

Asn Asn Ser Ile Ile Thr Arg Lys Glu Phe Gln Glu Gly Leu Lys Ile
370 375 380

Phe Phe Pro Gly Val Ser Glu Phe Gly Lys Glu Ser Ile Leu Phe His
385 390 395 400

Tyr Thr Asp Trp Val Asp Asp Gln Arg Pro Glu Asn Tyr Arg Glu Ala
405 410 415

Leu Gly Asp Val Val Gly Asp Tyr Asn Phe Ile Cys Pro Ala Leu Glu
420 425 430

Phe Thr Lys Lys Phe Ser Glu Trp Gly Asn Asn Ala Phe Phe Tyr Tyr
435 440 445

Phe Glu His Arg Ser Ser Lys Leu Pro Trp Pro Glu Trp Met Gly Val
450 455 460

Met His Gly Tyr Glu Ile Glu Phe Val Phe Gly Leu Pro Leu Glu Arg
465 470 475 480

Arg Asp Asn Tyr Thr Lys Ala Glu Glu Ile Leu Ser Arg Ser Ile Val
485 490 495

Lys Arg Trp Ala Asn Phe Ala Lys Tyr Gly Asn Pro Asn Glu Thr Gln
500 505 510

Asn Asn Ser Thr Ser Trp Pro Val Phe Lys Ser Thr Glu Gln Lys Tyr
515 520 525

Leu Thr Leu Asn Thr Glu Ser Thr Arg Ile Met Thr Lys Leu Arg Ala
530 535 540

```
Gln Gln Cys Arg Phe Trp Thr Ser Phe Phe Pro Lys Val Leu Glu Met
545                 550                 555                 560


Thr Gly
```

<210> 10176
<211> 525
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2027; "

<220>
<221> source
<223> /note="Gene Symbol: BCHE; "

<220>
<221> source
<223> /note="Gene Name: butyrylcholinesterase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419804"

<400> 10176

```
Met His Ser Lys Val Thr Ile Ile Cys Ile Arg Phe Leu Phe Trp Phe
1               5                   10                  15


Leu Leu Leu Cys Met Leu Ile Gly Lys Ser His Thr Glu Asp Asp Ile
            20                  25                  30


Ile Ile Ala Thr Lys Asn Gly Lys Val Arg Gly Met Asn Leu Thr Val
        35                  40                  45


Phe Gly Gly Thr Val Thr Ala Phe Leu Gly Ile Pro Tyr Ala Gln Pro
    50                  55                  60


Pro Leu Gly Arg Leu Arg Phe Lys Lys Pro Gln Ser Leu Thr Lys Trp
65                  70                  75                  80


Ser Asp Ile Trp Asn Ala Thr Lys Tyr Ala Asn Ser Cys Cys Gln Asn
                85                  90                  95


Ile Asp Gln Ser Phe Pro Gly Phe His Gly Ser Glu Met Trp Asn Pro
            100                 105                 110
```

```
Asn Thr Asp Leu Ser Glu Asp Cys Leu Tyr Leu Asn Val Trp Ile Pro
        115                 120                 125

Ala Pro Lys Pro Lys Asn Ala Thr Val Leu Ile Trp Ile Tyr Gly Gly
    130                 135                 140

Gly Phe Gln Thr Gly Thr Ser Ser Leu His Val Tyr Asp Gly Lys Phe
145                 150                 155                 160

Leu Ala Arg Val Glu Arg Val Ile Val Val Ser Met Asn Tyr Arg Val
                165                 170                 175

Gly Ala Leu Gly Phe Leu Ala Leu Pro Gly Asn Pro Glu Ala Pro Gly
            180                 185                 190

Asn Met Gly Leu Phe Asp Gln Gln Leu Ala Leu Gln Trp Val Gln Lys
        195                 200                 205

Asn Ile Ala Ala Phe Gly Gly Asn Pro Lys Ser Val Thr Leu Phe Gly
    210                 215                 220

Glu Ser Ala Gly Ala Ala Ser Val Ser Leu His Leu Leu Ser Pro Gly
225                 230                 235                 240

Ser His Ser Leu Phe Thr Arg Ala Ile Leu Gln Ser Gly Ser Phe Asn
                245                 250                 255

Ala Pro Trp Ala Val Thr Ser Leu Tyr Glu Ala Arg Asn Arg Thr Leu
            260                 265                 270

Asn Leu Ala Lys Leu Thr Gly Cys Ser Arg Glu Asn Glu Thr Glu Ile
        275                 280                 285

Ile Lys Cys Leu Arg Asn Lys Asp Pro Gln Glu Ile Leu Leu Asn Glu
    290                 295                 300

Ala Phe Val Val Pro Tyr Gly Thr Pro Leu Ser Val Asn Phe Gly Pro
305                 310                 315                 320

Thr Val Asp Gly Asp Phe Leu Thr Asp Met Pro Asp Ile Leu Leu Glu
                325                 330                 335
```

```
Leu Gly Gln Phe Lys Lys Thr Gln Ile Leu Val Gly Val Asn Lys Asp
            340                 345                 350

Glu Gly Thr Ala Phe Leu Val Tyr Gly Ala Pro Gly Phe Ser Lys Asp
        355                 360                 365

Asn Asn Ser Ile Ile Thr Arg Lys Glu Phe Gln Glu Gly Leu Lys Ile
    370                 375                 380

Phe Phe Pro Gly Val Ser Glu Phe Gly Lys Glu Ser Ile Leu Phe His
385                 390                 395                 400

Tyr Thr Asp Trp Val Asp Asp Gln Arg Pro Glu Asn Tyr Arg Glu Ala
                405                 410                 415

Leu Gly Asp Val Val Gly Asp Tyr Asn Phe Ile Cys Pro Ala Leu Glu
            420                 425                 430

Phe Thr Lys Lys Phe Ser Glu Trp Gly Asn Asn Ala Phe Phe Tyr Tyr
        435                 440                 445

Phe Glu His Arg Ser Ser Lys Leu Pro Trp Pro Glu Trp Met Gly Val
    450                 455                 460

Met His Gly Tyr Glu Ile Glu Phe Val Phe Gly Leu Pro Leu Glu Arg
465                 470                 475                 480

Arg Asp Asn Tyr Thr Lys Ala Glu Glu Ile Leu Ser Arg Ser Ile Val
                485                 490                 495

Lys Arg Trp Ala Asn Phe Ala Lys Tyr Gly Cys Ser Ser Ser Thr Ile
            500                 505                 510

Leu Asn Tyr Val Leu Glu Thr Glu Pro Val Val Leu Ile
        515                 520                 525


<210> 10177
<211> 75
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2028; "
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<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name: BX004987.4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484918"

<400> 10177
Met Val Val Leu Gly Met Gln Thr Glu Glu Gly His Cys Ile Met Leu
1   5   10   15

Arg Gly Leu Ala His Ser Leu Gly Gly Thr Gln Val Ile Cys Lys Val
            20   25   30

Val Gly Leu Pro Ser Ser Ile Gly Phe Asn Thr Ser Ser His Leu Leu
        35   40   45

Phe Pro Ala Thr Leu Gln Gly Ala Pro Thr His Phe Pro Cys Arg Trp
    50   55   60

Arg Gln Gly Gly Ser Thr Asp Asn Leu Pro Ala
65   70   75

<210> 10178
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2029; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name: BX248413.1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484425"

<400> 10178
Met Glu Gly Ala Leu Ala Asp Met Lys Phe Tyr Phe Ile Gln Ile Leu

```
1               5                   10                  15

Glu Lys Leu Ser Glu Ala Met Ser Val Leu Pro Glu Asp Met Arg Ile
            20                  25                  30

Met Pro Asp Leu Cys Gly Leu Thr Leu Glu His Ser Val Leu Glu Ala
        35                  40                  45

Gly Lys Phe Lys Ile Lys Val Pro Ala Asn Phe Ile Thr Trp Cys Pro
    50                  55                  60

Ile Met Ala His Ser Phe Thr Gln Gln Pro Leu Pro Ala Ser Lys Pro
65                  70                  75                  80

Gln Asp Thr Asp Leu His Gln His Met Gly Gln His Tyr Leu Pro Asn
                85                  90                  95

Ser Val Glu Lys Arg Thr Phe His His Trp Val Met Arg Val Asp Ser
            100                 105                 110

Asp Ser Trp Leu Leu Asn Ala Arg His Asp Trp Arg Pro Phe Ile Val
        115                 120                 125

Leu Leu Glu Lys Ser Met Lys Lys Leu
    130                 135


<210> 10179
<211> 437
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2030; "

<220>
<221> source
<223> /note="Gene Symbol: BYSL; "

<220>
<221> source
<223> /note="Gene Name: bystin-like; "

<220>
<221> source
<223> /note="Uniprot ID:  Q13895; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000230340"

<400> 10179
Met Pro Lys Phe Lys Ala Ala Arg Gly Val Gly Gly Gln Glu Lys His
1 5 10 15

Ala Pro Leu Ala Asp Gln Ile Leu Ala Gly Asn Ala Val Arg Ala Gly
20 25 30

Val Arg Glu Lys Arg Arg Gly Arg Gly Thr Gly Glu Ala Glu Glu Glu
35 40 45

Tyr Val Gly Pro Arg Leu Ser Arg Arg Ile Leu Gln Gln Ala Arg Gln
50 55 60

Gln Gln Glu Glu Leu Glu Ala Glu His Gly Thr Gly Asp Lys Pro Ala
65 70 75 80

Ala Pro Arg Glu Arg Thr Thr Arg Leu Gly Pro Arg Met Pro Gln Asp
85 90 95

Gly Ser Asp Asp Glu Asp Glu Glu Trp Pro Thr Leu Glu Lys Ala Ala
100 105 110

Thr Met Thr Ala Ala Gly His His Ala Glu Val Val Val Asp Pro Glu
115 120 125

Asp Glu Arg Ala Ile Glu Met Phe Met Asn Lys Asn Pro Pro Ala Arg
130 135 140

Arg Thr Leu Ala Asp Ile Ile Met Glu Lys Leu Thr Glu Lys Gln Thr
145 150 155 160

Glu Val Glu Thr Val Met Ser Glu Val Ser Gly Phe Pro Met Pro Gln
165 170 175

Leu Asp Pro Arg Val Leu Glu Val Tyr Arg Gly Val Arg Glu Val Leu
180 185 190

Ser Lys Tyr Arg Ser Gly Lys Leu Pro Lys Ala Phe Lys Ile Ile Pro
195 200 205

Ala Leu Ser Asn Trp Glu Gln Ile Leu Tyr Val Thr Glu Pro Glu Ala

```
    210                 215                 220

Trp Thr Ala Ala Ala Met Tyr Gln Ala Thr Arg Ile Phe Ala Ser Asn
225                 230                 235                 240

Leu Lys Glu Arg Met Ala Gln Arg Phe Tyr Asn Leu Val Leu Leu Pro
                245                 250                 255

Arg Val Arg Asp Asp Val Ala Glu Tyr Lys Arg Leu Asn Phe His Leu
            260                 265                 270

Tyr Met Ala Leu Lys Lys Ala Leu Phe Lys Pro Gly Ala Trp Phe Lys
        275                 280                 285

Gly Ile Leu Ile Pro Leu Cys Glu Ser Gly Thr Cys Thr Leu Arg Glu
    290                 295                 300

Ala Ile Ile Val Gly Ser Ile Ile Thr Lys Cys Ser Ile Pro Val Leu
305                 310                 315                 320

His Ser Ser Ala Ala Met Leu Lys Ile Ala Glu Met Glu Tyr Ser Gly
                325                 330                 335

Ala Asn Ser Ile Phe Leu Arg Leu Leu Leu Asp Lys Lys Tyr Ala Leu
            340                 345                 350

Pro Tyr Arg Val Leu Asp Ala Leu Val Phe His Phe Leu Gly Phe Arg
        355                 360                 365

Thr Glu Lys Arg Glu Leu Pro Val Leu Trp His Gln Cys Leu Leu Thr
    370                 375                 380

Leu Val Gln Arg Tyr Lys Ala Asp Leu Ala Thr Asp Gln Lys Glu Ala
385                 390                 395                 400

Leu Leu Glu Leu Leu Arg Leu Gln Pro His Pro Gln Leu Ser Pro Glu
                405                 410                 415

Ile Arg Arg Glu Leu Gln Ser Ala Val Pro Arg Asp Val Glu Asp Val
            420                 425                 430

Pro Ile Thr Val Glu
        435
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<210> 10180
<211> 183
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2030; "

<220>
<221> source
<223> /note="Gene Symbol: BYSL; "

<220>
<221> source
<223> /note="Gene Name: bystin-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000362087"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10180
Xaa Ala Ala Thr Met Thr Ala Ala Gly His His Ala Glu Val Val Val
1 5 10 15

Asp Pro Glu Asp Glu Arg Ala Ile Glu Met Phe Met Asn Lys Asn Pro
20 25 30

Pro Ala Arg Arg Thr Leu Ala Asp Ile Ile Met Glu Lys Leu Thr Glu
35 40 45

Lys Gln Thr Glu Val Glu Thr Val Met Ser Glu Val Ser Gly Phe Pro
50 55 60

Met Pro Gln Leu Asp Pro Arg Val Leu Glu Val Tyr Arg Gly Val Arg
65 70 75 80

Glu Val Leu Ser Lys Tyr Arg Ser Gly Lys Leu Pro Lys Ala Phe Lys
85 90 95

Ile Ile Pro Ala Leu Ser Asn Trp Glu Gln Ile Leu Tyr Val Thr Glu
100 105 110

```
Pro Glu Ala Trp Thr Ala Ala Ala Met Tyr Gln Ala Thr Arg Ile Phe
        115                 120                 125

Ala Ser Asn Leu Lys Glu Arg Met Ala Gln Arg Phe Tyr Asn Leu Val
    130                 135                 140

Leu Leu Pro Arg Val Arg Asp Asp Val Ala Glu Tyr Lys Arg Leu Asn
145                 150                 155                 160

Phe His Leu Tyr Met Ala Leu Lys Lys Ala Leu Phe Lys Pro Gly Ala
                165                 170                 175

Trp Phe Lys Val Ala Ala Leu
            180


<210> 10181
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2030; "

<220>
<221> source
<223> /note="Gene Symbol: BYSL; "

<220>
<221> source
<223> /note="Gene Name: bystin-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417813"

<400> 10181
Met Pro Lys Phe Lys Ala Ala Arg Gly Val Gly Gly Gln Glu Lys His
1               5                   10                  15

Ala Pro Leu Ala Asp Gln Ile Leu Ala Gly Asn Ala Val Arg Ala Gly
            20                  25                  30

Val Arg Glu Lys Arg Arg Gly Arg Gly Thr Gly Glu Ala Glu Glu Glu
        35                  40                  45

Tyr Val Gly Pro Arg Leu Ser Arg Arg Ile Leu Gln Gln Ala Arg Gln
    50                  55                  60
```

```
Gln Gln Glu Glu Leu Glu Ala Glu His Gly Thr Gly Asp Lys Pro Ala
65                  70                  75                  80

Ala Pro Arg Glu Arg Thr Thr Arg Leu Gly Pro Arg Met Pro Gln Asp
                85                  90                  95

Gly Ser Asp Asp Glu Asp Glu Glu Trp Pro Thr Leu Glu Lys Ala Ala
            100                 105                 110

Thr Met Thr Ala Ala Gly His His Ala Glu Val Val Val Asp Pro Glu
        115                 120                 125

Asp Glu Arg Ala Ile Glu Met Phe Met Asn Lys Asn Pro Pro Ala Arg
    130                 135                 140

Tyr Tyr Leu Ser Thr Ala Val Glu Asn Cys Pro Arg His Leu Arg Ser
145                 150                 155                 160

Ser Leu His Ser Pro Thr Gly Ser Lys Ser Ser Thr Ser Gln Ser Arg
                165                 170                 175

Arg Pro Gly Leu Gln Leu Pro Cys Thr Arg Pro Pro Gly Phe Leu Pro
            180                 185                 190

Leu Thr
```

<210> 10182
<211> 394
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2031; "

<220>
<221> source
<223> /note="Gene Symbol: C15orf38-AP3S2; "

<220>
<221> source
<223> /note="Gene Name: C15orf38-AP3S2 readthrough; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000381377"

<400> 10182

```
Met Ser Arg Ile Tyr His Asp Gly Ala Leu Arg Asn Lys Ala Val Gln
1               5                  10                  15

Ser Val Arg Leu Pro Gly Ala Trp Asp Pro Ala Ala His Gln Gly Gly
            20                  25                  30

Asn Gly Val Leu Leu Glu Gly Glu Leu Ile Asp Val Ser Arg His Ser
        35                  40                  45

Ile Leu Asp Thr His Gly Arg Lys Glu Arg Tyr Tyr Val Leu Tyr Ile
    50                  55                  60

Arg Pro Ser His Ile His Arg Arg Lys Phe Asp Ala Lys Gly Asn Glu
65                  70                  75                  80

Ile Glu Pro Asn Phe Ser Ala Thr Arg Lys Val Asn Thr Gly Phe Leu
                85                  90                  95

Met Ser Ser Tyr Lys Val Glu Ala Lys Gly Asp Thr Asp Arg Leu Thr
            100                 105                 110

Pro Glu Ala Leu Lys Gly Leu Val Asn Lys Pro Glu Leu Leu Ala Leu
        115                 120                 125

Thr Glu Ser Leu Thr Pro Asp His Thr Val Ala Phe Trp Met Pro Glu
    130                 135                 140

Ser Glu Met Glu Val Met Glu Leu Glu Leu Gly Ala Gly Val Arg Leu
145                 150                 155                 160

Lys Thr Arg Gly Asp Gly Pro Phe Leu Asp Ser Leu Ala Lys Leu Glu
                165                 170                 175

Ala Gly Thr Val Thr Lys Cys Asn Phe Thr Gly Asp Gly Lys Thr Gly
            180                 185                 190

Ala Ser Trp Thr Asp Asn Ile Met Ala Gln Lys Cys Ser Lys Gly Ala
        195                 200                 205

Ala Ala Glu Ile Arg Glu Gln Gly Asp Gly Ala Glu Asp Glu Glu Trp
    210                 215                 220
```

```
Pro Glu Glu Ile Gln Gln Gln Ile Val Arg Glu Thr Phe His Leu Val
225                 230                 235                 240

Leu Lys Arg Asp Asp Asn Ile Cys Asn Phe Leu Glu Gly Gly Ser Leu
                245                 250                 255

Ile Gly Gly Ser Asp Tyr Lys Leu Ile Tyr Arg His Tyr Ala Thr Leu
            260                 265                 270

Tyr Phe Val Phe Cys Val Asp Ser Ser Glu Ser Glu Leu Gly Ile Leu
        275                 280                 285

Asp Leu Ile Gln Val Phe Val Glu Thr Leu Asp Lys Cys Phe Glu Asn
    290                 295                 300

Val Cys Glu Leu Asp Leu Ile Phe His Met Asp Lys Val His Tyr Ile
305                 310                 315                 320

Leu Gln Glu Val Val Met Gly Gly Met Val Leu Glu Thr Asn Met Asn
                325                 330                 335

Glu Ile Val Ala Gln Ile Glu Ala Gln Asn Arg Leu Glu Lys Ser Glu
            340                 345                 350

Gly Gly Leu Ser Ala Ala Pro Ala Arg Ala Val Ser Ala Val Lys Asn
        355                 360                 365

Ile Asn Leu Pro Glu Ile Pro Arg Asn Ile Asn Ile Gly Asp Leu Asn
    370                 375                 380

Ile Lys Val Pro Asn Leu Ser Gln Phe Val
385                 390
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<210> 10183
<211> 185
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2031; "

<220>
<221> source

<223> /note="Gene Symbol: C15orf38-AP3S2; "

<220>
<221> source
<223> /note="Gene Name: C15orf38-AP3S2 readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453100"

<400> 10183

```
Met Ser Ser Tyr Lys Val Glu Ala Lys Gly Asp Thr Asp Arg Leu Thr
1               5                  10                  15

Pro Glu Ala Leu Lys Gly Leu Val Asn Lys Pro Glu Leu Leu Ala Leu
            20                  25                  30

Thr Glu Ser Leu Thr Pro Asp His Thr Val Ala Phe Trp Met Pro Glu
        35                  40                  45

Ser Glu Met Glu Val Met Glu Leu Glu Leu Gly Ala Gly Val Arg Leu
    50                  55                  60

Lys Thr Arg Gly Asp Gly Pro Phe Leu Asp Ser Leu Ala Lys Leu Glu
65                  70                  75                  80

Ala Gly Thr Val Thr Lys Cys Asn Phe Thr Gly Asp Gly Lys Thr Gly
                85                  90                  95

Ala Ser Trp Thr Asp Asn Ile Met Ala Gln Lys Cys Ser Lys Gly Ala
            100                 105                 110

Ala Ala Glu Ile Arg Glu Gln Gly Asp Gly Ala Glu Asp Glu Glu Trp
        115                 120                 125

Val Phe Val Glu Thr Leu Asp Lys Cys Phe Glu Asn Val Cys Glu Leu
    130                 135                 140

Asp Leu Ile Phe His Met Asp Lys Val His Tyr Ile Leu Gln Glu Val
145                 150                 155                 160

Val Met Gly Gly Met Val Leu Glu Thr Asn Met Asn Glu Ile Val Ala
                165                 170                 175

Gln Ile Glu Ala Gln Asn Arg Leu Glu
            180                 185
```

<210> 10184
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2031; "

<220>
<221> source
<223> /note="Gene Symbol: C15orf38-AP3S2; "

<220>
<221> source
<223> /note="Gene Name: C15orf38-AP3S2 readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453637"

<400> 10184
Met Ser Ser Tyr Asn Ser Leu Ala Lys Leu Glu Ala Gly Thr Val Thr
1   5   10   15

Lys Cys Asn Phe Thr Gly Asp Gly Lys Thr Gly Ala Ser Trp Thr Asp
            20   25   30

Asn Ile Met Ala Gln Lys Cys Ser Lys Gly Ala Ala Ala Glu Ile Arg
        35   40   45

Glu Gln Gly Asp Gly Ala Glu Asp Glu Glu Trp Pro Glu Glu Ile Gln
    50   55   60

Gln Gln Ile Val Arg Glu Thr Phe His Leu Val Leu Lys Arg Asp Asp
65   70   75   80

Asn Ile Cys Asn Phe Leu Glu Gly Gly Ser Leu Ile Gly Gly Ser Asp
                85   90   95

Tyr Lys Leu Ile Tyr Arg His Tyr Ala Thr Leu Tyr Phe Val Phe Cys
            100   105   110

Val Asp Ser Ser Glu Ser Glu Leu Gly Ile Leu Asp Leu Ile Gln Val
        115   120   125

Phe Val Glu Thr Leu Asp Lys Cys Phe Glu Asn Val Cys Glu Leu Asp

```
    130                 135                 140

Leu Ile Phe His Met Asp Lys Val His Tyr Ile Leu Gln Glu Val Val
145                 150                 155                 160

Met Gly Gly Met Val Leu Glu Thr Asn Met Asn Glu Ile Val Ala Gln
                165                 170                 175

Ile Glu Ala Gln Asn Arg Leu Glu
            180

<210> 10185
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2032; "

<220>
<221> source
<223> /note="Gene Symbol: C1D; "

<220>
<221> source
<223> /note="Gene Name: C1D nuclear receptor corepressor; "

<220>
<221> source
<223> /note="Uniprot ID:  Q13901; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348107"

<400> 10185
Met Ala Gly Glu Glu Ile Asn Glu Asp Tyr Pro Val Glu Ile His Glu
1               5                   10                  15

Tyr Leu Ser Ala Phe Glu Asn Ser Ile Gly Ala Val Asp Glu Met Leu
            20                  25                  30

Lys Thr Met Met Ser Val Ser Arg Asn Glu Leu Leu Gln Lys Leu Asp
        35                  40                  45

Pro Leu Glu Gln Ala Lys Val Asp Leu Val Ser Ala Tyr Thr Leu Asn
    50                  55                  60
```

```
Ser Met Phe Trp Val Tyr Leu Ala Thr Gln Gly Val Asn Pro Lys Glu
65                  70                  75                  80

His Pro Val Lys Gln Glu Leu Glu Arg Ile Arg Val Tyr Met Asn Arg
                85                  90                  95

Val Lys Glu Ile Thr Asp Lys Lys Lys Ala Gly Lys Leu Asp Arg Gly
            100                 105                 110

Ala Ala Ser Arg Phe Val Lys Asn Ala Leu Trp Glu Pro Lys Ser Lys
        115                 120                 125

Asn Ala Ser Lys Val Ala Asn Lys Gly Lys Ser Lys Ser
    130                 135                 140
```

<210> 10186
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2032; "

<220>
<221> source
<223> /note="Gene Symbol: C1D; "

<220>
<221> source
<223> /note="Gene Name: C1D nuclear receptor corepressor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384304"

<400> 10186

```
Met Pro Ser Pro Ser Val Ser Thr Ser Ala Ala Ser Val Leu Glu Gly
1               5                   10                  15

Val Cys Gly Arg Ala Arg Ser Thr Tyr Arg Thr Pro Glu Glu Gly Glu
            20                  25                  30

Glu Gln Ser Trp Ser Ala Ile Met Ala Gly Glu Glu Ile Asn Glu Asp
        35                  40                  45

Tyr Pro Val Glu Ile His Glu Tyr Leu Ser Ala Phe Glu Asn Ser Ile
    50                  55                  60
```

```
Gly Ala Val Asp Glu Met Leu Lys Thr Met Met Ser Val Ser Arg Asn
65                  70                  75                  80

Glu Leu Leu Gln Lys Leu Asp Pro Leu Glu Gln Ala Lys Val Asp Leu
                85                  90                  95

Val Ser Ala Tyr Thr Leu Asn Ser Met Phe Trp Val Tyr Leu Ala Thr
            100                 105                 110

Gln Gly Val Asn Pro Lys Glu His Pro Val Lys Gln Glu Leu Glu Arg
        115                 120                 125

Ile Arg Val Tyr Met Asn Arg Val Lys Glu Ile Thr Asp Lys Lys Lys
    130                 135                 140

Ala Gly Lys Leu Asp Arg Gly Ala Ala Ser Arg Phe Val Lys Asn Ala
145                 150                 155                 160

Leu Trp Glu Pro Lys Ser Lys Asn Ala Ser Lys Val Ala Asn Lys Gly
                165                 170                 175

Lys Ser Lys Ser
            180


<210> 10187
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2032; "

<220>
<221> source
<223> /note="Gene Symbol: C1D; "

<220>
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<223> /note="Gene Name: C1D nuclear receptor corepressor; "

<220>
<221> source
<223> /note="Uniprot ID:  Q13901; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386468"
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<400> 10187
Met Ala Gly Glu Glu Ile Asn Glu Asp Tyr Pro Val Glu Ile His Glu
1 5 10 15

Tyr Leu Ser Ala Phe Glu Asn Ser Ile Gly Ala Val Asp Glu Met Leu
20 25 30

Lys Thr Met Met Ser Val Ser Arg Asn Glu Leu Leu Gln Lys Leu Asp
35 40 45

Pro Leu Glu Gln Ala Lys Val Asp Leu Val Ser Ala Tyr Thr Leu Asn
50 55 60

Ser Met Phe Trp Val Tyr Leu Ala Thr Gln Gly Val Asn Pro Lys Glu
65 70 75 80

His Pro Val Lys Gln Glu Leu Glu Arg Ile Arg Val Tyr Met Asn Arg
85 90 95

Val Lys Glu Ile Thr Asp Lys Lys Lys Ala Gly Lys Leu Asp Arg Gly
100 105 110

Ala Ala Ser Arg Phe Val Lys Asn Ala Leu Trp Glu Pro Lys Ser Lys
115 120 125

Asn Ala Ser Lys Val Ala Asn Lys Gly Lys Ser Lys Ser
130 135 140

<210> 10188
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2032; "

<220>
<221> source
<223> /note="Gene Symbol: C1D; "

<220>
<221> source
<223> /note="Gene Name: C1D nuclear receptor corepressor; "

<220>
<221> source

<223> /note="Uniprot ID: Q13901; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386779"

<400> 10188
Met Ala Gly Glu Glu Ile Asn Glu Asp Tyr Pro Val Glu Ile His Glu
1   5   10   15

Tyr Leu Ser Ala Phe Glu Asn Ser Ile Gly Ala Val Asp Glu Met Leu
            20   25   30

Lys Thr Met Met Ser Val Ser Arg Asn Glu Leu Leu Gln Lys Leu Asp
        35   40   45

Pro Leu Glu Gln Ala Lys Val Asp Leu Val Ser Ala Tyr Thr Leu Asn
    50   55   60

Ser Met Phe Trp Val Tyr Leu Ala Thr Gln Gly Val Asn Pro Lys Glu
65   70   75   80

His Pro Val Lys Gln Glu Leu Glu Arg Ile Arg Val Tyr Met Asn Arg
                85   90   95

Val Lys Glu Ile Thr Asp Lys Lys Lys Ala Gly Lys Leu Asp Arg Gly
            100   105   110

Ala Ala Ser Arg Phe Val Lys Asn Ala Leu Trp Glu Pro Lys Ser Lys
        115   120   125

Asn Ala Ser Lys Val Ala Asn Lys Gly Lys Ser Lys Ser
    130   135   140

<210> 10189
<211> 318
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2033; "

<220>
<221> source
<223> /note="Gene Symbol: C1GALT1C1; "

<220>

<221> source
<223> /note="Gene Name: C1GALT1-specific chaperone 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q96EU7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000304364"

<400> 10189
Met Leu Ser Glu Ser Ser Ser Phe Leu Lys Gly Val Met Leu Gly Ser
1   5   10   15

Ile Phe Cys Ala Leu Ile Thr Met Leu Gly His Ile Arg Ile Gly His
            20   25   30

Gly Asn Arg Met His His His Glu His His His Leu Gln Ala Pro Asn
        35   40   45

Lys Glu Asp Ile Leu Lys Ile Ser Glu Asp Glu Arg Met Glu Leu Ser
    50   55   60

Lys Ser Phe Arg Val Tyr Cys Ile Ile Leu Val Lys Pro Lys Asp Val
65   70   75   80

Ser Leu Trp Ala Ala Val Lys Glu Thr Trp Thr Lys His Cys Asp Lys
                85   90   95

Ala Glu Phe Phe Ser Ser Glu Asn Val Lys Val Phe Glu Ser Ile Asn
            100   105   110

Met Asp Thr Asn Asp Met Trp Leu Met Met Arg Lys Ala Tyr Lys Tyr
        115   120   125

Ala Phe Asp Lys Tyr Arg Asp Gln Tyr Asn Trp Phe Phe Leu Ala Arg
    130   135   140

Pro Thr Thr Phe Ala Ile Ile Glu Asn Leu Lys Tyr Phe Leu Leu Lys
145   150   155   160

Lys Asp Pro Ser Gln Pro Phe Tyr Leu Gly His Thr Ile Lys Ser Gly
                165   170   175

Asp Leu Glu Tyr Val Gly Met Glu Gly Gly Ile Val Leu Ser Val Glu

```
            180                 185                 190

Ser Met Lys Arg Leu Asn Ser Leu Leu Asn Ile Pro Glu Lys Cys Pro
        195                 200                 205

Glu Gln Gly Gly Met Ile Trp Lys Ile Ser Glu Asp Lys Gln Leu Ala
    210                 215                 220

Val Cys Leu Lys Tyr Ala Gly Val Phe Ala Glu Asn Ala Glu Asp Ala
225                 230                 235                 240

Asp Gly Lys Asp Val Phe Asn Thr Lys Ser Val Gly Leu Ser Ile Lys
                245                 250                 255

Glu Ala Met Thr Tyr His Pro Asn Gln Val Val Glu Gly Cys Cys Ser
            260                 265                 270

Asp Met Ala Val Thr Phe Asn Gly Leu Thr Pro Asn Gln Met His Val
        275                 280                 285

Met Met Tyr Gly Val Tyr Arg Leu Arg Ala Phe Gly His Ile Phe Asn
    290                 295                 300

Asp Ala Leu Val Phe Leu Pro Pro Asn Gly Ser Asp Asn Asp
305                 310                 315


<210> 10190
<211> 318
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2033; "

<220>
<221> source
<223> /note="Gene Symbol: C1GALT1C1; "

<220>
<221> source
<223> /note="Gene Name: C1GALT1-specific chaperone 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96EU7; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000360363"

<400> 10190
Met Leu Ser Glu Ser Ser Ser Phe Leu Lys Gly Val Met Leu Gly Ser
1 5 10 15

Ile Phe Cys Ala Leu Ile Thr Met Leu Gly His Ile Arg Ile Gly His
20 25 30

Gly Asn Arg Met His His His Glu His His His Leu Gln Ala Pro Asn
35 40 45

Lys Glu Asp Ile Leu Lys Ile Ser Glu Asp Glu Arg Met Glu Leu Ser
50 55 60

Lys Ser Phe Arg Val Tyr Cys Ile Ile Leu Val Lys Pro Lys Asp Val
65 70 75 80

Ser Leu Trp Ala Ala Val Lys Glu Thr Trp Thr Lys His Cys Asp Lys
85 90 95

Ala Glu Phe Phe Ser Ser Glu Asn Val Lys Val Phe Glu Ser Ile Asn
100 105 110

Met Asp Thr Asn Asp Met Trp Leu Met Met Arg Lys Ala Tyr Lys Tyr
115 120 125

Ala Phe Asp Lys Tyr Arg Asp Gln Tyr Asn Trp Phe Phe Leu Ala Arg
130 135 140

Pro Thr Thr Phe Ala Ile Ile Glu Asn Leu Lys Tyr Phe Leu Leu Lys
145 150 155 160

Lys Asp Pro Ser Gln Pro Phe Tyr Leu Gly His Thr Ile Lys Ser Gly
165 170 175

Asp Leu Glu Tyr Val Gly Met Glu Gly Gly Ile Val Leu Ser Val Glu
180 185 190

Ser Met Lys Arg Leu Asn Ser Leu Leu Asn Ile Pro Glu Lys Cys Pro
195 200 205

Glu Gln Gly Gly Met Ile Trp Lys Ile Ser Glu Asp Lys Gln Leu Ala

```
    210                 215                 220

Val Cys Leu Lys Tyr Ala Gly Val Phe Ala Glu Asn Ala Glu Asp Ala
225                 230                 235                 240

Asp Gly Lys Asp Val Phe Asn Thr Lys Ser Val Gly Leu Ser Ile Lys
                245                 250                 255

Glu Ala Met Thr Tyr His Pro Asn Gln Val Val Glu Gly Cys Cys Ser
            260                 265                 270

Asp Met Ala Val Thr Phe Asn Gly Leu Thr Pro Asn Gln Met His Val
        275                 280                 285

Met Met Tyr Gly Val Tyr Arg Leu Arg Ala Phe Gly His Ile Phe Asn
    290                 295                 300

Asp Ala Leu Val Phe Leu Pro Pro Asn Gly Ser Asp Asn Asp
305                 310                 315


<210> 10191
<211> 315
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2034; "

<220>
<221> source
<223> /note="Gene Symbol: C1GALT1C1L; "

<220>
<221> source
<223> /note="Gene Name: C1GALT1-specific chaperone 1 like; "

<220>
<221> source
<223> /note="Uniprot ID:  P0DN25; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489061"

<400> 10191
Met Val Ser Ala Ser Gly Thr Ser Phe Phe Lys Gly Met Leu Leu Gly
1               5                   10                  15
```

```
Ser Ile Ser Trp Val Leu Ile Thr Met Phe Gly Gln Ile His Ile Arg
            20                  25                  30

His Arg Gly Gln Thr Gln Asp His Glu His His His Leu Arg Pro Pro
        35                  40                  45

Asn Arg Asn Asp Phe Leu Asn Thr Ser Lys Val Ile Leu Leu Glu Leu
    50                  55                  60

Ser Lys Ser Ile Arg Val Phe Cys Ile Ile Phe Gly Glu Ser Glu Asp
65                  70                  75                  80

Glu Ser Tyr Trp Ala Val Leu Lys Glu Thr Trp Thr Lys His Cys Asp
                85                  90                  95

Lys Ala Glu Leu Tyr Asp Thr Lys Asn Asp Asn Leu Phe Asn Ile Glu
            100                 105                 110

Ser Asn Asp Arg Trp Val Gln Met Arg Thr Ala Tyr Lys Tyr Val Phe
        115                 120                 125

Glu Lys Tyr Gly Asp Asn Tyr Asn Trp Phe Phe Leu Ala Leu Pro Thr
    130                 135                 140

Thr Phe Ala Val Ile Glu Asn Leu Lys Tyr Leu Leu Phe Thr Arg Asp
145                 150                 155                 160

Ala Ser Gln Pro Phe Tyr Leu Gly His Thr Val Ile Phe Gly Asp Leu
                165                 170                 175

Glu Tyr Val Thr Val Glu Gly Gly Ile Val Leu Ser Arg Glu Leu Met
            180                 185                 190

Lys Arg Leu Asn Arg Leu Leu Asp Asn Ser Glu Thr Cys Ala Asp Gln
        195                 200                 205

Ser Val Ile Trp Lys Leu Ser Glu Asp Lys Gln Leu Ala Ile Cys Leu
    210                 215                 220

Lys Tyr Ala Gly Val His Ala Glu Asn Ala Glu Asp Tyr Glu Gly Arg
225                 230                 235                 240

Asp Val Phe Asn Thr Lys Pro Ile Ala Gln Leu Ile Glu Glu Ala Leu
```

245 250 255

Ser Asn Asn Pro Gln Gln Val Val Glu Gly Cys Cys Ser Asp Met Ala
260 265 270

Ile Thr Phe Asn Gly Leu Thr Pro Gln Lys Met Glu Val Met Met Tyr
275 280 285

Gly Leu Tyr Arg Leu Arg Ala Phe Gly His Tyr Phe Asn Asp Thr Leu
290 295 300

Val Phe Leu Pro Pro Val Gly Ser Glu Asn Asp
305 310 315

<210> 10192
<211> 199
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2035; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF1; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000311265"

<400> 10192
Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile Leu Lys
1 5 10 15

Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys Tyr Gly
20 25 30

Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys Gly Gln
35 40 45

Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His Tyr Ala
50 55 60

```
Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His Tyr Tyr
65                  70                  75                  80

Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp His Phe
                85                  90                  95

Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu Tyr Phe
            100                 105                 110

Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr Leu His
        115                 120                 125

Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln Val Gly
    130                 135                 140

Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu Arg Glu
145                 150                 155                 160

Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu Asn Ala
                165                 170                 175

Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly Tyr Leu
            180                 185                 190

Val Lys His Ala Thr Glu Pro
        195


<210> 10193
<211> 281
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2035; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF1; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis  factor
      related prt 1; "

<220>
<221> source
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<223> /note="Uniprot ID: Q9BXJ1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000340864"

<400> 10193
Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1   5   10   15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
            20   25   30

Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
        35   40   45

His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
    50   55   60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65   70   75   80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
                85   90   95

Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
            100   105   110

Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
        115   120   125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
    130   135   140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145   150   155   160

Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
                165   170   175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
            180   185   190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
        195   200   205

```
Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
            260                 265                 270

Tyr Leu Val Lys His Ala Thr Glu Pro
        275                 280


<210> 10194
<211> 281
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2035; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF1; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis  factor
      related prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BXJ1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000343230"

<400> 10194
Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1               5                   10                  15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
            20                  25                  30
```

```
Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
        35                  40                  45

His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
    50                  55                  60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65                  70                  75                  80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
                85                  90                  95

Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
            100                 105                 110

Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
        115                 120                 125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
    130                 135                 140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145                 150                 155                 160

Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
                165                 170                 175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
            180                 185                 190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
        195                 200                 205

Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
```

260 265 270

Tyr Leu Val Lys His Ala Thr Glu Pro
275 280

<210> 10195
<211> 281
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2035; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF1; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BXJ1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376240"

<400> 10195
Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1 5 10 15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
20 25 30

Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
35 40 45

His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
50 55 60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65 70 75 80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
85 90 95

```
Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
            100                 105                 110

Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
        115                 120                 125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
    130                 135                 140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145                 150                 155                 160

Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
                165                 170                 175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
            180                 185                 190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
        195                 200                 205

Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
            260                 265                 270

Tyr Leu Val Lys His Ala Thr Glu Pro
        275                 280


<210> 10196
<211> 281
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2035; "
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<220>
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related prt 1; "

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<400> 10196

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Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1               5                  10                  15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
            20                  25                  30

Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
        35                  40                  45

His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
    50                  55                  60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65                  70                  75                  80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
                85                  90                  95

Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
            100                 105                 110

Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
        115                 120                 125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
    130                 135                 140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145                 150                 155                 160
```

```
Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
                165                 170                 175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
            180                 185                 190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
        195                 200                 205

Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
            260                 265                 270

Tyr Leu Val Lys His Ala Thr Glu Pro
        275                 280


<210> 10197
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<212> PRT
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<400> 10197
Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1 5 10 15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
20 25 30

Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
35 40 45

His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
50 55 60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65 70 75 80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
85 90 95

Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
100 105 110

Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
115 120 125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
130 135 140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145 150 155 160

Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
165 170 175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
180 185 190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
195 200 205

Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln

```
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
            260                 265                 270

Tyr Leu Val Lys His Ala Thr Glu Pro
        275                 280


<210> 10198
<211> 281
<212> PRT
<213> Homo sapiens

<220>
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<400> 10198
Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1               5                   10                  15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
            20                  25                  30

Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
        35                  40                  45
```

```
His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
    50                  55                  60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65                  70                  75                  80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
                85                  90                  95

Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
            100                 105                 110

Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
        115                 120                 125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
    130                 135                 140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145                 150                 155                 160

Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
                165                 170                 175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
            180                 185                 190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
        195                 200                 205

Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
            260                 265                 270
```

Tyr Leu Val Lys His Ala Thr Glu Pro
275 280

<210> 10199
<211> 281
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<220>
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<400> 10199
Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1 5 10 15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
20 25 30

Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
35 40 45

His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
50 55 60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65 70 75 80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
85 90 95

Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
100 105 110

```
Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
        115                 120                 125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
    130                 135                 140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145                 150                 155                 160

Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
                165                 170                 175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
            180                 185                 190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
        195                 200                 205

Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
            260                 265                 270

Tyr Leu Val Lys His Ala Thr Glu Pro
        275                 280


<210> 10200
<211> 199
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<223> /note="Gene Symbol: C1QTNF1; "

<220>
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related prt 1; "

<220>
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<400> 10200

```
Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile Leu Lys
1               5                  10                  15

Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys Tyr Gly
            20                  25                  30

Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys Gly Gln
        35                  40                  45

Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His Tyr Ala
    50                  55                  60

Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His Tyr Tyr
65                  70                  75                  80

Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp His Phe
                85                  90                  95

Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu Tyr Phe
            100                 105                 110

Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr Leu His
        115                 120                 125

Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln Val Gly
    130                 135                 140

Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu Arg Glu
145                 150                 155                 160

Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu Asn Ala
                165                 170                 175

Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly Tyr Leu
```

180 185 190

Val Lys His Ala Thr Glu Pro
195

<210> 10201
<211> 281
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: C1q and tumor necrosis factor
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<220>
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<223> /note="Uniprot ID: Q9BXJ1; "

<220>
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<223> /note="ENSP ID: ENSP00000463922"

<400> 10201
Met Gly Ser Arg Gly Gln Gly Leu Leu Leu Ala Tyr Cys Leu Leu Leu
1 5 10 15

Ala Phe Ala Ser Gly Leu Val Leu Ser Arg Val Pro His Val Gln Gly
20 25 30

Glu Gln Gln Glu Trp Glu Gly Thr Glu Glu Leu Pro Ser Pro Pro Asp
35 40 45

His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr Arg Pro Ser Gln
50 55 60

Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg Cys Cys Asp Pro Gly
65 70 75 80

Thr Ser Met Tyr Pro Ala Thr Ala Val Pro Gln Ile Asn Ile Thr Ile
85 90 95

```
Leu Lys Gly Glu Lys Gly Asp Arg Gly Asp Arg Gly Leu Gln Gly Lys
            100                 105                 110

Tyr Gly Lys Thr Gly Ser Ala Gly Ala Arg Gly His Thr Gly Pro Lys
        115                 120                 125

Gly Gln Lys Gly Ser Met Gly Ala Pro Gly Glu Arg Cys Lys Ser His
    130                 135                 140

Tyr Ala Ala Phe Ser Val Gly Arg Lys Lys Pro Met His Ser Asn His
145                 150                 155                 160

Tyr Tyr Gln Thr Val Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp
                165                 170                 175

His Phe Asn Met Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu
            180                 185                 190

Tyr Phe Phe Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr
        195                 200                 205

Leu His Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln
    210                 215                 220

Val Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu
225                 230                 235                 240

Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg Glu
                245                 250                 255

Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe Ser Gly
            260                 265                 270

Tyr Leu Val Lys His Ala Thr Glu Pro
        275                 280


<210> 10202
<211> 330
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q9BXJ5; "

<220>
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<400> 10202
Met Gly Lys Leu Cys Leu Gly Pro Thr Leu Cys Pro Ala Ala Ala Ala
1   5   10   15

Glu Glu Ser Arg Asp Ala Glu Pro Arg Arg Glu Leu Leu Cys Ser Gly
            20   25   30

Arg Pro Trp Thr Trp Arg Ala Ala Ala Arg Val Thr Thr Met Ile Pro
        35   40   45

Trp Val Leu Leu Ala Cys Ala Leu Pro Cys Ala Ala Asp Pro Leu Leu
    50   55   60

Gly Ala Phe Ala Arg Arg Asp Phe Arg Lys Gly Ser Pro Gln Leu Val
65   70   75   80

Cys Ser Leu Pro Gly Pro Gln Gly Pro Pro Gly Pro Pro Gly Ala Pro
                85   90   95

Gly Pro Ser Gly Met Met Gly Arg Met Gly Phe Pro Gly Lys Asp Gly
            100   105   110

Gln Asp Gly His Asp Gly Asp Arg Gly Asp Ser Gly Glu Glu Gly Pro
        115   120   125

Pro Gly Arg Thr Gly Asn Arg Gly Lys Pro Gly Pro Lys Gly Lys Ala
    130   135   140

Gly Ala Ile Gly Arg Ala Gly Pro Arg Gly Pro Lys Gly Val Asn Gly
145   150   155   160

```
Thr Pro Gly Lys His Gly Thr Pro Gly Lys Lys Gly Pro Lys Gly Lys
                165                 170                 175

Lys Gly Glu Pro Gly Leu Pro Gly Pro Cys Ser Cys Gly Ser Gly His
            180                 185                 190

Thr Lys Ser Ala Phe Ser Val Ala Val Thr Lys Ser Tyr Pro Arg Glu
        195                 200                 205

Arg Leu Pro Ile Lys Phe Asp Lys Ile Leu Met Asn Glu Gly Gly His
    210                 215                 220

Tyr Asn Ala Ser Ser Gly Lys Phe Val Cys Gly Val Pro Gly Ile Tyr
225                 230                 235                 240

Tyr Phe Thr Tyr Asp Ile Thr Leu Ala Asn Lys His Leu Ala Ile Gly
                245                 250                 255

Leu Val His Asn Gly Gln Tyr Arg Ile Arg Thr Phe Asp Ala Asn Thr
            260                 265                 270

Gly Asn His Asp Val Ala Ser Gly Ser Thr Ile Leu Ala Leu Lys Gln
        275                 280                 285

Gly Asp Glu Val Trp Leu Gln Ile Phe Tyr Ser Glu Gln Asn Gly Leu
    290                 295                 300

Phe Tyr Asp Pro Tyr Trp Thr Asp Ser Leu Phe Thr Gly Phe Leu Ile
305                 310                 315                 320

Tyr Ala Asp Gln Asp Asp Pro Asn Glu Val
                325                 330
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<210> 10203
<211> 246
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q9BXJ4; "

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<223> /note="ENSP ID: ENSP00000231338"

<400> 10203
Met Leu Trp Arg Gln Leu Ile Tyr Trp Gln Leu Leu Ala Leu Phe Phe
1 5 10 15

Leu Pro Phe Cys Leu Cys Gln Asp Glu Tyr Met Glu Ser Pro Gln Thr
20 25 30

Gly Gly Leu Pro Pro Asp Cys Ser Lys Cys Cys His Gly Asp Tyr Ser
35 40 45

Phe Arg Gly Tyr Gln Gly Pro Pro Gly Pro Pro Gly Pro Pro Gly Ile
50 55 60

Pro Gly Asn His Gly Asn Asn Gly Asn Asn Gly Ala Thr Gly His Glu
65 70 75 80

Gly Ala Lys Gly Glu Lys Gly Asp Lys Gly Asp Leu Gly Pro Arg Gly
85 90 95

Glu Arg Gly Gln His Gly Pro Lys Gly Glu Lys Gly Tyr Pro Gly Ile
100 105 110

Pro Pro Glu Leu Gln Ile Ala Phe Met Ala Ser Leu Ala Thr His Phe
115 120 125

Ser Asn Gln Asn Ser Gly Ile Ile Phe Ser Ser Val Glu Thr Asn Ile
130 135 140

Gly Asn Phe Phe Asp Val Met Thr Gly Arg Phe Gly Ala Pro Val Ser
145 150 155 160

Gly Val Tyr Phe Phe Thr Phe Ser Met Met Lys His Glu Asp Val Glu

```
                165                 170                 175

Glu Val Tyr Val Tyr Leu Met His Asn Gly Asn Thr Val Phe Ser Met
            180                 185                 190

Tyr Ser Tyr Glu Met Lys Gly Lys Ser Asp Thr Ser Ser Asn His Ala
        195                 200                 205

Val Leu Lys Leu Ala Lys Gly Asp Glu Val Trp Leu Arg Met Gly Asn
    210                 215                 220

Gly Ala Leu His Gly Asp His Gln Arg Phe Ser Thr Phe Ala Gly Phe
225                 230                 235                 240

Leu Leu Phe Glu Thr Lys
                245
```

<210> 10204
<211> 319
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q9BXJ4; "

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<400> 10204

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Met Leu Trp Arg Gln Leu Ile Tyr Trp Gln Leu Leu Ala Leu Phe Phe
1               5                   10                  15

Leu Pro Phe Cys Leu Cys Gln Asp Glu Tyr Met Glu Val Ser Gly Arg
            20                  25                  30
```

```
Thr Asn Lys Val Val Ala Arg Ile Val Gln Ser His Gln Gln Thr Gly
        35                  40                  45

Arg Ser Gly Ser Arg Arg Glu Lys Val Arg Glu Arg Ser His Pro Lys
    50                  55                  60

Thr Gly Thr Val Asp Asn Asn Thr Ser Thr Asp Leu Lys Ser Leu Arg
65                  70                  75                  80

Pro Asp Glu Leu Pro His Pro Glu Val Asp Asp Leu Ala Gln Ile Thr
                85                  90                  95

Thr Phe Trp Gly Gln Ser Pro Gln Thr Gly Gly Leu Pro Pro Asp Cys
            100                 105                 110

Ser Lys Cys Cys His Gly Asp Tyr Ser Phe Arg Gly Tyr Gln Gly Pro
        115                 120                 125

Pro Gly Pro Pro Gly Pro Pro Gly Ile Pro Gly Asn His Gly Asn Asn
    130                 135                 140

Gly Asn Asn Gly Ala Thr Gly His Glu Gly Ala Lys Gly Glu Lys Gly
145                 150                 155                 160

Asp Lys Gly Asp Leu Gly Pro Arg Gly Glu Arg Gly Gln His Gly Pro
                165                 170                 175

Lys Gly Glu Lys Gly Tyr Pro Gly Ile Pro Pro Glu Leu Gln Ile Ala
            180                 185                 190

Phe Met Ala Ser Leu Ala Thr His Phe Ser Asn Gln Asn Ser Gly Ile
        195                 200                 205

Ile Phe Ser Ser Val Glu Thr Asn Ile Gly Asn Phe Phe Asp Val Met
    210                 215                 220

Thr Gly Arg Phe Gly Ala Pro Val Ser Gly Val Tyr Phe Phe Thr Phe
225                 230                 235                 240

Ser Met Met Lys His Glu Asp Val Glu Glu Val Tyr Val Tyr Leu Met
                245                 250                 255
```

```
His Asn Gly Asn Thr Val Phe Ser Met Tyr Ser Tyr Glu Met Lys Gly
            260                 265                 270

Lys Ser Asp Thr Ser Ser Asn His Ala Val Leu Lys Leu Ala Lys Gly
        275                 280                 285

Asp Glu Val Trp Leu Arg Met Gly Asn Gly Ala Leu His Gly Asp His
    290                 295                 300

Gln Arg Phe Ser Thr Phe Ala Gly Phe Leu Leu Phe Glu Thr Lys
305                 310                 315
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<210> 10205
<211> 329
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID: Q9BXJ3; "

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<223> /note="ENSP ID: ENSP00000302274"

<400> 10205

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Met Leu Pro Leu Leu Leu Gly Leu Leu Gly Pro Ala Ala Cys Trp Ala
1               5                  10                  15

Leu Gly Pro Thr Pro Gly Pro Gly Ser Ser Glu Leu Arg Ser Ala Phe
            20                  25                  30

Ser Ala Ala Arg Thr Thr Pro Leu Glu Gly Thr Ser Glu Met Ala Val
        35                  40                  45

Thr Phe Asp Lys Val Tyr Val Asn Ile Gly Gly Asp Phe Asp Val Ala
    50                  55                  60
```

```
Thr Gly Gln Phe Arg Cys Arg Val Pro Gly Ala Tyr Phe Phe Ser Phe
65                  70                  75                  80

Thr Ala Gly Lys Ala Pro His Lys Ser Leu Ser Val Met Leu Val Arg
                85                  90                  95

Asn Arg Asp Glu Val Gln Ala Leu Ala Phe Asp Glu Gln Arg Arg Pro
            100                 105                 110

Gly Ala Arg Arg Ala Ala Ser Gln Ser Ala Met Leu Gln Leu Asp Tyr
        115                 120                 125

Gly Asp Thr Val Trp Leu Arg Leu His Gly Ala Pro Gln Tyr Ala Leu
    130                 135                 140

Gly Ala Pro Gly Ala Thr Phe Ser Gly Tyr Leu Val Tyr Ala Asp Ala
145                 150                 155                 160

Asp Ala Asp Ala Pro Ala Arg Gly Pro Pro Ala Pro Pro Glu Pro Arg
                165                 170                 175

Ser Ala Phe Ser Ala Ala Arg Thr Arg Ser Leu Val Gly Ser Asp Ala
            180                 185                 190

Gly Pro Gly Pro Arg His Gln Pro Leu Ala Phe Asp Thr Glu Phe Val
        195                 200                 205

Asn Ile Gly Gly Asp Phe Asp Ala Ala Ala Gly Val Phe Arg Cys Arg
    210                 215                 220

Leu Pro Gly Ala Tyr Phe Phe Ser Phe Thr Leu Gly Lys Leu Pro Arg
225                 230                 235                 240

Lys Thr Leu Ser Val Lys Leu Met Lys Asn Arg Asp Glu Val Gln Ala
                245                 250                 255

Met Ile Tyr Asp Asp Gly Ala Ser Arg Arg Arg Glu Met Gln Ser Gln
            260                 265                 270

Ser Val Met Leu Ala Leu Arg Arg Gly Asp Ala Val Trp Leu Leu Ser
        275                 280                 285
```

```
His Asp His Asp Gly Tyr Gly Ala Tyr Ser Asn His Gly Lys Tyr Ile
    290                 295                 300

Thr Phe Ser Gly Phe Leu Val Tyr Pro Asp Leu Ala Pro Ala Ala Pro
305                 310                 315                 320

Pro Gly Leu Gly Ala Ser Glu Leu Leu
                325
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<210> 10206
<211> 100
<212> PRT
<213> Homo sapiens

<220>
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<220>
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related prt 4; "

<220>
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<223> /note="ENSP ID: ENSP00000434548"

<400> 10206

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Met Leu Pro Leu Leu Leu Gly Leu Leu Gly Pro Ala Ala Cys Trp Ala
1               5                  10                  15

Leu Gly Pro Thr Pro Gly Pro Gly Ser Ser Glu Leu Arg Ser Ala Phe
            20                  25                  30

Ser Ala Ala Arg Thr Thr Pro Leu Glu Gly Thr Ser Glu Met Ala Val
        35                  40                  45

Thr Phe Asp Lys Val Tyr Val Asn Ile Gly Gly Asp Phe Asp Val Ala
    50                  55                  60

Thr Gly Gln Phe Arg Cys Arg Val Pro Gly Ala Tyr Phe Phe Ser Phe
65                  70                  75                  80

Thr Ala Gly Lys Ala Pro His Lys Ser Leu Ser Val Met Leu Val Arg
```

```
                85                  90                  95

Asn Arg Asp Glu
            100


<210> 10207
<211> 243
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2039; "

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<223> /note="Gene Symbol: C1QTNF5; "

<220>
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<223> /note="Gene Name: C1q and tumor necrosis  factor
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<220>
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<223> /note="Uniprot ID:  Q9BXJ0; "

<220>
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<223> /note="ENSP ID: ENSP00000431140"

<400> 10207
Met Arg Pro Leu Leu Val Leu Leu Leu Leu Gly Leu Ala Ala Gly Ser
1               5                  10                  15


Pro Pro Leu Asp Asp Asn Lys Ile Pro Ser Leu Cys Pro Gly His Pro
            20                  25                  30


Gly Leu Pro Gly Thr Pro Gly His His Gly Ser Gln Gly Leu Pro Gly
        35                  40                  45


Arg Asp Gly Arg Asp Gly Arg Asp Gly Ala Pro Gly Ala Pro Gly Glu
    50                  55                  60


Lys Gly Glu Gly Gly Arg Pro Gly Leu Pro Gly Pro Arg Gly Asp Pro
65                  70                  75                  80


Gly Pro Arg Gly Glu Ala Gly Pro Ala Gly Pro Thr Gly Pro Ala Gly
                85                  90                  95
```

```
Glu Cys Ser Val Pro Pro Arg Ser Ala Phe Ser Ala Lys Arg Ser Glu
            100                 105                 110

Ser Arg Val Pro Pro Pro Ser Asp Ala Pro Leu Pro Phe Asp Arg Val
        115                 120                 125

Leu Val Asn Glu Gln Gly His Tyr Asp Ala Val Thr Gly Lys Phe Thr
    130                 135                 140

Cys Gln Val Pro Gly Val Tyr Tyr Phe Ala Val His Ala Thr Val Tyr
145                 150                 155                 160

Arg Ala Ser Leu Gln Phe Asp Leu Val Lys Asn Gly Glu Ser Ile Ala
                165                 170                 175

Ser Phe Phe Gln Phe Phe Gly Gly Trp Pro Lys Pro Ala Ser Leu Ser
            180                 185                 190

Gly Gly Ala Met Val Arg Leu Glu Pro Glu Asp Gln Val Trp Val Gln
        195                 200                 205

Val Gly Val Gly Asp Tyr Ile Gly Ile Tyr Ala Ser Ile Lys Thr Asp
    210                 215                 220

Ser Thr Phe Ser Gly Phe Leu Val Tyr Ser Asp Trp His Ser Ser Pro
225                 230                 235                 240

Val Phe Ala
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<210> 10208
<211> 243
<212> PRT
<213> Homo sapiens

<220>
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<220>
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related prt 5; "

<220>
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<223> /note="Uniprot ID: Q9BY79; "

<220>
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<223> /note="ENSP ID: ENSP00000456533"

<400> 10208
Met Arg Pro Leu Leu Val Leu Leu Leu Leu Gly Leu Ala Ala Gly Ser
1   5   10   15

Pro Pro Leu Asp Asp Asn Lys Ile Pro Ser Leu Cys Pro Gly His Pro
            20   25   30

Gly Leu Pro Gly Thr Pro Gly His His Gly Ser Gln Gly Leu Pro Gly
        35   40   45

Arg Asp Gly Arg Asp Gly Arg Asp Gly Ala Pro Gly Ala Pro Gly Glu
    50   55   60

Lys Gly Glu Gly Gly Arg Pro Gly Leu Pro Gly Pro Arg Gly Asp Pro
65   70   75   80

Gly Pro Arg Gly Glu Ala Gly Pro Ala Gly Pro Thr Gly Pro Ala Gly
                85   90   95

Glu Cys Ser Val Pro Pro Arg Ser Ala Phe Ser Ala Lys Arg Ser Glu
            100   105   110

Ser Arg Val Pro Pro Pro Ser Asp Ala Pro Leu Pro Phe Asp Arg Val
        115   120   125

Leu Val Asn Glu Gln Gly His Tyr Asp Ala Val Thr Gly Lys Phe Thr
    130   135   140

Cys Gln Val Pro Gly Val Tyr Tyr Phe Ala Val His Ala Thr Val Tyr
145   150   155   160

Arg Ala Ser Leu Gln Phe Asp Leu Val Lys Asn Gly Glu Ser Ile Ala
                165   170   175

Ser Phe Phe Gln Phe Phe Gly Gly Trp Pro Lys Pro Ala Ser Leu Ser
            180   185   190

```
Gly Gly Ala Met Val Arg Leu Glu Pro Glu Asp Gln Val Trp Val Gln
        195                 200                 205

Val Gly Val Gly Asp Tyr Ile Gly Ile Tyr Ala Ser Ile Lys Thr Asp
    210                 215                 220

Ser Thr Phe Ser Gly Phe Leu Val Tyr Ser Asp Trp His Ser Ser Pro
225                 230                 235                 240

Val Phe Ala



<210> 10209
<211> 60
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: C1QTNF5; "

<220>
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      related prt 5; "

<220>
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<223> /note="ENSP ID: ENSP00000489201"

<400> 10209
Met Arg Pro Leu Leu Val Leu Leu Leu Leu Gly Leu Ala Ala Gly Ser
1               5                   10                  15

Pro Pro Leu Asp Asp Asn Lys Ile Pro Ser Leu Cys Pro Gly His Pro
            20                  25                  30

Gly Leu Pro Gly Leu Pro Gly Pro Arg Gly Asp Pro Gly Pro Arg Gly
        35                  40                  45

Glu Ala Gly Pro Ala Gly Pro Thr Gly Pro Ala Gly
    50                  55                  60
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<210> 10210
<211> 278
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2040; "

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<223> /note="Gene Symbol: C1QTNF6; "

<220>
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<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 6; "

<220>
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<223> /note="Uniprot ID: Q9BXI9; "

<220>
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<223> /note="ENSP ID: ENSP00000338812"

<400> 10210
Met Gln Trp Leu Arg Val Arg Glu Ser Pro Gly Glu Ala Thr Gly His
1   5   10   15

Arg Val Thr Met Gly Thr Ala Ala Leu Gly Pro Val Trp Ala Ala Leu
            20   25   30

Leu Leu Phe Leu Leu Met Cys Glu Ile Pro Met Val Glu Leu Thr Phe
        35   40   45

Asp Arg Ala Val Ala Ser Gly Cys Gln Arg Cys Cys Asp Ser Glu Asp
    50   55   60

Pro Leu Asp Pro Ala His Val Ser Ser Ala Ser Ser Ser Gly Arg Pro
65   70   75   80

His Ala Leu Pro Glu Ile Arg Pro Tyr Ile Asn Ile Thr Ile Leu Lys
                85   90   95

Gly Asp Lys Gly Asp Pro Gly Pro Met Gly Leu Pro Gly Tyr Met Gly
            100   105   110

Arg Glu Gly Pro Gln Gly Glu Pro Gly Pro Gln Gly Ser Lys Gly Asp
        115   120   125

```
Lys Gly Glu Met Gly Ser Pro Gly Ala Pro Cys Gln Lys Arg Phe Phe
    130                 135                 140

Ala Phe Ser Val Gly Arg Lys Thr Ala Leu His Ser Gly Glu Asp Phe
145                 150                 155                 160

Gln Thr Leu Leu Phe Glu Arg Val Phe Val Asn Leu Asp Gly Cys Phe
                165                 170                 175

Asp Met Ala Thr Gly Gln Phe Ala Ala Pro Leu Arg Gly Ile Tyr Phe
            180                 185                 190

Phe Ser Leu Asn Val His Ser Trp Asn Tyr Lys Glu Thr Tyr Val His
        195                 200                 205

Ile Met His Asn Gln Lys Glu Ala Val Ile Leu Tyr Ala Gln Pro Ser
    210                 215                 220

Glu Arg Ser Ile Met Gln Ser Gln Ser Val Met Leu Asp Leu Ala Tyr
225                 230                 235                 240

Gly Asp Arg Val Trp Val Arg Leu Phe Lys Arg Gln Arg Glu Asn Ala
                245                 250                 255

Ile Tyr Ser Asn Asp Phe Asp Thr Tyr Ile Thr Phe Ser Gly His Leu
            260                 265                 270

Ile Lys Ala Glu Asp Asp
        275


<210> 10211
<211> 278
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: C1QTNF6; "

<220>
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<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 6; "

<220>
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<223> /note="Uniprot ID: Q9BXI9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380299"

<400> 10211

```
Met Gln Trp Leu Arg Val Arg Glu Ser Pro Gly Glu Ala Thr Gly His
1               5                  10                  15

Arg Val Thr Met Gly Thr Ala Ala Leu Gly Pro Val Trp Ala Ala Leu
            20                  25                  30

Leu Leu Phe Leu Leu Met Cys Glu Ile Pro Met Val Glu Leu Thr Phe
        35                  40                  45

Asp Arg Ala Val Ala Ser Gly Cys Gln Arg Cys Cys Asp Ser Glu Asp
    50                  55                  60

Pro Leu Asp Pro Ala His Val Ser Ser Ala Ser Ser Ser Gly Arg Pro
65                  70                  75                  80

His Ala Leu Pro Glu Ile Arg Pro Tyr Ile Asn Ile Thr Ile Leu Lys
                85                  90                  95

Gly Asp Lys Gly Asp Pro Gly Pro Met Gly Leu Pro Gly Tyr Met Gly
            100                 105                 110

Arg Glu Gly Pro Gln Gly Glu Pro Gly Pro Gln Gly Ser Lys Gly Asp
        115                 120                 125

Lys Gly Glu Met Gly Ser Pro Gly Ala Pro Cys Gln Lys Arg Phe Phe
    130                 135                 140

Ala Phe Ser Val Gly Arg Lys Thr Ala Leu His Ser Gly Glu Asp Phe
145                 150                 155                 160

Gln Thr Leu Leu Phe Glu Arg Val Phe Val Asn Leu Asp Gly Cys Phe
                165                 170                 175

Asp Met Ala Thr Gly Gln Phe Ala Ala Pro Leu Arg Gly Ile Tyr Phe
```

```
            180                 185                 190

Phe Ser Leu Asn Val His Ser Trp Asn Tyr Lys Glu Thr Tyr Val His
        195                 200                 205

Ile Met His Asn Gln Lys Glu Ala Val Ile Leu Tyr Ala Gln Pro Ser
    210                 215                 220

Glu Arg Ser Ile Met Gln Ser Gln Ser Val Met Leu Asp Leu Ala Tyr
225                 230                 235                 240

Gly Asp Arg Val Trp Val Arg Leu Phe Lys Arg Gln Arg Glu Asn Ala
                245                 250                 255

Ile Tyr Ser Asn Asp Phe Asp Thr Tyr Ile Thr Phe Ser Gly His Leu
            260                 265                 270

Ile Lys Ala Glu Asp Asp
        275


<210> 10212
<211> 116
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2040; "

<220>
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<223> /note="Gene Symbol: C1QTNF6; "

<220>
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<223> /note="Gene Name: C1q and tumor necrosis  factor
      related prt 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399243"

<400> 10212
Met Gln Trp Leu Arg Val Arg Glu Ser Pro Gly Glu Ala Thr Gly His
1               5                   10                  15

Arg Val Thr Met Gly Thr Ala Ala Leu Gly Pro Val Trp Ala Ala Leu
            20                  25                  30
```

```
Leu Leu Phe Leu Leu Met Cys Glu Ile Pro Met Val Glu Leu Thr Phe
        35                  40                  45

Asp Arg Ala Val Ala Ser Gly Cys Gln Arg Cys Cys Asp Ser Glu Asp
    50                  55                  60

Pro Leu Asp Pro Ala His Val Ser Ser Ala Ser Ser Ser Gly Arg Pro
65                  70                  75                  80

His Ala Leu Pro Glu Ile Arg Pro Tyr Ile Asn Ile Thr Ile Leu Lys
                85                  90                  95

Gly Arg Gly Arg Thr Arg Phe Pro Ser Arg Leu Trp Trp Leu Thr Ala
            100                 105                 110

Val Thr Arg Pro
        115


<210> 10213
<211> 296
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2041; "

<220>
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<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis  factor
      related prt 7; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9BXJ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000295297"

<400> 10213
Met Ser Arg Gln Glu Pro Lys Met Phe Val Leu Leu Tyr Val Thr Ser
1               5                   10                  15

Phe Ala Ile Cys Ala Ser Gly Gln Pro Arg Gly Asn Gln Leu Lys Gly
```

```
            20                  25                  30

Glu Asn Tyr Ser Pro Arg Tyr Ile Cys Ser Ile Pro Gly Leu Pro Gly
        35                  40                  45

Pro Pro Gly Pro Pro Gly Ala Asn Gly Ser Pro Gly Pro His Gly Arg
    50                  55                  60

Ile Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Arg Lys Gly Glu Lys
65                  70                  75                  80

Gly Glu Lys Gly Thr Ala Gly Leu Arg Gly Lys Thr Gly Pro Leu Gly
                85                  90                  95

Leu Ala Gly Glu Lys Gly Asp Gln Gly Glu Thr Gly Lys Lys Gly Pro
            100                 105                 110

Ile Gly Pro Glu Gly Glu Lys Gly Glu Val Gly Pro Ile Gly Pro Pro
        115                 120                 125

Gly Pro Lys Gly Asp Arg Gly Glu Gln Gly Asp Pro Gly Leu Pro Gly
    130                 135                 140

Val Cys Arg Cys Gly Ser Ile Val Leu Lys Ser Ala Phe Ser Val Gly
145                 150                 155                 160

Ile Thr Thr Ser Tyr Pro Glu Glu Arg Leu Pro Ile Ile Phe Asn Lys
                165                 170                 175

Val Leu Phe Asn Glu Gly Glu His Tyr Asn Pro Ala Thr Gly Lys Phe
            180                 185                 190

Ile Cys Ala Phe Pro Gly Ile Tyr Tyr Phe Ser Tyr Asp Ile Thr Leu
        195                 200                 205

Ala Asn Lys His Leu Ala Ile Gly Leu Val His Asn Gly Gln Tyr Arg
    210                 215                 220

Ile Lys Thr Phe Asp Ala Asn Thr Gly Asn His Asp Val Ala Ser Gly
225                 230                 235                 240

Ser Thr Val Ile Tyr Leu Gln Pro Glu Asp Glu Val Trp Leu Glu Ile
                245                 250                 255
```

```
Phe Phe Thr Asp Gln Asn Gly Leu Phe Ser Asp Pro Gly Trp Ala Asp
            260                 265                 270

Ser Leu Phe Ser Gly Phe Leu Leu Tyr Val Asp Thr Asp Tyr Leu Asp
        275                 280                 285

Ser Ile Ser Glu Asp Asp Glu Leu
    290                 295


<210> 10214
<211> 112
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: C1QTNF7; "

<220>
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<223> /note="Gene Name: C1q and tumor necrosis  factor
      related prt 7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371820"

<400> 10214
Met Phe Val Leu Leu Tyr Val Thr Ser Phe Ala Ile Cys Ala Ser Gly
1               5                   10                  15

Gln Pro Arg Gly Asn Gln Leu Lys Gly Glu Asn Tyr Ser Pro Arg Tyr
            20                  25                  30

Ile Cys Ser Ile Pro Gly Leu Pro Gly Pro Pro Gly Pro Pro Gly Ala
        35                  40                  45

Asn Gly Ser Pro Gly Pro His Gly Arg Ile Gly Leu Pro Gly Arg Asp
    50                  55                  60

Gly Arg Asp Gly Arg Lys Gly Glu Lys Gly Glu Lys Gly Thr Ala Gly
65                  70                  75                  80
```

Leu Arg Gly Lys Thr Gly Pro Leu Gly Leu Ala Gly Glu Lys Gly Asp
85 90 95

Gln Gly Glu Thr Gly Lys Lys Gly Pro Ile Gly Pro Glu Gly Glu Lys
100 105 110

<210> 10215
<211> 151
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: C1QTNF7; "

<220>
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<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 7; "

<220>
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<223> /note="ENSP ID: ENSP00000380812"

<400> 10215
Met Ser Arg Gln Glu Pro Lys Met Phe Val Leu Leu Tyr Val Thr Ser
1 5 10 15

Phe Ala Ile Cys Ala Ser Gly Gln Pro Arg Gly Asn Gln Leu Lys Gly
20 25 30

Glu Asn Tyr Ser Pro Arg Tyr Ile Cys Ser Ile Pro Gly Leu Pro Gly
35 40 45

Pro Pro Gly Pro Pro Gly Ala Asn Gly Ser Pro Gly Pro His Gly Arg
50 55 60

Ile Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Arg Lys Gly Glu Lys
65 70 75 80

Gly Glu Lys Gly Thr Ala Gly Leu Arg Gly Lys Thr Gly Pro Leu Gly
85 90 95

Leu Ala Gly Glu Lys Gly Asp Gln Gly Glu Thr Gly Lys Lys Gly Pro
100 105 110

```
Ile Gly Pro Glu Gly Glu Lys Gly Glu Val Gly Pro Ile Gly Pro Pro
        115                 120                 125


Gly Pro Lys Gly Asp Arg Gly Glu Gln Gly Asp Pro Gly Leu Pro Gly
    130                 135                 140


Val Cys Arg Cys Gly Ser Ile
145                 150


<210> 10216
<211> 289
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: C1q and tumor necrosis  factor
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<220>
<221> source
<223> /note="Uniprot ID:  Q9BXJ2; "

<220>
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<223> /note="ENSP ID: ENSP00000388914"

<400> 10216
Met Phe Val Leu Leu Tyr Val Thr Ser Phe Ala Ile Cys Ala Ser Gly
1               5                   10                  15


Gln Pro Arg Gly Asn Gln Leu Lys Gly Glu Asn Tyr Ser Pro Arg Tyr
            20                  25                  30


Ile Cys Ser Ile Pro Gly Leu Pro Gly Pro Pro Gly Pro Pro Gly Ala
        35                  40                  45


Asn Gly Ser Pro Gly Pro His Gly Arg Ile Gly Leu Pro Gly Arg Asp
    50                  55                  60
```

Gly Arg Asp Gly Arg Lys Gly Glu Lys Gly Glu Lys Gly Thr Ala Gly
65 70 75 80

Leu Arg Gly Lys Thr Gly Pro Leu Gly Leu Ala Gly Glu Lys Gly Asp
85 90 95

Gln Gly Glu Thr Gly Lys Lys Gly Pro Ile Gly Pro Glu Gly Glu Lys
100 105 110

Gly Glu Val Gly Pro Ile Gly Pro Pro Gly Pro Lys Gly Asp Arg Gly
115 120 125

Glu Gln Gly Asp Pro Gly Leu Pro Gly Val Cys Arg Cys Gly Ser Ile
130 135 140

Val Leu Lys Ser Ala Phe Ser Val Gly Ile Thr Thr Ser Tyr Pro Glu
145 150 155 160

Glu Arg Leu Pro Ile Ile Phe Asn Lys Val Leu Phe Asn Glu Gly Glu
165 170 175

His Tyr Asn Pro Ala Thr Gly Lys Phe Ile Cys Ala Phe Pro Gly Ile
180 185 190

Tyr Tyr Phe Ser Tyr Asp Ile Thr Leu Ala Asn Lys His Leu Ala Ile
195 200 205

Gly Leu Val His Asn Gly Gln Tyr Arg Ile Lys Thr Phe Asp Ala Asn
210 215 220

Thr Gly Asn His Asp Val Ala Ser Gly Ser Thr Val Ile Tyr Leu Gln
225 230 235 240

Pro Glu Asp Glu Val Trp Leu Glu Ile Phe Phe Thr Asp Gln Asn Gly
245 250 255

Leu Phe Ser Asp Pro Gly Trp Ala Asp Ser Leu Phe Ser Gly Phe Leu
260 265 270

Leu Tyr Val Asp Thr Asp Tyr Leu Asp Ser Ile Ser Glu Asp Asp Glu
275 280 285

Leu

<210> 10217
<211> 289
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: C1QTNF7; "

<220>
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<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 7; "

<220>
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<223> /note="Uniprot ID: Q9BXJ2; "

<220>
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<223> /note="ENSP ID: ENSP00000410722"

<400> 10217
Met Phe Val Leu Leu Tyr Val Thr Ser Phe Ala Ile Cys Ala Ser Gly
1   5   10   15

Gln Pro Arg Gly Asn Gln Leu Lys Gly Glu Asn Tyr Ser Pro Arg Tyr
            20   25   30

Ile Cys Ser Ile Pro Gly Leu Pro Gly Pro Pro Gly Pro Pro Gly Ala
        35   40   45

Asn Gly Ser Pro Gly Pro His Gly Arg Ile Gly Leu Pro Gly Arg Asp
    50   55   60

Gly Arg Asp Gly Arg Lys Gly Glu Lys Gly Glu Lys Gly Thr Ala Gly
65   70   75   80

Leu Arg Gly Lys Thr Gly Pro Leu Gly Leu Ala Gly Glu Lys Gly Asp
                85   90   95

Gln Gly Glu Thr Gly Lys Lys Gly Pro Ile Gly Pro Glu Gly Glu Lys
            100   105   110

```
Gly Glu Val Gly Pro Ile Gly Pro Pro Gly Pro Lys Gly Asp Arg Gly
        115                 120                 125

Glu Gln Gly Asp Pro Gly Leu Pro Gly Val Cys Arg Cys Gly Ser Ile
    130                 135                 140

Val Leu Lys Ser Ala Phe Ser Val Gly Ile Thr Thr Ser Tyr Pro Glu
145                 150                 155                 160

Glu Arg Leu Pro Ile Ile Phe Asn Lys Val Leu Phe Asn Glu Gly Glu
                165                 170                 175

His Tyr Asn Pro Ala Thr Gly Lys Phe Ile Cys Ala Phe Pro Gly Ile
            180                 185                 190

Tyr Tyr Phe Ser Tyr Asp Ile Thr Leu Ala Asn Lys His Leu Ala Ile
        195                 200                 205

Gly Leu Val His Asn Gly Gln Tyr Arg Ile Lys Thr Phe Asp Ala Asn
    210                 215                 220

Thr Gly Asn His Asp Val Ala Ser Gly Ser Thr Val Ile Tyr Leu Gln
225                 230                 235                 240

Pro Glu Asp Glu Val Trp Leu Glu Ile Phe Phe Thr Asp Gln Asn Gly
                245                 250                 255

Leu Phe Ser Asp Pro Gly Trp Ala Asp Ser Leu Phe Ser Gly Phe Leu
            260                 265                 270

Leu Tyr Val Asp Thr Asp Tyr Leu Asp Ser Ile Ser Glu Asp Asp Glu
        275                 280                 285

Leu
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<210> 10218
<211> 252
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2042; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF8; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 8; "

<220>
<221> source
<223> /note="Uniprot ID: P60827; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000330426"

<400> 10218
Met Ala Ala Pro Ala Leu Leu Leu Leu Ala Leu Leu Leu Pro Val Gly
1 5 10 15

Ala Trp Pro Gly Leu Pro Arg Arg Pro Cys Val His Cys Cys Arg Pro
20 25 30

Ala Trp Pro Pro Gly Pro Tyr Ala Arg Val Ser Asp Arg Asp Leu Trp
35 40 45

Arg Gly Asp Leu Trp Arg Gly Leu Pro Arg Val Arg Pro Thr Ile Asp
50 55 60

Ile Glu Ile Leu Lys Gly Glu Lys Gly Glu Ala Gly Val Arg Gly Arg
65 70 75 80

Ala Gly Arg Ser Gly Lys Glu Gly Pro Pro Gly Ala Arg Gly Leu Gln
85 90 95

Gly Arg Arg Gly Gln Lys Gly Gln Val Gly Pro Pro Gly Ala Ala Cys
100 105 110

Arg Arg Ala Tyr Ala Ala Phe Ser Val Gly Arg Arg Glu Gly Leu His
115 120 125

Ser Ser Asp His Phe Gln Ala Val Pro Phe Asp Thr Glu Leu Val Asn
130 135 140

Leu Asp Gly Ala Phe Asp Leu Ala Ala Gly Arg Phe Leu Cys Thr Val
145 150 155 160

```
Pro Gly Val Tyr Phe Leu Ser Leu Asn Val His Thr Trp Asn Tyr Lys
                165                 170                 175

Glu Thr Tyr Leu His Ile Met Leu Asn Arg Arg Pro Ala Ala Val Leu
            180                 185                 190

Tyr Ala Gln Pro Ser Glu Arg Ser Val Met Gln Ala Gln Ser Leu Met
        195                 200                 205

Leu Leu Leu Ala Ala Gly Asp Ala Val Trp Val Arg Met Phe Gln Arg
    210                 215                 220

Asp Arg Asp Asn Ala Ile Tyr Gly Glu His Gly Asp Leu Tyr Ile Thr
225                 230                 235                 240

Phe Ser Gly His Leu Val Lys Pro Ala Ala Glu Leu
                245                 250


<210> 10219
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2042; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF8; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis  factor
      related prt 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479192"

<400> 10219
Met Ala Ala Pro Ala Leu Leu Leu Leu Ala Leu Leu Leu Pro Val Gly
1               5                   10                  15

Ala Trp Pro Gly Leu Pro Arg Arg Pro Cys Val His Cys Cys Arg Pro
            20                  25                  30
```

```
Ala Trp Pro Pro Gly Pro Tyr Ala Arg Val Ser Asp Arg Asp Leu Trp
        35                  40                  45

Arg Gly Asp Leu Trp Arg Gly Leu Pro Arg Val Arg Pro Thr Ile Asp
    50                  55                  60

Ile Glu Ile Leu Lys Gly Glu Ala Arg Gly Cys Ala Cys Met Leu Pro
65                  70                  75                  80

His Gln Asp Pro Thr Ala Gln Gly Val Gly Ser Thr Trp Gly Glu Glu
                85                  90                  95

Gly Arg Glu Gly Thr Leu Ser Thr Ser Val Cys Pro Gly Ser Ala Pro
            100                 105                 110

Cys Thr Ala Cys Arg Arg Ala Tyr Ala Ala Phe Ser Val Gly Arg Arg
        115                 120                 125

Glu Gly Leu His Ser Ser Asp His Phe Gln Ala Val Pro Phe Asp Thr
    130                 135                 140

Glu Leu Val Asn Leu Asp Gly Ala Phe Asp Leu Ala Ala Gly Arg Phe
145                 150                 155                 160

Leu Cys Thr Val Pro Gly Val Tyr Phe Leu Ser Leu Asn Val His Thr
                165                 170                 175

Trp Asn Tyr Lys Glu Thr Tyr Leu His Ile Met Leu Asn Arg Arg Pro
            180                 185                 190

Ala Ala Val Leu Tyr Ala Gln Pro Ser Glu Arg Ser Val Met Gln Ala
        195                 200                 205

Gln Ser Leu Met Leu Leu Leu Ala Ala Gly Asp Ala Val Trp Val Arg
    210                 215                 220

Met Phe Gln Arg Asp Arg Asp Asn Ala Ile Tyr Gly Glu His Gly Asp
225                 230                 235                 240

Leu Tyr Ile Thr Phe Ser Gly His Leu Val Lys Pro Ala Ala Glu Leu
                245                 250                 255
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<210> 10220

<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: C1QTNF9; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 9; "

<220>
<221> source
<223> /note="Uniprot ID: P0C862; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000333737"

<400> 10220
Met Arg Ile Trp Trp Leu Leu Leu Ala Ile Glu Ile Cys Thr Gly Asn
1 5 10 15

Ile Asn Ser Gln Asp Thr Cys Arg Gln Gly His Pro Gly Ile Pro Gly
            20 25 30

Asn Pro Gly His Asn Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Ala
        35 40 45

Lys Gly Asp Lys Gly Asp Ala Gly Glu Pro Gly Arg Pro Gly Ser Pro
    50 55 60

Gly Lys Asp Gly Thr Ser Gly Glu Lys Gly Glu Arg Gly Ala Asp Gly
65 70 75 80

Lys Val Glu Ala Lys Gly Ile Lys Gly Asp Gln Gly Ser Arg Gly Ser
                85 90 95

Pro Gly Lys His Gly Pro Lys Gly Leu Ala Gly Pro Met Gly Glu Lys
            100 105 110

Gly Leu Arg Gly Glu Thr Gly Pro Gln Gly Gln Lys Gly Asn Lys Gly
        115 120 125

```
Asp Val Gly Pro Thr Gly Pro Glu Gly Pro Arg Gly Asn Ile Gly Pro
    130                 135                 140

Leu Gly Pro Thr Gly Leu Pro Gly Pro Met Gly Pro Ile Gly Lys Pro
145                 150                 155                 160

Gly Pro Lys Gly Glu Ala Gly Pro Thr Gly Pro Gln Gly Glu Pro Gly
                165                 170                 175

Val Arg Gly Ile Arg Gly Trp Lys Gly Asp Arg Gly Glu Lys Gly Lys
            180                 185                 190

Ile Gly Glu Thr Leu Val Leu Pro Lys Ser Ala Phe Thr Val Gly Leu
        195                 200                 205

Thr Val Leu Ser Lys Phe Pro Ser Ser Asp Met Pro Ile Lys Phe Asp
    210                 215                 220

Lys Ile Leu Tyr Asn Glu Phe Asn His Tyr Asp Thr Ala Ala Gly Lys
225                 230                 235                 240

Phe Thr Cys His Ile Ala Gly Val Tyr Tyr Phe Thr Tyr His Ile Thr
                245                 250                 255

Val Phe Ser Arg Asn Val Gln Val Ser Leu Val Lys Asn Gly Val Lys
            260                 265                 270

Ile Leu His Thr Lys Asp Ala Tyr Met Ser Ser Glu Asp Gln Ala Ser
        275                 280                 285

Gly Gly Ile Val Leu Gln Leu Lys Leu Gly Asp Glu Val Trp Leu Gln
    290                 295                 300

Val Thr Gly Gly Glu Arg Phe Asn Gly Leu Phe Ala Asp Glu Asp Asp
305                 310                 315                 320

Asp Thr Thr Phe Thr Gly Phe Leu Leu Phe Ser Ser Pro
                325                 330
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<210> 10221
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2043; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF9; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 9; "

<220>
<221> source
<223> /note="Uniprot ID: P0C862; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371503"

<400> 10221
Met Arg Ile Trp Trp Leu Leu Leu Ala Ile Glu Ile Cys Thr Gly Asn
1   5   10   15

Ile Asn Ser Gln Asp Thr Cys Arg Gln Gly His Pro Gly Ile Pro Gly
            20   25   30

Asn Pro Gly His Asn Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Ala
        35   40   45

Lys Gly Asp Lys Gly Asp Ala Gly Glu Pro Gly Arg Pro Gly Ser Pro
    50   55   60

Gly Lys Asp Gly Thr Ser Gly Glu Lys Gly Glu Arg Gly Ala Asp Gly
65   70   75   80

Lys Val Glu Ala Lys Gly Ile Lys Gly Asp Gln Gly Ser Arg Gly Ser
                85   90   95

Pro Gly Lys His Gly Pro Lys Gly Leu Ala Gly Pro Met Gly Glu Lys
            100   105   110

Gly Leu Arg Gly Glu Thr Gly Pro Gln Gly Gln Lys Gly Asn Lys Gly
        115   120   125

Asp Val Gly Pro Thr Gly Pro Glu Gly Pro Arg Gly Asn Ile Gly Pro
    130   135   140

```
Leu Gly Pro Thr Gly Leu Pro Gly Pro Met Gly Pro Ile Gly Lys Pro
145                 150                 155                 160

Gly Pro Lys Gly Glu Ala Gly Pro Thr Gly Pro Gln Gly Glu Pro Gly
                165                 170                 175

Val Arg Gly Ile Arg Gly Trp Lys Gly Asp Arg Gly Glu Lys Gly Lys
            180                 185                 190

Ile Gly Glu Thr Leu Val Leu Pro Lys Ser Ala Phe Thr Val Gly Leu
        195                 200                 205

Thr Val Leu Ser Lys Phe Pro Ser Ser Asp Met Pro Ile Lys Phe Asp
    210                 215                 220

Lys Ile Leu Tyr Asn Glu Phe Asn His Tyr Asp Thr Ala Ala Gly Lys
225                 230                 235                 240

Phe Thr Cys His Ile Ala Gly Val Tyr Tyr Phe Thr Tyr His Ile Thr
                245                 250                 255

Val Phe Ser Arg Asn Val Gln Val Ser Leu Val Lys Asn Gly Val Lys
            260                 265                 270

Ile Leu His Thr Lys Asp Ala Tyr Met Ser Ser Glu Asp Gln Ala Ser
        275                 280                 285

Gly Gly Ile Val Leu Gln Leu Lys Leu Gly Asp Glu Val Trp Leu Gln
    290                 295                 300

Val Thr Gly Gly Glu Arg Phe Asn Gly Leu Phe Ala Asp Glu Asp Asp
305                 310                 315                 320

Asp Thr Thr Phe Thr Gly Phe Leu Leu Phe Ser Ser Pro
                325                 330
```

<210> 10222
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 2044; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF9B; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 9B; "

<220>
<221> source
<223> /note="Uniprot ID: B2RNN3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371572"

<400> 10222

```
Met Arg Ile Trp Trp Leu Leu Leu Ala Ile Glu Ile Cys Thr Gly Asn
1               5                  10                  15

Ile Asn Ser Gln Asp Thr Cys Arg Gln Gly His Pro Gly Ile Pro Gly
            20                  25                  30

Asn Pro Gly His Asn Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Ala
        35                  40                  45

Lys Gly Asp Lys Gly Asp Ala Gly Glu Pro Gly Cys Pro Gly Ser Pro
    50                  55                  60

Gly Lys Asp Gly Thr Ser Gly Glu Lys Gly Glu Arg Gly Ala Asp Gly
65                  70                  75                  80

Lys Val Glu Ala Lys Gly Ile Lys Gly Asp Gln Gly Ser Arg Gly Ser
                85                  90                  95

Pro Gly Lys His Gly Pro Lys Gly Leu Ala Gly Pro Met Gly Glu Lys
            100                 105                 110

Gly Leu Arg Gly Glu Thr Gly Pro Gln Gly Gln Lys Gly Asn Lys Gly
        115                 120                 125

Asp Val Gly Pro Thr Gly Pro Glu Gly Pro Arg Gly Asn Ile Gly Pro
    130                 135                 140

Leu Gly Pro Thr Gly Leu Pro Gly Pro Met Gly Pro Ile Gly Lys Pro
```

```
145                 150                 155                 160

Gly Pro Lys Gly Glu Ala Gly Pro Thr Gly Pro Gln Gly Glu Pro Gly
                165                 170                 175

Val Arg Gly Ile Arg Gly Trp Lys Gly Asp Arg Gly Glu Lys Gly Lys
            180                 185                 190

Ile Gly Glu Thr Leu Val Leu Pro Lys Ser Ala Phe Thr Val Gly Leu
        195                 200                 205

Thr Val Leu Ser Lys Phe Pro Ser Ser Asp Val Pro Ile Lys Phe Asp
    210                 215                 220

Lys Ile Leu Tyr Asn Glu Phe Asn His Tyr Asp Thr Ala Val Gly Lys
225                 230                 235                 240

Phe Thr Cys His Ile Ala Gly Val Tyr Tyr Phe Thr Tyr His Ile Thr
                245                 250                 255

Val Phe Ser Arg Asn Val Gln Val Ser Leu Val Lys Asn Gly Val Lys
            260                 265                 270

Ile Leu His Thr Arg Asp Ala Tyr Val Ser Ser Glu Asp Gln Ala Ser
        275                 280                 285

Gly Ser Ile Val Leu Gln Leu Lys Leu Gly Asp Glu Met Trp Leu Gln
    290                 295                 300

Val Thr Gly Gly Glu Arg Phe Asn Gly Leu Phe Ala Asp Glu Asp Asp
305                 310                 315                 320

Asp Thr Thr Phe Thr Gly Phe Leu Leu Phe Ser Ser Gln
                325                 330


<210> 10223
<211> 333
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2044; "

<220>
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<221> source
<223> /note="Gene Symbol: C1QTNF9B; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 9B; "

<220>
<221> source
<223> /note="Uniprot ID: B2RNN3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371575"

<400> 10223

Met	Arg	Ile	Trp	Trp	Leu	Leu	Leu	Ala	Ile	Glu	Ile	Cys	Thr	Gly	Asn
1				5				10					15		

Ile	Asn	Ser	Gln	Asp	Thr	Cys	Arg	Gln	Gly	His	Pro	Gly	Ile	Pro	Gly
			20					25					30		

Asn	Pro	Gly	His	Asn	Gly	Leu	Pro	Gly	Arg	Asp	Gly	Arg	Asp	Gly	Ala
		35					40					45			

Lys	Gly	Asp	Lys	Gly	Asp	Ala	Gly	Glu	Pro	Gly	Cys	Pro	Gly	Ser	Pro
	50					55					60				

Gly	Lys	Asp	Gly	Thr	Ser	Gly	Glu	Lys	Gly	Glu	Arg	Gly	Ala	Asp	Gly
65				70					75					80	

Lys	Val	Glu	Ala	Lys	Gly	Ile	Lys	Gly	Asp	Gln	Gly	Ser	Arg	Gly	Ser
				85					90					95	

Pro	Gly	Lys	His	Gly	Pro	Lys	Gly	Leu	Ala	Gly	Pro	Met	Gly	Glu	Lys
			100					105					110		

Gly	Leu	Arg	Gly	Glu	Thr	Gly	Pro	Gln	Gly	Gln	Lys	Gly	Asn	Lys	Gly
		115					120					125			

Asp	Val	Gly	Pro	Thr	Gly	Pro	Glu	Gly	Pro	Arg	Gly	Asn	Ile	Gly	Pro
	130					135					140				

Leu	Gly	Pro	Thr	Gly	Leu	Pro	Gly	Pro	Met	Gly	Pro	Ile	Gly	Lys	Pro
145				150					155					160	

```
Gly Pro Lys Gly Glu Ala Gly Pro Thr Gly Pro Gln Gly Glu Pro Gly
                165                 170                 175

Val Arg Gly Ile Arg Gly Trp Lys Gly Asp Arg Gly Glu Lys Gly Lys
            180                 185                 190

Ile Gly Glu Thr Leu Val Leu Pro Lys Ser Ala Phe Thr Val Gly Leu
        195                 200                 205

Thr Val Leu Ser Lys Phe Pro Ser Ser Asp Val Pro Ile Lys Phe Asp
    210                 215                 220

Lys Ile Leu Tyr Asn Glu Phe Asn His Tyr Asp Thr Ala Val Gly Lys
225                 230                 235                 240

Phe Thr Cys His Ile Ala Gly Val Tyr Tyr Phe Thr Tyr His Ile Thr
                245                 250                 255

Val Phe Ser Arg Asn Val Gln Val Ser Leu Val Lys Asn Gly Val Lys
            260                 265                 270

Ile Leu His Thr Arg Asp Ala Tyr Val Ser Ser Glu Asp Gln Ala Ser
        275                 280                 285

Gly Ser Ile Val Leu Gln Leu Lys Leu Gly Asp Glu Met Trp Leu Gln
    290                 295                 300

Val Thr Gly Gly Glu Arg Phe Asn Gly Leu Phe Ala Asp Glu Asp Asp
305                 310                 315                 320

Asp Thr Thr Phe Thr Gly Phe Leu Leu Phe Ser Ser Gln
                325                 330
```

<210> 10224
<211> 99
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2044; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF9B; "

<220>
<221> source
<223> /note="Gene Name: C1q and tumor necrosis factor
related prt 9B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371580"

<400> 10224
Met Arg Ile Trp Trp Leu Leu Leu Ala Ile Glu Ile Cys Thr Gly Asn
1   5   10   15

Ile Asn Ser Gln Asp Thr Cys Arg Gln Gly His Pro Gly Ile Pro Gly
            20   25   30

Asn Pro Gly His Asn Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Ala
        35   40   45

Lys Gly Asp Lys Gly Asp Ala Gly Glu Pro Gly Cys Pro Gly Ser Pro
    50   55   60

Gly Lys Asp Gly Thr Ser Gly Glu Lys Gly Glu Arg Gly Ala Asp Gly
65   70   75   80

Lys Val Glu Ala Lys Gly Ile Lys Gly Met Phe Arg Cys Leu Trp Ser
                85   90   95

Lys Thr Glu

<210> 10225
<211> 284
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2045; "

<220>
<221> source
<223> /note="Gene Symbol: C1QTNF3-AMACR; "

<220>
<221> source
<223> /note="Gene Name: C1QTNF3-AMACR readthrough (NMD
candidate); "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000371511"

<400> 10225
Met Thr Lys Ser Ser Leu Arg Pro Leu Gln Lys Gln Ser Pro Gln Thr
1 5 10 15

Gly Gly Leu Pro Pro Asp Cys Ser Lys Cys Cys His Gly Asp Tyr Ser
20 25 30

Phe Arg Gly Tyr Gln Gly Pro Pro Gly Pro Pro Gly Pro Pro Gly Ile
35 40 45

Pro Gly Asn His Gly Asn Asn Gly Asn Asn Gly Ala Thr Gly His Glu
50 55 60

Gly Ala Lys Gly Glu Lys Gly Asp Lys Gly Asp Leu Gly Pro Arg Gly
65 70 75 80

Glu Arg Gly Gln His Gly Pro Lys Gly Glu Lys Gly Tyr Pro Gly Ile
85 90 95

Pro Pro Glu Leu Gln Ile Ala Phe Met Ala Ser Leu Ala Thr His Phe
100 105 110

Ser Asn Gln Asn Ser Gly Ile Ile Phe Ser Ser Val Glu Thr Asn Ile
115 120 125

Gly Asn Phe Phe Asp Val Met Thr Gly Arg Phe Gly Ala Pro Val Ser
130 135 140

Gly Val Tyr Phe Phe Thr Phe Ser Met Met Lys His Glu Asp Val Glu
145 150 155 160

Glu Val Tyr Val Tyr Leu Met His Asn Gly Asn Thr Val Phe Ser Met
165 170 175

Tyr Ser Tyr Glu Met Lys Gly Lys Ser Asp Thr Ser Ser Asn His Ala
180 185 190

Val Leu Lys Leu Ala Lys Gly Asp Glu Val Trp Leu Arg Met Gly Asn
195 200 205

Gly Ala Leu His Gly Asp His Gln Arg Phe Ser Thr Phe Ala Gly Phe

```
    210                 215                 220

Leu Leu Phe Glu Thr Lys Cys His Gly Glu Thr Pro Ala Gly Pro Arg
225                 230                 235                 240

Asp Ser Ala Ala Gly Lys Ser Lys Ala Tyr Leu Cys Gln Ala Glu Trp
                245                 250                 255

Ile Trp Pro Val Arg Lys Leu Leu Pro Val Ser Trp Pro Arg Tyr Gln
            260                 265                 270

Leu Phe Gly Phe Val Arg Trp Lys Glu Gln His Ile
        275                 280


<210> 10226
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2046; "

<220>
<221> source
<223> /note="Gene Symbol:; "

<220>
<221> source
<223> /note="Gene Name: C1QTNF9B antisense RNA 1
      [Source:EntrezGene;Acc:542767]; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487130"

<400> 10226
Met Gly Ile Ser Glu Glu Gly Asn Leu Leu Ser Thr Val Ser Pro Thr
1               5                   10                  15

Val Lys Ala Leu Phe Gly Lys Thr Arg Val Ser Pro Ile Phe Pro Phe
            20                  25                  30

Ser Pro Arg Ser Pro Phe Gln Pro Leu Ile Pro Arg Thr Pro Gly Ser
        35                  40                  45

Pro Trp Gly Pro Val Gly Pro Ala Ser Pro Leu Gly Pro Gly Phe Pro
    50                  55                  60
```

```
Ile Gly Pro Met Gly Pro Gly Lys Pro Val Gly Pro Lys Gly Pro Met
65                  70                  75                  80


Leu Pro Leu Gly Pro Ser Gly Pro Val Gly Pro Thr Ser Pro Leu Phe
                85                  90                  95


Pro Phe Cys Pro
            100


<210> 10227
<211> 541
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2047; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD2; "

<220>
<221> source
<223> /note="Gene Name: C2 calcium-dependent
      domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y426; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000329302"

<400> 10227
Met Arg Leu Ser Pro Phe His Leu Gln Leu Glu Phe His Met Lys Glu
1               5                  10                  15


Lys Arg Glu Asp Leu Gln Ile Ser Trp Ser Phe Ile Ser Val Pro Glu
            20                  25                  30


Met Ala Val Asn Ile Gln Pro Lys Ala Leu Gly Glu Asp Gln Val Ala
        35                  40                  45


Glu Thr Ser Ala Met Ser Asp Val Leu Lys Asp Ile Leu Lys His Leu
    50                  55                  60


Ala Gly Ser Ala Ser Pro Ser Val Val Leu Ile Thr Lys Pro Thr Thr
```

65 70 75 80

Val Lys Glu Ala Gln Asn Leu Gln Cys Ala Ala Ser Thr Ala Gln Glu
85 90 95

Ser Cys Pro Pro Lys Pro Pro Arg Ala His Glu Leu Lys Leu Leu Val
100 105 110

Arg Asn Ile His Val Leu Leu Leu Ser Glu Pro Gly Ala Ser Gly His
115 120 125

Ile Asn Ala Val Cys Val Val Gln Leu Asn Asp Pro Val Gln Arg Phe
130 135 140

Ser Ser Thr Leu Thr Lys Asn Thr Pro Asp Leu Met Trp Glu Glu Glu
145 150 155 160

Phe Thr Phe Glu Leu Asn Ala Lys Ser Lys Glu Leu His Leu Gln Ile
165 170 175

Ser Glu Ala Gly Arg Ser Ser Glu Gly Leu Leu Ala Thr Ala Thr Val
180 185 190

Pro Leu Asp Leu Phe Lys Lys Gln Pro Ser Gly Pro Gln Ser Phe Thr
195 200 205

Leu Thr Ser Gly Ser Ala Cys Gly Ser Ser Val Leu Gly Ser Val Thr
210 215 220

Ala Glu Phe Ser Tyr Met Glu Pro Gly Glu Leu Lys Ser Trp Pro Ile
225 230 235 240

Pro Pro Pro Val Pro Ala Ala Lys Ile Glu Lys Asp Arg Thr Val Met
245 250 255

Pro Cys Gly Thr Val Val Thr Thr Val Thr Ala Val Lys Thr Lys Pro
260 265 270

Arg Val Asp Val Gly Arg Ala Ser Pro Leu Ser Ser Asp Ser Pro Val
275 280 285

Lys Thr Pro Ile Lys Val Lys Val Ile Glu Lys Asp Ile Ser Val Gln
290 295 300

```
Ala Ile Ala Cys Arg Ser Ala Pro Val Ser Lys Thr Leu Ser Ser Ser
305                 310                 315                 320

Asp Thr Glu Leu Leu Val Leu Asn Gly Ser Asp Pro Val Ala Glu Val
                325                 330                 335

Ala Ile Arg Gln Leu Ser Glu Ser Ser Lys Leu Lys Leu Lys Ser Pro
            340                 345                 350

Arg Lys Lys Ser Thr Ile Ile Ile Ser Gly Ile Ser Lys Thr Ser Leu
        355                 360                 365

Ser Gln Asp His Asp Ala Ala Leu Met Gln Gly Tyr Thr Ala Ser Val
    370                 375                 380

Asp Ser Thr His Gln Glu Asp Ala Pro Ser His Pro Glu Arg Ala Ala
385                 390                 395                 400

Ala Ser Ala Pro Pro Glu Glu Ala Glu Ser Ala Gln Ala Ser Leu Ala
                405                 410                 415

Pro Lys Pro Gln Glu Asp Glu Leu Asp Ser Trp Asp Leu Glu Lys Glu
            420                 425                 430

Pro Gln Ala Ala Ala Trp Ser Ser Gln Val Leu Leu Asp Pro Asp Gly
        435                 440                 445

Asp Glu Leu Ser Glu Ser Ser Met Ser Val Leu Glu Pro Gly Thr Ala
    450                 455                 460

Lys Lys His Lys Gly Gly Ile Leu Arg Lys Gly Ala Lys Leu Phe Phe
465                 470                 475                 480

Arg Arg Arg His Gln Gln Lys Asp Pro Gly Met Ser Gln Ser His Asn
                485                 490                 495

Asp Leu Val Phe Leu Glu Gln Pro Glu Gly Ser Arg Arg Lys Gly Ile
            500                 505                 510

Thr Leu Thr Arg Ile Leu Asn Lys Lys Leu Leu Ser Arg His Arg Asn
        515                 520                 525
```

Lys Asn Thr Met Asn Gly Ala Pro Val Glu Pro Cys Thr
530 535 540

<210> 10228
<211> 696
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2047; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD2; "

<220>
<221> source
<223> /note="Gene Name: C2 calcium-dependent
domain containing 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y426; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369853"

<400> 10228
Met Ala Met Ala Arg Leu Gly Ser Trp Leu Gly Glu Ala Gln Trp Leu
1 5 10 15

Ala Leu Val Ser Leu Phe Val Ala Ala Leu Ala Thr Val Gly Leu Tyr
20 25 30

Leu Ala Gln Trp Ala Leu Ala Arg Ala Arg Pro Gln Pro Gln Arg Arg
35 40 45

Ala Val Glu Pro Gly Glu Gly Pro Arg Pro Gly Ser Asp Ala Leu Leu
50 55 60

Ser Trp Ile Leu Thr Leu Gly Ser Trp Arg Ser Gln Trp Gln Ala Ala
65 70 75 80

Trp Val Thr Ala Leu Asn Glu Glu Ala Glu Arg Lys Gly Gly Pro Pro
85 90 95

Phe Leu Ser Phe Glu Glu Asp Pro Arg Gln Gln Ala Leu Glu Leu Val

```
            100                 105                 110

Val Gln Glu Val Ser Ser Val Leu Arg Ser Ala Glu Glu Lys Val Val
        115                 120                 125

Val Cys His Val Val Gly Gln Ala Ile Gln Phe Leu Val Ser Glu Thr
    130                 135                 140

Pro Ala Leu Gly Ala Gly Cys Arg Leu Tyr Asp Met Arg Leu Ser Pro
145                 150                 155                 160

Phe His Leu Gln Leu Glu Phe His Met Lys Glu Lys Arg Glu Asp Leu
                165                 170                 175

Gln Ile Ser Trp Ser Phe Ile Ser Val Pro Glu Met Ala Val Asn Ile
            180                 185                 190

Gln Pro Lys Ala Leu Gly Glu Asp Gln Val Ala Glu Thr Ser Ala Met
        195                 200                 205

Ser Asp Val Leu Lys Asp Ile Leu Lys His Leu Ala Gly Ser Ala Ser
    210                 215                 220

Pro Ser Val Val Leu Ile Thr Lys Pro Thr Thr Val Lys Glu Ala Gln
225                 230                 235                 240

Asn Leu Gln Cys Ala Ala Ser Thr Ala Gln Glu Ser Cys Pro Pro Lys
                245                 250                 255

Pro Pro Arg Ala His Glu Leu Lys Leu Leu Val Arg Asn Ile His Val
            260                 265                 270

Leu Leu Leu Ser Glu Pro Gly Ala Ser Gly His Ile Asn Ala Val Cys
        275                 280                 285

Val Val Gln Leu Asn Asp Pro Val Gln Arg Phe Ser Ser Thr Leu Thr
    290                 295                 300

Lys Asn Thr Pro Asp Leu Met Trp Glu Glu Glu Phe Thr Phe Glu Leu
305                 310                 315                 320

Asn Ala Lys Ser Lys Glu Leu His Leu Gln Ile Ser Glu Ala Gly Arg
                325                 330                 335
```

```
Ser Ser Glu Gly Leu Leu Ala Thr Ala Thr Val Pro Leu Asp Leu Phe
            340                 345                 350

Lys Lys Gln Pro Ser Gly Pro Gln Ser Phe Thr Leu Thr Ser Gly Ser
        355                 360                 365

Ala Cys Gly Ser Ser Val Leu Gly Ser Val Thr Ala Glu Phe Ser Tyr
    370                 375                 380

Met Glu Pro Gly Glu Leu Lys Ser Trp Pro Ile Pro Pro Pro Val Pro
385                 390                 395                 400

Ala Ala Lys Ile Glu Lys Asp Arg Thr Val Met Pro Cys Gly Thr Val
                405                 410                 415

Val Thr Thr Val Thr Ala Val Lys Thr Lys Pro Arg Val Asp Val Gly
            420                 425                 430

Arg Ala Ser Pro Leu Ser Ser Asp Ser Pro Val Lys Thr Pro Ile Lys
        435                 440                 445

Val Lys Val Ile Glu Lys Asp Ile Ser Val Gln Ala Ile Ala Cys Arg
    450                 455                 460

Ser Ala Pro Val Ser Lys Thr Leu Ser Ser Ser Asp Thr Glu Leu Leu
465                 470                 475                 480

Val Leu Asn Gly Ser Asp Pro Val Ala Glu Val Ala Ile Arg Gln Leu
                485                 490                 495

Ser Glu Ser Ser Lys Leu Lys Leu Lys Ser Pro Arg Lys Lys Ser Thr
            500                 505                 510

Ile Ile Ile Ser Gly Ile Ser Lys Thr Ser Leu Ser Gln Asp His Asp
        515                 520                 525

Ala Ala Leu Met Gln Gly Tyr Thr Ala Ser Val Asp Ser Thr His Gln
    530                 535                 540

Glu Asp Ala Pro Ser His Pro Glu Arg Ala Ala Ala Ser Ala Pro Pro
545                 550                 555                 560
```

```
Glu Glu Ala Glu Ser Ala Gln Ala Ser Leu Ala Pro Lys Pro Gln Glu
                565                 570                 575

Asp Glu Leu Asp Ser Trp Asp Leu Glu Lys Glu Pro Gln Ala Ala Ala
            580                 585                 590

Trp Ser Ser Gln Val Leu Leu Asp Pro Asp Gly Asp Glu Leu Ser Glu
        595                 600                 605

Ser Ser Met Ser Val Leu Glu Pro Gly Thr Ala Lys Lys His Lys Gly
    610                 615                 620

Gly Ile Leu Arg Lys Gly Ala Lys Leu Phe Phe Arg Arg Arg His Gln
625                 630                 635                 640

Gln Lys Asp Pro Gly Met Ser Gln Ser His Asn Asp Leu Val Phe Leu
                645                 650                 655

Glu Gln Pro Glu Gly Ser Arg Arg Lys Gly Ile Thr Leu Thr Arg Ile
            660                 665                 670

Leu Asn Lys Lys Leu Leu Ser Arg His Arg Asn Lys Asn Thr Met Asn
        675                 680                 685

Gly Ala Pro Val Glu Pro Cys Thr
    690                 695
```

<210> 10229
<211> 182
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2047; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD2; "

<220>
<221> source
<223> /note="Gene Name: C2 calcium-dependent
domain containing 2; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000388704"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10229

```
Xaa Ser Thr Ile Ile Ile Ser Gly Ile Ser Lys Asp His Asp Ala Ala
1               5                  10                  15

Leu Met Gln Gly Tyr Thr Ala Ser Val Asp Ser Thr His Gln Glu Asp
            20                  25                  30

Ala Pro Ser His Pro Glu Arg Ala Ala Ala Ser Ala Pro Pro Glu Glu
        35                  40                  45

Ala Glu Ser Ala Gln Ala Ser Leu Ala Pro Lys Pro Gln Glu Asp Glu
    50                  55                  60

Leu Asp Ser Trp Asp Leu Glu Lys Glu Pro Gln Ala Ala Ala Trp Ser
65                  70                  75                  80

Ser Gln Val Leu Leu Asp Pro Asp Gly Asp Glu Leu Ser Glu Ser Ser
                85                  90                  95

Met Ser Val Leu Glu Pro Gly Thr Ala Lys Lys His Lys Gly Gly Ile
            100                 105                 110

Leu Arg Lys Gly Ala Lys Leu Phe Phe Arg Arg Arg His Gln Gln Lys
        115                 120                 125

Asp Pro Gly Met Ser Gln Ser His Asn Asp Leu Val Phe Leu Glu Gln
    130                 135                 140

Pro Glu Gly Ser Arg Arg Lys Gly Ile Thr Leu Thr Arg Ile Leu Asn
145                 150                 155                 160

Lys Lys Leu Leu Ser Arg His Arg Asn Lys Asn Thr Met Asn Gly Ala
                165                 170                 175

Pro Val Glu Pro Cys Thr
            180
```

<210> 10230
<211> 1963
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2048; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD3; "

<220>
<221> source
<223> /note="Gene Name: C2 calcium-dependent
domain containing 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q4AC94; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000323339"

<400> 10230
Met Lys Gln Arg Lys Gly Gln Gly Ser Gly Gly Ser Arg Gly Arg Lys
1   5   10   15

Lys Arg Gly Leu Ser Asp Ile Ser Pro Ser Thr Ser Leu Pro Pro Leu
            20   25   30

Val Glu Gly Gln Leu Arg Cys Phe Leu Lys Leu Thr Val Asn Arg Val
        35   40   45

Ile Trp Lys Ile Ala Lys Pro Pro Thr Cys Val Leu Val Arg Val Arg
    50   55   60

Trp Trp Gly Glu Thr Ser Asp Gly Thr Leu Phe Cys Pro Arg Asp Ala
65   70   75   80

Leu Gln Thr Glu Pro Lys Ala Val Arg Thr Thr Thr Arg Tyr Ala Ile
                85   90   95

Arg Cys Gly Pro Lys Gln Phe Thr Ser Tyr Leu Thr Asp Met Ala Val
            100   105   110

Leu Val Leu Glu Val Ile Thr Lys Leu Asp Gly Leu Pro Ile Gly Arg
        115   120   125

```
Val Gln Ile Asn Gly Leu Ala Gln Leu Ser Pro Thr His Gln Ile Asn
    130                 135                 140

Gly Phe Phe Thr Ile Val Ser Ser Thr Ser Lys Lys Leu Gly Glu Leu
145                 150                 155                 160

Gln Val Ser Leu Ala Leu Glu Pro Leu Ser Glu Thr Tyr Asp Ser Tyr
                165                 170                 175

His Pro Leu Pro Thr Thr Asp Met Thr Glu Asn Val Leu Leu Ser Lys
            180                 185                 190

Gln Gly Phe Arg Glu Asn Thr Glu Pro Ser Ser Thr Gln Phe Gln Val
        195                 200                 205

Pro Ser Arg Pro Arg Asp Ile His Thr Ile Lys Ile Asp Gly Lys Glu
    210                 215                 220

Leu Ala Ala Asn Ser Ser Arg Ser Thr Thr Pro Arg Gly Lys Asp His
225                 230                 235                 240

Val Cys Phe Ala Glu Asn Pro Asp Thr Ile Lys Asp Ser Ser Phe Gly
                245                 250                 255

Leu Gln His Ser Leu Asn Ser Gly Gln Ser Leu Glu Ser Val Thr Leu
            260                 265                 270

Lys Gly Arg Ala Pro Arg Lys Gln Met Ser Leu Leu Asn Ser Ser Glu
        275                 280                 285

Phe Gln Pro Gln Ile Arg Thr Val Ala Lys Ser His Ser Asp Ser Cys
    290                 295                 300

Ile Leu Ser Ser Asn Asn Leu Pro Thr Lys Asp Leu Leu Ser Ala Leu
305                 310                 315                 320

Leu Glu Gln Gly Asn Lys Leu Arg Asn Ala Met Val Ile Ser Ala Met
                325                 330                 335

Lys Ser Ser Pro Glu Thr Ser Met Leu Leu Asp Gln Val His Pro Pro
            340                 345                 350
```

```
Ile Asn Glu Asp Ser Leu Arg Ala Ser Thr Gln Ile Arg Ala Phe Ser
        355                 360                 365

Arg Asn Arg Phe Lys Asp His Ile Glu Asp His Leu Leu Pro Ser Thr
    370                 375                 380

Glu Asn Thr Phe Trp Arg His Asp Thr Lys Ala Asp Thr Arg Ala Ile
385                 390                 395                 400

Gln Leu Leu Leu Gly Ser Ala Glu Leu Ser Gln Gly Asn Phe Trp Asp
                405                 410                 415

Gly Leu Gly Ser Pro Pro Asp Ser Pro Ser Pro Gly Ser Asp Val Tyr
            420                 425                 430

Cys Ile Ser Glu Leu Asn Asp Pro Gln Tyr Asp Gln Ser Leu Leu Glu
        435                 440                 445

Asn Leu Phe Tyr Thr Ala Pro Lys Ser Asp Thr Ser Ile Ser Asp Phe
    450                 455                 460

Leu Ser Glu Glu Asp Asp Ile Val Pro Ser Lys Lys Ile Ser Gln Ser
465                 470                 475                 480

Thr Ala Leu Ala Arg Ser Ser Lys Val Leu Glu Ser Ser Asp His Lys
                485                 490                 495

Leu Lys Lys Arg Ser Ala Gly Lys Arg Asn Arg Asn Leu Val Glu Gln
            500                 505                 510

Gln Met Leu Ser Glu Thr Pro Glu Asp Ala Gln Thr Met Thr Leu Ser
        515                 520                 525

Val Asp Arg Leu Ala Leu Leu Gly Arg Thr His Ser Val Arg Ile Ile
    530                 535                 540

Ile Glu Thr Met Gly Val Pro Pro Asp Ser Pro Gln Met Thr Pro Gly
545                 550                 555                 560

Lys Lys Ser Tyr Ala Gly Pro Pro Pro Lys Val Thr Thr Ala Lys Lys
                565                 570                 575
```

Arg Thr Phe Phe Val Glu Tyr His Phe Pro Val Gly Phe Ser Glu Ser
580 585 590

Gly Leu Gly Lys Thr Ala Leu Ile Thr Glu Val Val Arg Leu Ala Ser
595 600 605

Ser Lys Ile Thr Asp Gly Lys Val Lys Phe Gln Gln Arg Phe Val Phe
610 615 620

Pro Val Gln Phe Gly Gly Pro Met Ile Glu His Trp Trp Asn Ser Asn
625 630 635 640

Leu Thr Phe Gln Ile Tyr Val Lys Lys Thr Pro Gln Lys Lys Pro Glu
645 650 655

Val Ile Gly Ser Val Ser Leu Ser Leu Arg Ala Val Ile Gln Ser Glu
660 665 670

Leu Leu Ser Phe Ser Asp Gln Leu Pro Val Gln Gln Glu Asn Gly Gln
675 680 685

Ser Pro Phe Gly Pro Leu Lys Val Thr Met Glu Leu Ile Thr Asp Asn
690 695 700

Lys Asp Phe Thr Gly Ile Asn Thr Lys Leu Ser Gly Asn Thr His Tyr
705 710 715 720

Thr Pro Leu Cys Ala Pro Thr Ser Pro Asn Lys Ala Leu Pro Glu Leu
725 730 735

Asn Gln Asp Met Thr Cys Thr Lys Asn Pro Gln Asn Leu Asn Gln Ile
740 745 750

His Glu Glu Thr Ala Lys Lys Ala Gln Asn Leu Val Leu Pro Asn Arg
755 760 765

Lys Ser Pro Ser Pro Val Ala Pro His Pro Ser Thr Phe Val Ala Thr
770 775 780

Pro Ala Ser His Asn Leu Val Asn Gln Thr Asn Gly Thr Thr Lys Glu
785 790 795 800

Ser Ala Leu Leu Leu His Val Leu Leu Met Val Pro Asp Gly Lys Asp

805 810 815

Phe Ile Ser Gly Glu Ser Glu Lys Gln Ser Pro Cys Asn Val Tyr Leu
820 825 830

Asn Cys Lys Leu Phe Ser Thr Glu Glu Val Thr Arg Ser Val Ile Ala
835 840 845

Trp Gly Thr Thr Gln Pro Val Phe Asn Phe Ser Gln Val Ile Pro Val
850 855 860

Ser Leu Ser Ser Lys Tyr Leu Glu Arg Leu Lys Asn Asn Val Met Val
865 870 875 880

Ile Glu Thr Trp Asn Lys Val Arg Ser Pro Gly Gln Asp Lys Leu Leu
885 890 895

Gly Leu Val Lys Leu Pro Leu His Gln Phe Tyr Met Ser Phe Lys Asp
900 905 910

Ala Lys Ile Ser Arg Leu Leu Leu Asp Ala Gln Tyr Pro Val Val Ala
915 920 925

Val Asp Ser Tyr Met Pro Val Ile Asp Val Phe Ser Gly His Gln Asn
930 935 940

Gly Ser Leu Arg Val Phe Leu Ala Met Gly Ser Ser Asn Gln Ile Met
945 950 955 960

Ala Leu Gln Arg Leu Lys Asn Glu Glu Gly Thr Leu Pro Pro Phe Ser
965 970 975

Pro Arg Pro Ala His Phe Leu Asp Gln Pro Thr Ala Ala Ser Val Ala
980 985 990

Met Ala Glu Asp Arg Gly Asn Gly Leu Met Glu His Cys Phe Glu
Ile
995 1000 1005

His Ile Glu Met Val Lys Gly Leu Ala Pro Leu Gln Ala Thr Val
1010 1015 1020

Trp Gly Glu Ala Asp Cys Tyr Val Gln Tyr Tyr Phe Pro Val Gln

1025 1030 1035

His Ser Gln Ser Ser Val Leu Lys Gly Pro Glu Phe Leu Glu Asn
1040 1045 1050

Gly Ile Thr Leu Lys Pro Phe Arg Thr Ala Thr Thr Leu Cys Val
1055 1060 1065

Pro Asp Pro Ile Phe Asn Ser Glu His His His Ser Leu Leu Leu
1070 1075 1080

Pro Ala Glu Val Pro Val Gln Arg Leu Leu Leu Ser Ala Phe Ser
1085 1090 1095

Ala Gln Gly Leu Val Pro Gly Gly Gly Val Gln Phe Glu Ile Trp
1100 1105 1110

Cys Arg Tyr Tyr Tyr Pro Asn Val Arg Asp Gln Lys Val Ala Lys
1115 1120 1125

Gly Thr Leu Pro Leu Ser Arg Ile Cys Ala Met Val Thr Thr Gln
1130 1135 1140

His Arg Glu Asp Val Gly Ile Gln Thr Phe Asn Leu Pro Leu Thr
1145 1150 1155

Pro Arg Ile Glu Asn Arg Lys Glu Leu Arg Asn Gln Ser Ser Gly
1160 1165 1170

Leu Leu Asp Val Gly Leu Arg Tyr Arg Arg Ser Pro Arg Thr Ala
1175 1180 1185

Glu Gly Val Leu Ala Ala Arg Thr Val Ser Ile Ser Val Gln Ile
1190 1195 1200

Ile Arg Ala Cys Gly Leu Gln Ala Ala Ala Lys Ala Leu Ala Glu
1205 1210 1215

Arg Glu Pro Ala Leu Gln Phe Ser Ala Thr Val Gly Val Asn Ala
1220 1225 1230

Ser Val Thr Thr His Leu Ser Phe Leu Pro Gln Gly Glu Gln Arg
1235 1240 1245

```
Arg Thr  His Pro Val Ala Cys  Ser Phe Cys Pro Glu  Phe Ser His
    1250                1255                1260

His Val  Glu Phe Thr Cys Asn  Leu Val Thr Gln His  Cys Ser Gly
    1265                1270                1275

Glu Ala  Cys Phe Leu Ala Glu  Leu Leu Glu Phe Ala  Glu Val Ile
    1280                1285                1290

Phe Ala  Val Tyr His Glu Asn  Thr Lys Ser Ala Ser  Asp Ile Ile
    1295                1300                1305

Ser Ile  Glu Ser Cys Lys Glu  Tyr Leu Leu Gly Val  Val Lys Val
    1310                1315                1320

Pro Thr  Lys Glu Leu Leu Ile  Lys Arg Ser Gly Ile  Thr Gly Trp
    1325                1330                1335

Tyr Pro  Ile Ile Leu Pro Glu  Asp Gly Gly Leu Pro  His Gly Leu
    1340                1345                1350

Glu Leu  Met Gln Lys Ile Val  Gly Gly Leu Glu Leu  Ser Ile Ser
    1355                1360                1365

Phe Thr  His Arg Gly Asp Arg  Glu Arg Val Leu Glu  Ala Ala Glu
    1370                1375                1380

His Leu  Gly Trp Ser Phe Glu  Asn Ser Leu Lys Asp  Phe Val Arg
    1385                1390                1395

Met Asp  Glu Gly Glu Pro Ala  Thr Val Thr Ile Ser  Thr Pro Arg
    1400                1405                1410

Leu Trp  Leu Pro Ile His Cys  Val Leu Leu Ala Gly  His Asn His
    1415                1420                1425

Ile His  Lys Asn Thr Tyr Cys  Tyr Leu Arg Tyr Lys  Phe Tyr Asp
    1430                1435                1440

His Glu  Ala Phe Trp Thr Pro  Leu Lys Lys Pro Lys  Glu Ser Val
    1445                1450                1455
```

```
Asn Lys  Lys Gln Ile Met Val  Thr Phe Lys Ala Ser  Lys Arg Ala
    1460                1465                1470

Glu Val  Thr Arg Gly Pro Ser  Leu Leu Trp Tyr Phe  Arg Glu Glu
    1475                1480                1485

Arg Leu  Glu Ile Gln Val Trp  Arg Ala Tyr Gly Asn  Asp Ser Val
    1490                1495                1500

Glu Arg  Pro His Gln Thr Asp  Ser Trp Ile Gly Ser  Ala Tyr Val
    1505                1510                1515

Asp Leu  Ala Arg Leu Gly Glu  Arg Ser Ala Arg Thr  Leu Thr Val
    1520                1525                1530

Ser Gly  Val Tyr Pro Leu Phe  Gly Arg Asn Ala Ser  Asn Leu Ser
    1535                1540                1545

Gly Ala  Ala Leu Arg Val His  Val Val Leu Ser Ser  Leu Ser Ser
    1550                1555                1560

His Leu  Glu Pro Thr His Glu  Leu Asp Ser Met Asp  Cys Ser Ser
    1565                1570                1575

His Ser  Glu Ser Glu Gln Leu  Pro Arg Arg Asn Asp  Glu Val Gln
    1580                1585                1590

Leu Ser  Pro Pro Glu Val Ile  Ser Cys His Gln Lys  Ser Pro Ala
    1595                1600                1605

Ser Thr  Gln Val Pro Cys Ser  Ser Thr Thr Ala Glu  Val Arg Leu
    1610                1615                1620

Thr Gln  Glu Gly Pro Ala Asp  Leu Asp Gly Thr Phe  Ala Val Ser
    1625                1630                1635

Ile Leu  Val Glu Arg Ala Met  His Leu Ser Leu Lys  Gly Ser Pro
    1640                1645                1650

Leu Thr  Glu Arg Lys Val Ser  Ile Pro Ser Cys Cys  Val Ser Phe
    1655                1660                1665
```

Ala Thr Ala Asp Glu Ser Ser Pro Val Tyr Thr Gln Val Val Glu
1670 1675 1680

Asn Thr Asp Ser Pro Ile Trp Asn Phe Gln Gln Gln Ser Arg Leu
1685 1690 1695

Ser Lys Glu Leu Leu Leu Asp Pro Gln Gln Thr Leu Val Phe Lys
1700 1705 1710

Val Trp His Lys Gly Asp Glu Glu Arg Val Ile Gly Phe Ala Ser
1715 1720 1725

Val Asp Leu Ser Pro Leu Leu Ser Gly Phe Gln Phe Val Cys Gly
1730 1735 1740

Trp Tyr Asn Ile Thr Asp Phe Ser Gly Glu Cys Gln Gly Gln Ile
1745 1750 1755

Lys Val Ala Val Ser Pro Leu Glu Ser Leu Ile His Phe Lys Glu
1760 1765 1770

Glu Arg Gln Ala Arg Arg Gly Val Glu Thr Ser Lys Ser Leu Ile
1775 1780 1785

Pro Ile Tyr Ser Pro Phe Ser Phe Pro Ala Ser Asp Thr Tyr Ala
1790 1795 1800

Ala Phe Ser Ser His Met Ala Arg Gln Thr Leu Asp Gln Leu Ala
1805 1810 1815

His Ala Ser Ser Lys Glu Leu Asp Phe Ser Ser Pro Gly Arg Ser
1820 1825 1830

Asp Thr Thr Arg Ser Gln Ala Ser Arg His Glu Glu His Val Gln
1835 1840 1845

Asn Ile Arg Arg Phe His Glu Ser Leu His Leu Gln Gly Glu Ala
1850 1855 1860

Pro Leu Pro Cys Asp Asp Lys Leu Thr Thr Ser Pro Leu Ser Ser
1865 1870 1875

Gln Thr Ser Ile Leu Thr Ser Leu Arg Lys Asn Leu Ser Glu Leu

```
    1880                1885                1890

Asp Gln  Ile Gln Arg Tyr Phe  Arg Gln Lys Leu Thr  Lys Pro Phe
    1895                1900                1905

Leu Pro  Leu Ser Pro Gln Thr  Gln Thr Ala Ile Ser  Gln His Gln
    1910                1915                1920

Glu Ser  Cys Arg Asp His Leu  Gly Pro Gly Ala Ser  Ser Leu Asp
    1925                1930                1935

Pro Gly  Ser Gln Cys Ile Leu  Glu Lys Ser Ser Asn  Leu Val Leu
    1940                1945                1950

Gln Val  Ser Ser Leu Ile Thr  Gly Ser Tyr
    1955                1960


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Lys Arg Gly Leu Ser Asp Ile Ser Pro Ser Thr Ser Leu Pro Pro Leu
            20                  25                  30
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Val Glu Gly Gln Leu Arg Cys Phe Leu Lys Leu Thr Val Asn Arg Val
        35                  40                  45

Ile Trp Lys Ile Ala Lys Pro Pro Thr Cys Val Leu Val Arg Val Arg
    50                  55                  60

Trp Trp Gly Glu Thr Ser Asp Gly Thr Leu Phe Cys Pro Arg Asp Ala
65                  70                  75                  80

Leu Gln Thr Glu Pro Lys Ala Val Arg Thr Thr Thr Arg Tyr Ala Ile
                85                  90                  95

Arg Cys Gly Pro Lys Gln Phe Thr Ser Tyr Leu Thr Asp Met Ala Val
            100                 105                 110

Leu Val Leu Glu Val Ile Thr Lys Leu Asp Gly Leu Pro Ile Gly Arg
        115                 120                 125

Val Gln Ile Asn Gly Leu Ala Gln Leu Ser Pro Thr His Gln Ile Asn
    130                 135                 140

Gly Phe Phe Thr Ile Val Ser Ser Thr Ser Lys Lys Leu Gly Glu Leu
145                 150                 155                 160

Gln Val Ser Leu Ala Leu Glu Pro Leu Ser Glu Thr Tyr Asp Ser Tyr
                165                 170                 175

His Pro Leu Pro Thr Thr Asp Met Thr Glu Asn Val Leu Leu Ser Lys
            180                 185                 190

Gln Gly Phe Arg Glu Asn Thr Glu Pro Ser Ser Thr Gln Phe Gln Val
        195                 200                 205

Pro Ser Arg Pro Arg Asp Ile His Thr Ile Lys Ile Asp Gly Lys Glu
    210                 215                 220

Leu Ala Ala Asn Ser Ser Arg Ser Thr Thr Pro Arg Gly Lys Asp His
225                 230                 235                 240

Val Cys Phe Ala Glu Asn Pro Asp Thr Ile Lys Asp Ser Ser Phe Gly
                245                 250                 255
```

```
Leu Gln His Ser Leu Asn Ser Gly Gln Ser Leu Glu Ser Val Thr Leu
            260                 265                 270

Lys Gly Arg Ala Pro Arg Lys Gln Met Ser Leu Leu Asn Ser Ser Glu
        275                 280                 285

Phe Gln Pro Gln Ile Arg Thr Val Ala Lys Ser His Ser Asp Ser Cys
    290                 295                 300

Ile Leu Ser Ser Asn Asn Leu Pro Thr Lys Asp Leu Leu Ser Ala Leu
305                 310                 315                 320

Leu Glu Gln Gly Asn Lys Leu Arg Asn Ala Met Val Ile Ser Ala Met
                325                 330                 335

Lys Ser Ser Pro Glu Thr Ser Met Leu Leu Asp Gln Val His Pro Pro
            340                 345                 350

Ile Asn Glu Asp Ser Leu Arg Ala Ser Thr Gln Ile Arg Ala Phe Ser
        355                 360                 365

Arg Asn Arg Phe Lys Asp His Ile Glu Asp His Leu Leu Pro Ser Thr
    370                 375                 380

Glu Asn Thr Phe Trp Arg His Asp Thr Lys Ala Asp Thr Arg Ala Ile
385                 390                 395                 400

Gln Leu Leu Leu Gly Ser Ala Glu Leu Ser Gln Gly Asn Phe Trp Asp
                405                 410                 415

Gly Leu Gly Ser Pro Pro Asp Ser Pro Ser Pro Gly Ser Asp Val Tyr
            420                 425                 430

Cys Ile Ser Glu Leu Asn Asp Pro Gln Tyr Asp Gln Ser Leu Leu Glu
        435                 440                 445

Asn Leu Phe Tyr Thr Ala Pro Lys Ser Asp Thr Ser Ile Ser Asp Phe
    450                 455                 460

Leu Ser Glu Glu Asp Asp Ile Val Pro Ser Lys Lys Ile Ser Gln Ser
465                 470                 475                 480

Thr Ala Leu Ala Arg Ser Ser Lys Val Leu Glu Ser Ser Asp His Lys
```

485 490 495

Leu Lys Lys Arg Ser Ala Gly Lys Arg Asn Arg Asn Leu Val Glu Gln
500 505 510

Gln Met Leu Ser Glu Thr Pro Glu Asp Ala Gln Thr Met Thr Leu Ser
515 520 525

Val Asp Arg Leu Ala Leu Leu Gly Arg Thr His Ser Val Arg Ile Ile
530 535 540

Ile Glu Thr Met Gly Val Pro Pro Asp Ser Pro Gln Met Thr Pro Gly
545 550 555 560

Lys Lys Ser Tyr Ala Gly Pro Pro Pro Lys Val Thr Thr Ala Lys Lys
565 570 575

Arg Thr Phe Phe Val Glu Tyr His Phe Pro Val Gly Phe Ser Glu Ser
580 585 590

Gly Leu Gly Lys Thr Ala Leu Ile Thr Glu Val Val Arg Leu Ala Ser
595 600 605

Ser Lys Ile Thr Asp Gly Lys Val Lys Phe Gln Gln Arg Phe Val Phe
610 615 620

Pro Val Gln Phe Gly Gly Pro Met Ile Glu His Trp Trp Asn Ser Asn
625 630 635 640

Leu Thr Phe Gln Ile Tyr Val Lys Lys Thr Pro Gln Lys Lys Pro Glu
645 650 655

Val Ile Gly Ser Val Ser Leu Ser Leu Arg Ala Val Ile Gln Ser Glu
660 665 670

Leu Leu Ser Phe Ser Asp Gln Leu Pro Val Gln Gln Glu Asn Gly Gln
675 680 685

Ser Pro Phe Gly Pro Leu Lys Val Thr Met Glu Leu Ile Thr Asp Asn
690 695 700

Lys Asp Phe Thr Gly Ile Asn Thr Lys Leu Ser Gly Asn Thr His Tyr
705 710 715 720

Thr Pro Leu Cys Ala Pro Thr Ser Pro Asn Lys Ala Leu Pro Glu Leu
725 730 735

Asn Gln Asp Met Thr Cys Thr Lys Asn Pro Gln Asn Leu Asn Gln Ile
740 745 750

His Glu Glu Thr Ala Lys Lys Ala Gln Asn Leu Val Leu Pro Asn Arg
755 760 765

Lys Ser Pro Ser Pro Val Ala Pro His Pro Ser Thr Phe Val Ala Thr
770 775 780

Pro Ala Ser His Asn Leu Val Asn Gln Thr Asn Gly Thr Thr Lys Glu
785 790 795 800

Ser Ala Leu Leu Leu His Val Leu Leu Met Val Pro Asp Gly Lys Asp
805 810 815

Phe Ile Ser Gly Glu Ser Glu Lys Gln Ser Pro Cys Asn Val Tyr Leu
820 825 830

Asn Cys Lys Leu Phe Ser Thr Glu Glu Val Thr Arg Ser Val Ile Ala
835 840 845

Trp Gly Thr Thr Gln Pro Val Phe Asn Phe Ser Gln Val Ile Pro Val
850 855 860

Ser Leu Ser Ser Lys Tyr Leu Glu Arg Leu Lys Asn Asn Val Met Val
865 870 875 880

Ile Glu Thr Trp Asn Lys Val Arg Ser Pro Gly Gln Asp Lys Leu Leu
885 890 895

Gly Leu Val Lys Leu Pro Leu His Gln Phe Tyr Met Ser Phe Lys Asp
900 905 910

Ala Lys Ile Ser Arg Leu Leu Leu Asp Ala Gln Tyr Pro Val Val Ala
915 920 925

Val Asp Ser Tyr Met Pro Val Ile Asp Val Phe Ser Gly His Gln Asn
930 935 940

```
Gly Ser Leu Arg Val Phe Leu Ala Met Gly Ser Ser Asn Gln Ile Met
945                 950                 955                 960

Ala Leu Gln Arg Leu Lys Asn Glu Glu Gly Thr Leu Pro Pro Phe Ser
                965                 970                 975

Pro Arg Pro Ala His Phe Leu Asp Gln Pro Thr Ala Ala Ser Val Ala
            980                 985                 990

Met Ala Glu Asp Arg Gly Asn Gly  Leu Met Glu His Cys  Phe Glu
Ile
        995                 1000                1005

His Ile  Glu Met Val Lys Gly  Leu Ala Pro Leu Gln  Ala Thr Val
    1010                1015                1020

Trp Gly  Glu Ala Asp Cys Tyr  Val Gln Tyr Tyr Phe  Pro Val Gln
    1025                1030                1035

His Ser  Gln Ser Ser Val Leu  Lys Gly Pro Glu Phe  Leu Glu Asn
    1040                1045                1050

Gly Ile  Thr Leu Lys Pro Phe  Arg Thr Ala Thr Thr  Leu Cys Val
    1055                1060                1065

Pro Asp  Pro Ile Phe Asn Ser  Glu His His His Ser  Leu Leu Leu
    1070                1075                1080

Pro Ala  Glu Val Pro Val Gln  Arg Leu Leu Leu Ser  Ala Phe Ser
    1085                1090                1095

Ala Gln  Gly Leu Val Pro Gly  Gly Gly Val Gln Phe  Glu Ile Trp
    1100                1105                1110

Cys Arg  Tyr Tyr Tyr Pro Asn  Val Arg Asp Gln Lys  Val Ala Lys
    1115                1120                1125

Gly Thr  Leu Pro Leu Ser Arg  Ile Cys Ala Met Val  Thr Thr Gln
    1130                1135                1140

His Arg  Glu Asp Val Gly Ile  Gln Thr Phe Asn Leu  Pro Leu Thr
    1145                1150                1155
```

```
Pro Arg  Ile Glu Asn Arg Lys  Glu Leu Arg Asn Gln  Ser Ser Gly
    1160                1165                1170

Leu Leu  Asp Val Gly Leu Arg  Tyr Arg Arg Ser Pro  Arg Thr Ala
    1175                1180                1185

Glu Gly  Val Leu Ala Ala Arg  Thr Val Ser Ile Ser  Val Gln Ile
    1190                1195                1200

Ile Arg  Ala Cys Gly Leu Gln  Ala Ala Ala Lys Ala  Leu Ala Glu
    1205                1210                1215

Arg Glu  Pro Ala Leu Gln Phe  Ser Ala Thr Val Gly  Val Asn Ala
    1220                1225                1230

Ser Val  Thr Thr His Leu Ser  Phe Leu Pro Gln Gly  Glu Gln Arg
    1235                1240                1245

Arg Thr  His Pro Val Ala Cys  Ser Phe Cys Pro Glu  Phe Ser His
    1250                1255                1260

His Val  Glu Phe Thr Cys Asn  Leu Val Thr Gln His  Cys Ser Gly
    1265                1270                1275

Glu Ala  Cys Phe Leu Ala Glu  Leu Leu Glu Phe Ala  Glu Val Ile
    1280                1285                1290

Phe Ala  Val Tyr His Glu Asn  Thr Lys Ser Ala Ser  Asp Ile Ile
    1295                1300                1305

Ser Ile  Glu Ser Cys Lys Glu  Tyr Leu Leu Gly Val  Val Lys Val
    1310                1315                1320

Pro Thr  Lys Glu Leu Leu Ile  Lys Arg Ser Gly Ile  Thr Gly Trp
    1325                1330                1335

Tyr Pro  Ile Ile Leu Pro Glu  Asp Gly Gly Leu Pro  His Gly Leu
    1340                1345                1350

Glu Leu  Met Gln Lys Ile Val  Gly Gly Leu Glu Leu  Ser Ile Ser
    1355                1360                1365
```

```
Phe Thr  His Arg Gly Asp Arg  Glu Arg Val Leu Glu  Ala Ala Glu
    1370                1375                1380

His Leu  Gly Trp Ser Phe Glu  Asn Ser Leu Lys Asp  Phe Val Arg
    1385                1390                1395

Met Asp  Glu Gly Glu Pro Ala  Thr Val Thr Ile Ser  Thr Pro Arg
    1400                1405                1410

Leu Trp  Leu Pro Ile His Cys  Val Leu Leu Ala Gly  His Asn His
    1415                1420                1425

Ile His  Lys Asn Thr Tyr Cys  Tyr Leu Arg Tyr Lys  Phe Tyr Asp
    1430                1435                1440

His Glu  Ala Phe Trp Thr Pro  Leu Lys Lys Pro Lys  Glu Ser Val
    1445                1450                1455

Asn Lys  Lys Gln Ile Met Val  Thr Phe Lys Ala Ser  Lys Arg Ala
    1460                1465                1470

Glu Val  Thr Arg Gly Pro Ser  Leu Leu Trp Tyr Phe  Arg Glu Glu
    1475                1480                1485

Arg Leu  Glu Ile Gln Val Trp  Arg Ala Tyr Gly Asn  Asp Ser Val
    1490                1495                1500

Glu Arg  Pro His Gln Thr Asp  Ser Trp Ile Gly Ser  Ala Tyr Val
    1505                1510                1515

Asp Leu  Ala Arg Leu Gly Glu  Arg Ser Ala Arg Thr  Leu Thr Val
    1520                1525                1530

Ser Gly  Val Tyr Pro Leu Phe  Gly Arg Asn Ala Ser  Asn Leu Ser
    1535                1540                1545

Gly Ala  Ala Leu Arg Val His  Val Val Leu Ser Ser  Leu Ser Ser
    1550                1555                1560

His Leu  Glu Pro Thr His Glu  Leu Asp Ser Met Asp  Cys Ser Ser
    1565                1570                1575

His Ser  Glu Ser Glu Gln Leu  Pro Arg Arg Asn Asp  Glu Val Gln
```

1580 1585 1590

Leu Ser Pro Pro Glu Val Ile Ser Cys His Gln Lys Ser Pro Ala
1595 1600 1605

Ser Thr Gln Val Pro Cys Ser Ser Thr Thr Ala Glu Val Arg Leu
1610 1615 1620

Thr Gln Glu Gly Pro Ala Asp Leu Asp Gly Thr Phe Ala Val Ser
1625 1630 1635

Ile Leu Val Glu Arg Ala Met His Leu Ser Leu Lys Gly Ser Pro
1640 1645 1650

Leu Thr Glu Arg Lys Val Ser Ile Pro Ser Cys Cys Val Ser Phe
1655 1660 1665

Ala Thr Ala Asp Glu Ser Ser Pro Val Tyr Thr Gln Val Val Glu
1670 1675 1680

Asn Thr Asp Ser Pro Ile Trp Asn Phe Gln Gln Gln Ser Arg Leu
1685 1690 1695

Ser Lys Glu Leu Leu Leu Asp Pro Gln Gln Thr Leu Val Phe Lys
1700 1705 1710

Val Trp His Lys Gly Asp Glu Glu Arg Val Ile Gly Phe Ala Ser
1715 1720 1725

Val Asp Leu Ser Pro Leu Leu Ser Gly Phe Gln Phe Val Cys Gly
1730 1735 1740

Trp Tyr Asn Ile Thr Asp Phe Ser Gly Glu Cys Gln Gly Gln Ile
1745 1750 1755

Lys Val Ala Val Ser Pro Leu Glu Ser Leu Ile His Phe Lys Glu
1760 1765 1770

Glu Arg Gln Ala Arg Arg Gly Val Glu Thr Ser Lys Ser Leu Ile
1775 1780 1785

Pro Ile Tyr Ser Pro Phe Ser Phe Pro Ala Ser Asp Thr Tyr Ala
1790 1795 1800

```
Ala Phe  Ser Ser His Met Ala  Arg Gln Thr Leu Asp  Gln Leu Ala
    1805                1810                1815

His Ala  Ser Ser Lys Glu Leu  Asp Phe Ser Ser Pro  Gly Arg Ser
    1820                1825                1830

Asp Thr  Thr Arg Ser Gln Ala  Ser Arg His Glu Glu  His Val Gln
    1835                1840                1845

Asn Ile  Arg Arg Phe His Glu  Ser Leu His Leu Gln  Gly Glu Ala
    1850                1855                1860

Pro Leu  Pro Cys Asp Asp Lys  Leu Thr Thr Ser Pro  Leu Ser Ser
    1865                1870                1875

Gln Thr  Ser Ile Leu Thr Ser  Leu Arg Lys Asn Leu  Ser Glu Leu
    1880                1885                1890

Asp Gln  Ile Gln Arg Tyr Phe  Arg Gln Lys Leu Thr  Lys Pro Phe
    1895                1900                1905

Leu Pro  Leu Ser Pro Gln Thr  Gln Thr Ala Ile Ser  Gln His Gln
    1910                1915                1920

Glu Ser  Cys Arg Asp His Leu  Gly Pro Gly Ala Ser  Ser Leu Asp
    1925                1930                1935

Pro Gly  Ser Gln Cys Ile Leu  Glu Lys Ser Ser Asn  Leu Val Leu
    1940                1945                1950

Gln Val  Ser Ser Leu Ile Thr  Asp Leu Gln Thr Ile  Thr Arg Asp
    1955                1960                1965

Ser Gln  Ala Ala Leu Ser Ser  His Arg Ala Arg Ser  Arg Ser Asn
    1970                1975                1980

Lys Ala  Thr Thr Leu Pro Asp  Ala Gln Asp Thr Glu  Ala Leu Gln
    1985                1990                1995

Glu Arg  Cys Thr Met Pro Asp  Glu Pro Leu Val Arg  Ala Pro Asp
    2000                2005                2010
```

Lys Gly Thr Asp Ser Pro Ser Pro Pro Pro Leu Glu Glu Thr Ser
2015 2020 2025

Asn Gly Gly Arg Met Leu His Glu Ser Leu Arg His Ala Val Pro
2030 2035 2040

Ile Thr Arg Met Gln Ser Ser Glu Asp Thr Glu Ala Gly Pro Ala
2045 2050 2055

Tyr Ser Asp Glu Asp Tyr Glu Glu Asp Ile Ile Glu Pro Arg Thr
2060 2065 2070

Leu Asn Glu Ile Thr Thr Val Thr Asp Lys Thr Ser Pro Trp Ser
2075 2080 2085

Ser Val Ile Ser Asp Thr Ser Glu Val Ile Ser Pro Gln Pro Asp
2090 2095 2100

Glu Val Gln Arg Glu Gly Pro Ser Cys Pro Ser Pro Gly Pro Phe
2105 2110 2115

Cys Arg Glu Glu Leu Met Val Lys Ser Ser Phe Leu Ser Ser Pro
2120 2125 2130

Glu Arg Ala Val Asn Pro His Leu Pro Arg Gln Gly Ser Pro Ser
2135 2140 2145

Gln Ser Leu Val Ala Cys Glu Cys Glu Ala Ser Lys Ala Arg Val
2150 2155 2160

Gly Gly Glu Ser Ala Ser Ala Asn Pro Gln Pro Ile Pro Cys Pro
2165 2170 2175

Thr Leu Ser Gly Ala Gln Gln Ser Ser Thr Phe Val Gly Trp Ser
2180 2185 2190

Ser Pro Gln Thr Asp Gln Asn Lys Glu Pro Lys Ser Glu Ala Pro
2195 2200 2205

Ala Glu Asn Glu Ala Ala Thr Ser Glu Leu Gly Asp Ser Ala Asp
2210 2215 2220

```
Ser Phe  Lys Lys Leu Pro Leu  Asn Leu Ala Ser Gln  Ser Arg Arg
    2225                2230                2235

Glu Asn  His Lys Gly Pro Pro  Ile Asp Ser Ser Asp  Ile Arg Gln
    2240                2245                2250

Arg Gln  Val Thr Thr Gly Ser  Glu Thr Ser Thr Lys  Gln Ser Leu
    2255                2260                2265

Leu Leu  Pro Gly Pro Ile Val  Val Pro Asn Phe Phe  Leu Pro Pro
    2270                2275                2280

Gln Gln  Leu Glu Ala Ser Leu  Arg Met Leu Ser Leu  Ser Ala Thr
    2285                2290                2295

Leu Pro  Pro Ala Ala Thr Thr  Asp Gln Asp Lys Ser  Glu Ala Thr
    2300                2305                2310

Arg Gly  Ala Leu Ser Gln Arg  Pro Cys Arg Pro Arg  Pro Asn Ser
    2315                2320                2325

Leu Pro  Leu Asn Leu Pro Glu  Glu Glu Thr Leu Arg  Ile Ala Arg
    2330                2335                2340

Ile Phe  Ser Ser Gln Tyr Ser  Gln Lys Asp
    2345                2350


<210> 10232
<211> 776
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2048; "

<220>
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<220>
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      domain containing 3; "

<220>
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<400> 10232
Ala Ala Arg Thr Val Ser Ile Ser Val Gln Ile Ile Arg Ala Cys Gly
1 5 10 15

Leu Gln Ala Ala Ala Lys Ala Leu Ala Glu Arg Glu Pro Ala Leu Gln
20 25 30

Phe Ser Ala Thr Val Gly Val Asn Ala Ser Val Thr Thr His Leu Ser
35 40 45

Phe Leu Pro Gln Gly Glu Gln Arg Arg Thr His Pro Val Ala Cys Ser
50 55 60

Phe Cys Pro Glu Phe Ser His His Val Glu Phe Thr Cys Asn Leu Val
65 70 75 80

Thr Gln His Cys Ser Gly Glu Ala Cys Phe Leu Ala Glu Leu Leu Glu
85 90 95

Phe Ala Glu Val Ile Phe Ala Val Tyr His Glu Asn Thr Lys Ser Ala
100 105 110

Ser Asp Ile Ile Ser Ile Glu Ser Cys Lys Glu Tyr Leu Leu Gly Val
115 120 125

Val Lys Val Pro Thr Lys Glu Leu Leu Ile Lys Arg Ser Gly Ile Thr
130 135 140

Gly Trp Tyr Pro Ile Ile Leu Pro Glu Asp Gly Gly Leu Pro His Gly
145 150 155 160

Leu Glu Leu Met Gln Lys Ile Val Gly Gly Leu Glu Leu Ser Ile Ser
165 170 175

Phe Thr His Arg Gly Asp Arg Glu Arg Val Leu Glu Ala Ala Glu His
180 185 190

Leu Gly Trp Ser Phe Glu Asn Ser Leu Lys Asp Phe Val Arg Met Asp
195 200 205

Glu Gly Glu Pro Ala Thr Val Thr Ile Ser Thr Pro Arg Leu Trp Leu
210 215 220

```
Pro Ile His Cys Val Leu Leu Ala Gly His Asn His Ile His Lys Asn
225                 230                 235                 240

Thr Tyr Cys Tyr Leu Arg Tyr Lys Phe Tyr Asp His Glu Ala Phe Trp
                245                 250                 255

Thr Pro Leu Lys Lys Pro Lys Glu Ser Val Asn Lys Lys Gln Ile Met
            260                 265                 270

Val Thr Phe Lys Ala Ser Lys Arg Ala Glu Val Thr Arg Gly Pro Ser
        275                 280                 285

Leu Leu Trp Tyr Phe Arg Glu Glu Arg Leu Glu Ile Gln Val Trp Arg
    290                 295                 300

Ala Tyr Gly Asn Asp Ser Val Glu Arg Pro His Gln Thr Asp Ser Trp
305                 310                 315                 320

Ile Gly Ser Ala Tyr Val Asp Leu Ala Arg Leu Gly Glu Arg Ser Ala
                325                 330                 335

Arg Thr Leu Thr Val Ser Gly Val Tyr Pro Leu Phe Gly Arg Asn Ala
            340                 345                 350

Ser Asn Leu Ser Gly Ala Ala Leu Arg Val His Val Val Leu Ser Ser
        355                 360                 365

Leu Ser Ser His Leu Glu Pro Thr His Glu Leu Asp Ser Met Asp Cys
    370                 375                 380

Ser Ser His Ser Glu Ser Glu Gln Leu Pro Arg Arg Asn Asp Glu Val
385                 390                 395                 400

Gln Leu Ser Pro Pro Glu Val Ile Ser Cys His Gln Lys Ser Pro Ala
                405                 410                 415

Ser Thr Gln Val Pro Cys Ser Ser Thr Thr Ala Glu Val Arg Leu Thr
            420                 425                 430

Gln Glu Gly Pro Ala Asp Leu Asp Gly Thr Phe Ala Val Ser Ile Leu
        435                 440                 445
```

```
Val Glu Arg Ala Met His Leu Ser Leu Lys Gly Ser Pro Leu Thr Glu
    450                 455                 460

Arg Lys Val Ser Ile Pro Ser Cys Cys Val Ser Phe Ala Thr Ala Asp
465                 470                 475                 480

Glu Ser Ser Pro Val Tyr Thr Gln Val Val Glu Asn Thr Asp Ser Pro
                485                 490                 495

Ile Trp Asn Phe Gln Gln Gln Ser Arg Leu Ser Lys Glu Leu Leu Leu
            500                 505                 510

Asp Pro Gln Gln Thr Leu Val Phe Lys Val Trp His Lys Gly Asp Glu
        515                 520                 525

Glu Arg Val Ile Gly Phe Ala Ser Val Asp Leu Ser Pro Leu Leu Ser
    530                 535                 540

Gly Phe Gln Phe Val Cys Gly Trp Tyr Asn Ile Thr Asp Phe Ser Gly
545                 550                 555                 560

Glu Cys Gln Gly Gln Ile Lys Val Ala Val Ser Pro Leu Glu Ser Leu
                565                 570                 575

Ile His Phe Lys Glu Glu Arg Gln Ala Arg Arg Gly Val Glu Thr Ser
            580                 585                 590

Lys Ser Leu Ile Pro Ile Tyr Ser Pro Phe Ser Phe Pro Ala Ser Asp
        595                 600                 605

Thr Tyr Ala Ala Phe Ser Ser His Met Ala Arg Gln Thr Leu Asp Gln
    610                 615                 620

Leu Ala His Ala Ser Ser Lys Glu Leu Asp Phe Ser Ser Pro Gly Arg
625                 630                 635                 640

Ser Asp Thr Thr Arg Ser Gln Ala Ser Arg His Glu Glu His Val Gln
                645                 650                 655

Asn Ile Arg Arg Phe His Glu Ser Leu His Leu Gln Gly Glu Ala Pro
            660                 665                 670

Leu Pro Cys Asp Asp Lys Leu Thr Thr Ser Pro Leu Ser Ser Gln Thr
```

675 680 685

Ser Ile Leu Thr Ser Leu Arg Lys Asn Leu Ser Glu Leu Asp Gln Ile
690 695 700

Gln Arg Tyr Phe Arg Gln Lys Leu Thr Lys Pro Phe Leu Pro Leu Ser
705 710 715 720

Pro Gln Thr Gln Thr Ala Ile Ser Gln His Gln Glu Ser Cys Arg Asp
725 730 735

His Leu Gly Pro Gly Ala Ser Ser Leu Asp Pro Gly Ser Gln Cys Ile
740 745 750

Leu Glu Lys Ser Ser Asn Leu Val Leu Gln Val Ser Ser Leu Ile Thr
755 760 765

Gly Leu Pro Ala Pro Asn Asp Ser
770 775

<210> 10233
<211> 677
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2048; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD3; "

<220>
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<223> /note="Gene Name: C2 calcium-dependent
domain containing 3; "

<220>
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<223> /note="ENSP ID: ENSP00000404577"

<400> 10233
Gly Glu Gln Arg Arg Thr His Pro Val Ala Cys Ser Phe Cys Pro Glu
1 5 10 15

Phe Ser His His Val Glu Phe Thr Cys Asn Leu Val Thr Gln His Cys
20 25 30

```
Ser Gly Glu Ala Cys Phe Leu Ala Glu Leu Leu Glu Phe Ala Glu Val
        35                  40                  45

Ile Phe Ala Val Tyr His Glu Asn Thr Lys Ser Ala Ser Asp Ile Ile
    50                  55                  60

Ser Ile Glu Ser Cys Lys Glu Tyr Leu Leu Gly Val Val Lys Val Pro
65                  70                  75                  80

Thr Lys Glu Leu Leu Ile Lys Arg Ser Gly Ile Thr Gly Trp Tyr Pro
                85                  90                  95

Ile Ile Leu Pro Glu Asp Gly Gly Leu Pro His Gly Leu Glu Leu Met
            100                 105                 110

Gln Lys Ile Val Gly Gly Leu Glu Leu Ser Ile Ser Phe Thr His Arg
        115                 120                 125

Gly Asp Arg Glu Arg Val Leu Glu Ala Ala Glu His Leu Gly Trp Ser
    130                 135                 140

Phe Glu Asn Ser Leu Lys Asp Phe Val Arg Met Asp Glu Gly Glu Pro
145                 150                 155                 160

Ala Thr Val Thr Ile Ser Thr Pro Arg Leu Trp Leu Pro Ile His Cys
                165                 170                 175

Val Leu Leu Ala Gly His Asn His Ile His Lys Asn Thr Tyr Cys Tyr
            180                 185                 190

Leu Arg Tyr Lys Phe Tyr Asp His Glu Ala Phe Trp Thr Pro Leu Lys
        195                 200                 205

Lys Pro Lys Glu Ser Val Asn Lys Lys Gln Ile Met Val Thr Phe Lys
    210                 215                 220

Ala Ser Lys Arg Ala Glu Val Thr Arg Gly Pro Ser Leu Leu Trp Tyr
225                 230                 235                 240

Phe Arg Glu Glu Arg Leu Glu Ile Gln Val Trp Arg Ala Tyr Gly Asn
                245                 250                 255
```

```
Asp Ser Val Glu Arg Pro His Gln Thr Asp Ser Trp Ile Gly Ser Ala
            260                 265                 270

Tyr Val Asp Leu Ala Arg Leu Gly Glu Arg Ser Ala Arg Thr Leu Thr
        275                 280                 285

Val Ser Gly Val Tyr Pro Leu Phe Gly Arg Asn Ala Ser Asn Leu Ser
    290                 295                 300

Gly Ala Ala Leu Arg Val His Val Val Leu Ser Ser Leu Ser Ser His
305                 310                 315                 320

Leu Glu Pro Thr His Glu Leu Asp Ser Met Asp Cys Ser Ser His Ser
                325                 330                 335

Glu Ser Glu Gln Leu Pro Arg Arg Asn Asp Glu Val Gln Leu Ser Pro
            340                 345                 350

Pro Glu Val Ile Ser Cys His Gln Lys Ser Pro Ala Ser Thr Gln Val
        355                 360                 365

Pro Cys Ser Ser Thr Thr Ala Glu Val Arg Leu Thr Gln Glu Gly Pro
    370                 375                 380

Ala Asp Leu Asp Gly Thr Phe Ala Val Ser Ile Leu Val Glu Arg Ala
385                 390                 395                 400

Met His Leu Ser Leu Lys Gly Ser Pro Leu Thr Glu Arg Lys Val Ser
                405                 410                 415

Ile Pro Ser Cys Cys Val Ser Phe Ala Thr Ala Asp Glu Ser Ser Pro
            420                 425                 430

Val Tyr Thr Gln Val Val Glu Asn Thr Asp Ser Pro Ile Trp Asn Phe
        435                 440                 445

Gln Gln Gln Ser Arg Leu Ser Lys Glu Leu Leu Leu Asp Pro Gln Gln
    450                 455                 460

Thr Leu Val Phe Lys Val Trp His Lys Gly Asp Glu Glu Arg Val Ile
465                 470                 475                 480

Gly Phe Ala Ser Val Asp Leu Ser Pro Leu Leu Ser Gly Phe Gln Phe
```

485 490 495

Val Cys Gly Trp Tyr Asn Ile Thr Asp Phe Ser Gly Glu Cys Gln Gly
500 505 510

Gln Ile Lys Val Ala Val Ser Pro Leu Glu Ser Leu Ile His Phe Lys
515 520 525

Glu Glu Arg Gln Ala Arg Arg Gly Val Glu Thr Ser Lys Ser Leu Ile
530 535 540

Pro Ile Tyr Ser Pro Phe Ser Phe Pro Ala Ser Asp Thr Tyr Ala Ala
545 550 555 560

Phe Ser Ser His Met Ala Arg Gln Thr Leu Asp Gln Leu Ala His Ala
565 570 575

Ser Ser Lys Glu Leu Asp Phe Ser Ser Pro Gly Arg Ser Asp Thr Thr
580 585 590

Arg Ser Gln Ala Ser Arg His Glu Glu His Val Gln Asn Ile Arg Arg
595 600 605

Phe His Glu Ser Leu His Leu Gln Gly Glu Ala Pro Leu Pro Cys Asp
610 615 620

Asp Lys Leu Thr Thr Ser Pro Leu Ser Ser Gln Thr Ser Ile Leu Thr
625 630 635 640

Ser Leu Arg Ser Ser Pro Ser Leu Ser Tyr Pro Ser Ala Leu Arg Leu
645 650 655

Lys Arg Pro Ser His Ser Thr Arg Arg Ala Val Gly Thr Ile Leu Gly
660 665 670

Gln Val Pro Ala Ala
675

<210> 10234
<211> 191
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2048; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD3; "

<220>
<221> source
<223> /note="Gene Name: C2 calcium-dependent
domain containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439343"

<400> 10234

```
Tyr Lys Gly Ser Trp Val Thr Glu Tyr Glu Asn Ser Ala Asp Ser Arg
1               5                  10                  15

Leu Gly Thr Arg Arg Leu Ser Pro Glu Gly Gly Ala Leu Phe Arg Ala
            20                  25                  30

Met His Pro Ala Gln Trp Ser Pro Gln Arg Ala His Pro Tyr Ala Leu
        35                  40                  45

Ala Gln Leu Glu Ala Pro Pro Ser Gln Pro Arg Arg Gly Leu Ser Asp
    50                  55                  60

Ile Ser Pro Ser Thr Ser Leu Pro Pro Leu Val Glu Gly Gln Leu Arg
65                  70                  75                  80

Cys Phe Leu Lys Leu Thr Val Asn Arg Val Ile Trp Lys Ile Ala Lys
                85                  90                  95

Pro Pro Thr Cys Val Leu Val Arg Val Arg Trp Trp Gly Glu Thr Ser
            100                 105                 110

Asp Gly Thr Leu Phe Cys Pro Arg Asp Ala Leu Gln Thr Glu Pro Lys
        115                 120                 125

Ala Val Arg Thr Thr Thr Arg Tyr Ala Ile Arg Cys Gly Pro Lys Gln
    130                 135                 140

Phe Thr Ser Tyr Leu Thr Asp Met Ala Val Leu Val Leu Glu Val Ile
145                 150                 155                 160
```

```
Thr Lys Leu Asp Gly Leu Pro Ile Gly Arg Val Gln Ile Asn Gly Leu
                165                 170                 175


Ala Gln Leu Ser Pro Thr His Gln Ile Asn Gly Phe Phe Thr Ile
            180                 185                 190


<210> 10235
<211> 171
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
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<220>
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      domain containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441742"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10235
Xaa Leu Ile His Phe Lys Glu Glu Arg Gln Ala Arg Arg Gly Val Glu
1               5                   10                  15


Thr Ser Lys Ser Leu Ile Pro Ile Tyr Ser Pro Phe Ser Phe Pro Ala
            20                  25                  30


Ser Asp Thr Tyr Ala Ala Phe Ser Ser His Met Ala Arg Gln Thr Leu
        35                  40                  45


Asp Gln Leu Ala His Ala Ser Ser Lys Glu Leu Asp Phe Ser Ser Pro
    50                  55                  60


Gly Arg Ser Asp Thr Thr Arg Ser Gln Ala Ser Arg His Glu Glu His
65                  70                  75                  80
```

```
Val Gln Asn Ile Arg Arg Phe His Glu Ser Leu His Leu Gln Gly Glu
                85                  90                  95

Ala Pro Leu Pro Cys Asp Asp Lys Leu Thr Thr Ser Pro Leu Ser Ser
            100                 105                 110

Gln Thr Ser Ile Leu Thr Ser Leu Ser Pro Gln Thr Gln Thr Ala Ile
        115                 120                 125

Ser Gln His Gln Glu Ser Cys Arg Asp His Leu Gly Pro Gly Ala Ser
    130                 135                 140

Ser Leu Asp Pro Gly Ser Gln Cys Ile Leu Glu Lys Ser Ser Asn Leu
145                 150                 155                 160

Val Leu Gln Val Ser Ser Leu Ile Thr Asp Thr
                165                 170


<210> 10236
<211> 506
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: C2 calcium-dependent
      domain containing 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445933"

<400> 10236
Met Lys Gln Arg Lys Gly Gln Gly Ser Gly Gly Ser Arg Gly Arg Lys
1               5                   10                  15

Lys Arg Gly Leu Ser Asp Ile Ser Pro Ser Thr Ser Leu Pro Pro Leu
            20                  25                  30

Val Glu Gly Gln Leu Arg Cys Phe Leu Lys Leu Thr Val Asn Arg Val
        35                  40                  45
```

```
Ile Trp Lys Ile Ala Lys Pro Pro Thr Cys Val Leu Val Arg Val Arg
    50                  55                  60

Trp Trp Gly Glu Thr Ser Asp Gly Thr Leu Phe Cys Pro Arg Asp Ala
65                  70                  75                  80

Leu Gln Thr Glu Pro Lys Ala Val Arg Thr Thr Thr Arg Tyr Ala Ile
                85                  90                  95

Arg Cys Gly Pro Lys Gln Phe Thr Ser Tyr Leu Thr Asp Met Ala Val
            100                 105                 110

Leu Val Leu Glu Val Ile Thr Lys Leu Asp Gly Leu Pro Ile Gly Arg
        115                 120                 125

Val Gln Ile Asn Gly Leu Ala Gln Leu Ser Pro Thr His Gln Ile Asn
    130                 135                 140

Gly Phe Phe Thr Ile Val Ser Ser Thr Ser Lys Lys Leu Gly Glu Leu
145                 150                 155                 160

Gln Val Ser Leu Ala Leu Glu Pro Leu Ser Glu Thr Tyr Asp Ser Tyr
                165                 170                 175

His Pro Leu Pro Thr Thr Asp Met Thr Glu Asn Val Leu Leu Ser Lys
            180                 185                 190

Gln Gly Phe Arg Glu Asn Thr Glu Pro Ser Ser Thr Gln Phe Gln Val
        195                 200                 205

Pro Ser Arg Pro Arg Asp Ile His Thr Ile Lys Ile Asp Gly Lys Glu
    210                 215                 220

Leu Ala Ala Asn Ser Ser Arg Ser Thr Thr Pro Arg Gly Lys Asp His
225                 230                 235                 240

Val Cys Phe Ala Glu Asn Pro Asp Thr Ile Lys Asp Ser Ser Phe Gly
                245                 250                 255

Leu Gln His Ser Leu Asn Ser Gly Gln Ser Leu Glu Ser Val Thr Leu
            260                 265                 270
```

```
Lys Gly Arg Ala Pro Arg Lys Gln Met Ser Leu Leu Asn Ser Ser Glu
        275                 280                 285

Phe Gln Pro Gln Ile Arg Thr Val Ala Lys Ser His Ser Asp Ser Cys
    290                 295                 300

Ile Leu Ser Ser Asn Asn Leu Pro Thr Lys Asp Leu Leu Ser Ala Leu
305                 310                 315                 320

Leu Glu Gln Gly Asn Lys Leu Arg Asn Ala Met Val Ile Ser Ala Met
                325                 330                 335

Lys Ser Ser Pro Glu Thr Ser Met Leu Leu Asp Gln Val His Pro Pro
            340                 345                 350

Ile Asn Glu Asp Ser Leu Arg Ala Ser Thr Gln Ile Arg Ala Phe Ser
        355                 360                 365

Arg Asn Arg Phe Lys Asp His Ile Glu Asp His Leu Leu Pro Ser Thr
    370                 375                 380

Glu Asn Thr Phe Trp Arg His Asp Thr Lys Ala Asp Thr Arg Ala Ile
385                 390                 395                 400

Gln Leu Leu Leu Gly Ser Leu Gly Leu Thr Arg Cys Arg Asp Cys Arg
                405                 410                 415

Arg Ser Leu Val His Ala Val Leu Asn Gly Ala Gln Ala Gly Val Gln
            420                 425                 430

Trp Arg Asp Ile Gly Ser Leu Gln Pro Pro Pro Pro Ser Arg Leu Pro
        435                 440                 445

Trp Pro Pro Lys Val Pro Arg Leu Gln Pro Leu Pro Gly Arg His Pro
    450                 455                 460

Val Trp Glu Val Arg Ser Val Ser Ala Trp Pro Pro Ile Val Trp Asp
465                 470                 475                 480

Val Arg Ile Pro Ser Ala Trp Leu Pro Ser Leu Glu Ser Glu Glu Arg
                485                 490                 495
```

Leu Cys Pro Pro Ala Ile Pro Ser Arg Lys
500 505

<210> 10237
<211> 369
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: C2CD4A; "

<220>
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<223> /note="Gene Name: C2 calcium-dependent
domain containing 4A; "

<220>
<221> source
<223> /note="Uniprot ID: Q8NCU7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000347712"

<400> 10237
Met Trp Cys Leu Glu Arg Leu Arg Leu Gly Pro Glu Cys Leu Arg Arg
1 5 10 15

Ser Gly Asp Trp Leu Leu Pro Gly Arg Ala Arg Gly Ala Lys Ser Arg
20 25 30

Thr Thr Ala Ala Cys Ala Asn Val Leu Thr Pro Asp Arg Ile Pro Glu
35 40 45

Phe Cys Ile Pro Pro Arg Leu Met Pro Arg Leu Ala Leu Ala Ala Leu
50 55 60

Arg Asn Ser Trp Val Glu Glu Ala Gly Met Asp Glu Gly Ala Gly Arg
65 70 75 80

Thr Asp Trp Asp Pro Arg Ser Gln Ala Ala Leu Ser Leu Pro His Leu
85 90 95

Pro Arg Val Arg Thr Ala Tyr Gly Phe Cys Ala Leu Leu Glu Ser Pro
100 105 110

```
His Thr Arg Arg Lys Glu Ser Leu Leu Leu Gly Gly Pro Pro Ala Pro
        115                 120                 125

Arg Pro Arg Ala His Thr Tyr Gly Gly Gly Gly Gly Pro Asp Ala Leu
    130                 135                 140

Leu Gly Thr Leu Arg Val Pro Arg Ala Pro Gly Pro Ala Thr Pro Ala
145                 150                 155                 160

Ala Pro Gly Cys Pro Arg Pro Pro Gln Asp Ala Leu Ala Arg Arg Pro
                165                 170                 175

Arg Gly Cys Arg Leu Leu Arg Val Pro Asp Gly Leu Leu Ser Arg Ala
            180                 185                 190

Leu Arg Ala Gly Arg Ser Arg Arg Leu Thr Arg Val Arg Ser Val Ser
        195                 200                 205

Ser Gly Asn Glu Asp Lys Glu Arg Arg Ala Gly Ser Gln Ser Pro Ala
    210                 215                 220

Arg Ala Pro Ser Thr Ser Pro Pro Ser Ser Arg Val Pro Phe Pro Glu
225                 230                 235                 240

Arg Leu Glu Ala Glu Gly Thr Val Ala Leu Gly Arg Ala Gly Asp Ala
                245                 250                 255

Leu Arg Leu Ala Ala Glu Tyr Cys Pro Gly Thr Gly Arg Leu Arg Leu
            260                 265                 270

Arg Leu Leu Arg Ala Glu Ser Pro Ala Gly Gly Ala Pro Gly Pro Arg
        275                 280                 285

Ala Val Ser Cys Arg Leu Ser Leu Val Leu Arg Pro Pro Gly Thr Ala
    290                 295                 300

Leu Arg Gln Cys Ser Thr Val Val Gly Arg Ser Arg Lys Ala Ser Phe
305                 310                 315                 320

Asp Gln Asp Phe Cys Phe Asp Gly Leu Ser Glu Asp Glu Val Arg Arg
                325                 330                 335
```

```
Leu Ala Val Arg Val Lys Ala Arg Asp Glu Gly Arg Gly Arg Glu Arg
            340                 345                 350

Gly Arg Leu Leu Gly Gln Gly Glu Leu Ser Leu Gly Ala Leu Leu Leu
        355                 360                 365

Leu
```

<210> 10238
<211> 364
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2050; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD4B; "

<220>
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<223> /note="Gene Name: C2 calcium-dependent
domain containing 4B; "

<220>
<221> source
<223> /note="Uniprot ID: A6NLJ0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369755"

<400> 10238

```
Met Arg Leu Leu Glu Lys Leu Cys Ser Ser Ala Ala Gly Ser Ser Ala
1               5                  10                  15

Pro Lys Pro Ala Phe Ala Lys Val Leu Thr Pro Asn Arg Ile Pro Glu
            20                  25                  30

Phe Cys Ile Pro Pro Arg Leu Pro Ala Pro Cys Thr Leu Glu Ser Pro
        35                  40                  45

Ile Arg Ala Ala Ala Val Pro Arg Arg Cys Ala Ala Glu Ser Asp Leu
    50                  55                  60

Trp Pro Arg Ala Ala Asp Glu Asp Ala Gly Arg Thr Asp Trp Asp Pro
```

65 70 75 80

Arg Ser Gln Ala Ala Leu Ser Leu Pro His Leu Pro Arg Val Arg Thr
85 90 95

Thr Tyr Gly Phe Cys Ala Leu Leu Glu Ser Pro His Thr Arg Arg Lys
100 105 110

Glu Ser Leu Leu Leu Gly Gly Pro Pro Ala Pro Arg Pro Arg Ala His
115 120 125

Ser Cys Gly Gly Gly Gly Gly Pro Asp Ala Pro Leu Gly Thr Leu Cys
130 135 140

Gly Pro Arg Gly Pro Gly Pro Ala Thr Pro Ala Ala Pro Gly Gly Pro
145 150 155 160

Arg Leu Pro Gln Asp Ala Leu Ala Ala Gly Pro Arg Arg Cys Arg Leu
165 170 175

Leu Arg Val Pro Asp Gly Leu Leu Ser Arg Ala Leu Arg Ala Gly Arg
180 185 190

Ser Arg Arg Leu Ala Arg Val Arg Ser Val Ser Ser Gly Asn Glu Asp
195 200 205

Glu Glu Arg Arg Ala Gly Ser Glu Ser Pro Ala Arg Ala Pro Ser Ser
210 215 220

Ser Pro Leu Ser Ser Arg Ala Pro Leu Pro Glu Arg Leu Glu Ala Lys
225 230 235 240

Gly Thr Val Ala Leu Gly Arg Ala Gly Asp Ala Leu Arg Leu Ala Ala
245 250 255

Glu Tyr Cys Pro Gly Thr Arg Arg Leu Arg Leu Arg Leu Leu Arg Ala
260 265 270

Glu Ser Leu Phe Gly Gly Ala Pro Gly Pro Arg Ala Val Arg Cys Arg
275 280 285

Leu Ser Leu Val Leu Arg Pro Pro Gly Thr Ala Arg Trp Gln Cys Ser
290 295 300

```
Ala Val Val Gly Arg Ser Arg Lys Ala Ser Phe Asp Gln Asp Phe Cys
305                 310                 315                 320


Phe Asp Gly Leu Ser Glu Asp Glu Val Arg Arg Leu Ala Val Arg Val
                325                 330                 335


Lys Ala Arg Asp Glu Gly Arg Gly Arg Asp Arg Gly Arg Leu Leu Gly
            340                 345                 350


Gln Gly Glu Leu Ser Leu Gly Ala Leu Leu Leu Leu
        355                 360


<210> 10239
<211> 421
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2051; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD4C; "

<220>
<221> source
<223> /note="Gene Name: C2 calcium-dependent
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<220>
<221> source
<223> /note="Uniprot ID:  Q8TF44; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000328677"

<400> 10239
Met Arg Lys Thr Asn Met Trp Phe Leu Glu Arg Leu Arg Gly Ser Gly
1               5                   10                  15


Glu Asn Gly Ala Ala Arg Gly Val Gly Ser Glu Ala Gly Asp Lys Ala
            20                  25                  30


Ser Lys Gly Pro Leu Tyr Ser Asn Val Leu Thr Pro Asp Lys Ile Pro
        35                  40                  45
```

```
Asp Phe Phe Ile Pro Pro Lys Leu Pro Ser Gly Pro Ala Glu Gly Glu
     50                  55                  60

Gly Gln Ala Ala Leu Gly Pro Ser Thr Ser Glu Gln Asn Leu Ala Ser
65                  70                  75                  80

Ala Ala Pro Arg Gln Thr Pro Arg Ser Pro Arg Leu Pro Ala Lys Leu
                 85                  90                  95

Ala Ala Glu Ser Lys Ser Leu Leu Lys Ala Ala Thr Arg His Val Ile
            100                 105                 110

Gln Ile Glu Ser Ala Glu Asp Trp Leu Ser Glu Glu Ala Thr Asp Ala
        115                 120                 125

Asp Pro Gln Ala Gln Gly Ala Met Ser Leu Pro Ser Val Pro Lys Ala
    130                 135                 140

Gln Thr Ser Tyr Gly Phe Ala Met Leu Ala Glu Ser Pro His Thr Arg
145                 150                 155                 160

Arg Lys Glu Ser Leu Phe His Ser Glu His Gly Ala Leu Ala Gln Val
                165                 170                 175

Gly Ser Pro Gly Ala Gly Arg Arg Arg Ala Ala Ala Lys Ala Asn Gly
            180                 185                 190

Gly Asp Gly Gly Pro Arg Glu Ala Gly Gly Ala Leu Met Ser Pro Gly
        195                 200                 205

Arg Tyr Phe Ser Gly Gly Glu Ser Asp Thr Gly Ser Ser Ala Glu Ser
    210                 215                 220

Ser Pro Phe Gly Ser Pro Leu Leu Ser Arg Ser Val Ser Leu Leu Lys
225                 230                 235                 240

Gly Phe Ala Gln Asp Ser Gln Ala Lys Val Ser Gln Leu Arg His Ser
                245                 250                 255

Val Gly Arg His Gly Ser Leu Ser Ala Asp Asp Ser Thr Pro Asp Ala
            260                 265                 270

Ser Pro Gly Ser Arg Arg Arg Leu Thr Arg Arg Ala Pro Pro Glu Pro
```

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        275                 280                 285

Gly Pro Glu Ser Gly Gln Ala Arg Gly Glu His Thr Val His Val Gly
    290                 295                 300

Pro Arg Gly Ser Val Arg Leu Leu Ala Glu Tyr Glu Ala Gly Gln Ala
305                 310                 315                 320

Arg Leu Arg Val His Leu Leu Ala Ala Glu Gly Leu Tyr Asp Arg Leu
                325                 330                 335

Cys Asp Ala Arg Ser Ile Asn Cys Cys Val Gly Leu Cys Leu Val Pro
            340                 345                 350

Gly Lys Leu Gln Lys Gln Arg Ser Thr Ile Val Lys Asn Ser Arg Arg
        355                 360                 365

Pro Val Phe Asn Glu Asp Phe Phe Phe Asp Gly Leu Gly Pro Ala Ser
    370                 375                 380

Val Arg Lys Leu Ala Leu Arg Ile Lys Val Val Asn Lys Gly Ser Ser
385                 390                 395                 400

Leu Lys Arg Asp Thr Leu Leu Gly Glu Lys Glu Leu Pro Leu Thr Ser
                405                 410                 415

Leu Leu Pro Phe Leu
            420
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<210> 10240
<211> 353
<212> PRT
<213> Homo sapiens

<220>
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domain containing 4D; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000389554"

<400> 10240
Met Trp Leu Leu Glu Lys Ala Gly Tyr Lys Val Gly Ala Ala Glu Pro
1   5   10   15

Ala Ala Arg Trp Ala Pro Ser Gly Leu Phe Ser Lys Arg Arg Ala Pro
            20   25   30

Gly Pro Pro Thr Ser Ala Cys Pro Asn Val Leu Thr Pro Asp Arg Ile
        35   40   45

Pro Gln Phe Phe Ile Pro Pro Arg Leu Pro Asp Pro Gly Gly Ala Val
    50   55   60

Pro Ala Ala Arg Arg His Val Ala Gly Arg Gly Leu Pro Ala Thr Cys
65   70   75   80

Ser Leu Pro His Leu Ala Gly Arg Glu Gly Trp Ala Phe Leu Pro Glu
                85   90   95

Ser Pro His Thr Arg Arg Arg Glu Ser Leu Phe His Gly Pro Pro Pro
            100   105   110

Ala Pro Ala Gly Gly Leu Pro Ala Ala Gln Ser Arg Leu His Val Ser
        115   120   125

Ala Pro Asp Leu Arg Leu Cys Arg Ala Pro Asp Ser Asp Thr Ala Ser
    130   135   140

Ser Pro Asp Ser Ser Pro Phe Gly Ser Pro Arg Pro Gly Leu Gly Arg
145   150   155   160

Arg Arg Val Ser Arg Pro His Ser Leu Ser Pro Glu Lys Ala Ser Ser
                165   170   175

Ala Asp Thr Ser Pro His Ser Pro Arg Arg Ala Gly Pro Pro Thr Pro
            180   185   190

```
Pro Leu Phe His Leu Asp Phe Leu Cys Cys Gln Leu Arg Pro Thr Arg
        195                 200                 205

Glu Ser Val Leu Arg Leu Gly Pro Arg Gly Gly Gln Leu Arg Leu Ser
    210                 215                 220

Thr Glu Tyr Gln Ala Gly Pro Gly Arg Leu Arg Leu Arg Leu Val Ser
225                 230                 235                 240

Ala Glu Gly Leu Pro Arg Pro Arg Ser Arg Pro Gly Ser Gly Gly Gly
                245                 250                 255

Gly Cys Cys Val Val Leu Arg Leu Arg Pro Arg Val Arg Pro Arg Glu
            260                 265                 270

Gln Gln Ser Arg Val Val Lys Cys Ser Ala Asn Pro Ile Phe Asn Glu
        275                 280                 285

Asp Phe Phe Phe Asp Gly Leu Gly Pro Pro Asp Leu Ala Ala Arg Ser
    290                 295                 300

Leu Arg Ala Lys Val Leu Asp Arg Gly Ala Gly Leu Arg Arg Asp Val
305                 310                 315                 320

Leu Leu Gly Glu Cys Glu Thr Pro Leu Ile Ala Leu Leu Pro Pro Leu
                325                 330                 335

Gly Gly Gly Leu Gly Pro Gly Ser Ser Leu Ala Pro Thr His Leu Ser
            340                 345                 350

Leu
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<210> 10241
<211> 1000
<212> PRT
<213> Homo sapiens

<220>
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domain containing 5; "

<220>
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<223> /note="Uniprot ID: Q86YS7; "

<220>
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<400> 10241
Met Pro Gly Lys Leu Lys Val Lys Ile Val Ala Gly Arg His Leu Pro
1   5   10   15

Val Met Asp Arg Ala Ser Asp Leu Thr Asp Ala Phe Val Glu Val Lys
            20   25   30

Phe Gly Asn Thr Thr Phe Lys Thr Asp Val Tyr Leu Lys Ser Leu Asn
        35   40   45

Pro Gln Trp Asn Ser Glu Trp Phe Lys Phe Glu Val Asp Asp Glu Asp
    50   55   60

Leu Gln Asp Glu Pro Leu Gln Ile Thr Val Leu Asp His Asp Thr Tyr
65   70   75   80

Ser Ala Asn Asp Ala Ile Gly Lys Val Tyr Ile Asp Ile Asp Pro Leu
                85   90   95

Leu Tyr Ser Glu Ala Ala Thr Val Ile Ser Gly Trp Phe Pro Ile Tyr
            100   105   110

Asp Thr Ile His Gly Ile Arg Gly Glu Ile Asn Val Val Val Lys Val
        115   120   125

Asp Leu Phe Asn Asp Leu Asn Arg Phe Arg Gln Ser Ser Cys Gly Val
    130   135   140

Lys Phe Phe Cys Thr Thr Ser Ile Pro Lys Cys Tyr Arg Ala Val Ile
145   150   155   160

Ile His Gly Phe Val Glu Glu Leu Val Val Asn Glu Asp Pro Glu Tyr
                165   170   175

```
Gln Trp Ile Asp Arg Ile Arg Thr Pro Arg Ala Ser Asn Glu Ala Arg
            180                 185                 190

Gln Arg Leu Ile Ser Leu Met Ser Gly Glu Leu Gln Arg Lys Ile Gly
        195                 200                 205

Leu Lys Val Leu Glu Met Arg Gly Asn Ala Val Val Gly Tyr Leu Gln
    210                 215                 220

Cys Phe Asp Leu Glu Gly Glu Ser Gly Leu Val Val Arg Ala Ile Gly
225                 230                 235                 240

Thr Ala Cys Thr Leu Asp Lys Leu Ser Ser Pro Ala Ala Phe Leu Pro
                245                 250                 255

Ala Cys Asn Ser Pro Ser Lys Glu Met Lys Glu Ile Pro Phe Asn Glu
            260                 265                 270

Asp Pro Asn Pro Asn Thr His Ser Ser Gly Pro Ser Thr Pro Leu Lys
        275                 280                 285

Asn Gln Thr Tyr Ser Phe Ser Pro Ser Lys Ser Tyr Ser Arg Gln Ser
    290                 295                 300

Ser Ser Ser Asp Thr Asp Leu Ser Leu Thr Pro Lys Thr Gly Met Gly
305                 310                 315                 320

Ser Gly Ser Ala Gly Lys Glu Gly Gly Pro Phe Lys Ala Leu Leu Arg
                325                 330                 335

Gln Gln Thr Gln Ser Ala Leu Glu Gln Arg Glu Phe Pro Phe Phe Thr
            340                 345                 350

Leu Thr Ala Phe Pro Pro Gly Phe Leu Val His Val Gly Gly Val Val
        355                 360                 365

Ser Ala Arg Ser Val Lys Leu Leu Asp Arg Ile His Asn Pro Asp Glu
    370                 375                 380

Pro Glu Thr Arg Asp Ala Trp Trp Ala Glu Ile Arg Gln Glu Ile Lys
385                 390                 395                 400
```

Ser His Ala Lys Ala Leu Gly Cys His Ala Val Val Gly Tyr Ser Glu
405 410 415

Ser Thr Ser Ile Cys Glu Glu Val Cys Ile Leu Ser Ala Ser Gly Thr
420 425 430

Ala Ala Val Leu Asn Pro Arg Phe Leu Gln Asp Gly Thr Val Glu Gly
435 440 445

Cys Leu Glu Gln Arg Leu Glu Glu Asn Leu Pro Thr Arg Cys Gly Phe
450 455 460

Cys His Ile Pro Tyr Asp Glu Leu Asn Met Pro Phe Pro Ala His Leu
465 470 475 480

Thr Tyr Cys Tyr Asn Cys Arg Lys Gln Lys Val Pro Asp Val Leu Phe
485 490 495

Thr Thr Ile Asp Leu Pro Thr Asp Ala Thr Val Ile Gly Lys Gly Cys
500 505 510

Leu Ile Gln Ala Arg Leu Cys Arg Leu Lys Lys Lys Ala Gln Ala Glu
515 520 525

Ala Asn Ala Thr Ala Ile Ser Asn Leu Leu Pro Phe Met Glu Tyr Glu
530 535 540

Val His Thr Gln Leu Met Asn Lys Leu Lys Leu Lys Gly Met Asn Ala
545 550 555 560

Leu Phe Gly Leu Arg Ile Gln Ile Thr Val Gly Glu Asn Met Leu Met
565 570 575

Gly Leu Ala Ser Ala Thr Gly Val Tyr Leu Ala Ala Leu Pro Thr Pro
580 585 590

Gly Gly Ile Gln Ile Ala Gly Lys Thr Pro Asn Asp Gly Ser Tyr Glu
595 600 605

Gln His Ile Ser His Met Gln Lys Lys Ile Asn Asp Thr Ile Ala Lys
610 615 620

Asn Lys Glu Leu Tyr Glu Ile Asn Pro Pro Glu Ile Ser Glu Glu Ile

625 630 635 640

Ile Gly Ser Pro Ile Pro Glu Pro Arg Gln Arg Ser Arg Leu Leu Arg
645 650 655

Ser Gln Ser Glu Ser Ser Asp Glu Val Thr Glu Leu Asp Leu Ser His
660 665 670

Gly Lys Lys Asp Ala Phe Val Leu Glu Ile Asp Asp Thr Asp Ala Met
675 680 685

Glu Asp Val His Ser Leu Leu Thr Asp Val Pro Pro Pro Ser Gly Phe
690 695 700

Tyr Ser Cys Asn Thr Glu Ile Met Pro Gly Ile Asn Asn Trp Thr Ser
705 710 715 720

Glu Ile Gln Met Phe Thr Ser Val Arg Val Ile Arg Leu Ser Ser Leu
725 730 735

Asn Leu Thr Asn Gln Ala Leu Asn Lys Asn Phe Asn Asp Leu Cys Glu
740 745 750

Asn Leu Leu Lys Ser Leu Tyr Phe Lys Leu Arg Ser Met Ile Pro Cys
755 760 765

Cys Leu Cys His Val Asn Phe Thr Val Ser Leu Pro Glu Asp Glu Leu
770 775 780

Ile Gln Val Thr Val Thr Ala Val Ala Ile Thr Phe Asp Lys Asn Gln
785 790 795 800

Ala Leu Gln Thr Thr Lys Thr Pro Val Glu Lys Ser Leu Gln Arg Ala
805 810 815

Ser Thr Asp Asn Glu Glu Leu Leu Gln Phe Pro Leu Glu Leu Cys Ser
820 825 830

Asp Ser Leu Pro Ser His Pro Phe Pro Pro Ala Lys Ala Met Thr Val
835 840 845

Glu Lys Ala Ser Pro Val Gly Asp Gly Asn Phe Arg Asn Arg Ser Ala
850 855 860

```
Pro Pro Cys Ala Asn Ser Thr Val Gly Val Val Lys Met Thr Pro Leu
865                 870                 875                 880

Ser Phe Ile Pro Gly Ala Lys Ile Thr Lys Tyr Leu Gly Ile Ile Asn
                885                 890                 895

Met Phe Phe Ile Arg Glu Thr Thr Ser Leu Arg Glu Glu Gly Gly Val
            900                 905                 910

Ser Gly Phe Leu His Ala Phe Ile Ala Glu Val Phe Ala Met Val Arg
        915                 920                 925

Ala His Val Ala Ala Leu Gly Gly Asn Ala Val Val Ser Tyr Ile Met
    930                 935                 940

Lys Gln Cys Val Phe Met Glu Asn Pro Asn Lys Asn Gln Ala Gln Cys
945                 950                 955                 960

Leu Ile Asn Val Ser Gly Asp Ala Val Val Phe Val Arg Glu Ser Asp
                965                 970                 975

Leu Glu Val Val Ser Ser Gln Gln Pro Thr Thr Asn Cys Gln Ser Ser
            980                 985                 990

Cys Thr Glu Gly Glu Val Thr Thr
        995                 1000


<210> 10242
<211> 1042
<212> PRT
<213> Homo sapiens

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<220>
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      domain containing 5; "

<220>
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<221> source
<223> /note="Uniprot ID: Q86YS7; "

<220>
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<223> /note="ENSP ID: ENSP00000379345"

<400> 10242
Met Pro Gly Lys Leu Lys Val Lys Ile Val Ala Gly Arg His Leu Pro
1   5   10   15

Val Met Asp Arg Ala Ser Asp Leu Thr Asp Ala Phe Val Glu Val Lys
            20   25   30

Phe Gly Asn Thr Thr Phe Lys Thr Asp Val Tyr Leu Lys Ser Leu Asn
        35   40   45

Pro Gln Trp Asn Ser Glu Trp Phe Lys Phe Glu Val Asp Asp Glu Asp
    50   55   60

Leu Gln Asp Glu Pro Leu Gln Ile Thr Val Leu Asp His Asp Thr Tyr
65   70   75   80

Ser Ala Asn Asp Ala Ile Gly Lys Val Tyr Ile Asp Ile Asp Pro Leu
                85   90   95

Leu Tyr Ser Glu Ala Ala Thr Val Ile Ser Gly Trp Phe Pro Ile Tyr
            100   105   110

Asp Thr Ile His Gly Ile Arg Gly Glu Ile Asn Val Val Val Lys Val
        115   120   125

Asp Leu Phe Asn Asp Leu Asn Arg Phe Arg Gln Ser Ser Cys Gly Val
    130   135   140

Lys Phe Phe Cys Thr Thr Ser Ile Pro Lys Cys Tyr Arg Ala Val Ile
145   150   155   160

Ile His Gly Phe Val Glu Glu Leu Val Val Asn Glu Asp Pro Glu Tyr
                165   170   175

Gln Trp Ile Asp Arg Ile Arg Thr Pro Arg Ala Ser Asn Glu Ala Arg
            180   185   190

Gln Arg Leu Ile Ser Leu Met Ser Gly Glu Leu Gln Arg Lys Ile Gly

```
        195                 200                 205

Leu Lys Val Leu Glu Met Arg Gly Asn Ala Val Val Gly Tyr Leu Gln
    210                 215                 220

Cys Phe Asp Leu Glu Gly Glu Ser Gly Leu Val Val Arg Ala Ile Gly
225                 230                 235                 240

Thr Ala Cys Thr Leu Asp Lys Leu Ser Ser Pro Ala Ala Phe Leu Pro
                245                 250                 255

Ala Cys Asn Ser Pro Ser Lys Glu Met Lys Glu Ser Pro Leu Val His
            260                 265                 270

Pro Pro Ser His Gly Cys Arg Ser Thr His Asn Ser Pro Ile His Thr
        275                 280                 285

Ala Thr Gly Ser Arg Leu Thr Gln Asn Phe Ser Val Ser Val Pro Thr
    290                 295                 300

Leu Ile Tyr Thr Gly Met Gly Ser Gly Ser Ala Gly Lys Glu Gly Gly
305                 310                 315                 320

Pro Phe Lys Ala Leu Leu Arg Gln Gln Thr Gln Ser Ala Leu Glu Gln
                325                 330                 335

Arg Glu Phe Pro Phe Phe Thr Leu Thr Ala Phe Pro Pro Gly Phe Leu
            340                 345                 350

Val His Val Gly Gly Val Val Ser Ala Arg Ser Val Lys Leu Leu Asp
        355                 360                 365

Arg Ile His Asn Pro Asp Glu Pro Glu Thr Arg Asp Ala Trp Trp Ala
    370                 375                 380

Glu Ile Arg Gln Glu Ile Lys Ser His Ala Lys Ala Leu Gly Cys His
385                 390                 395                 400

Ala Val Val Gly Tyr Ser Glu Ser Thr Ser Ile Cys Glu Glu Val Cys
                405                 410                 415

Ile Leu Ser Ala Ser Gly Thr Ala Ala Val Leu Asn Pro Arg Phe Leu
            420                 425                 430
```

```
Gln Asp Gly Thr Val Glu Gly Cys Leu Glu Gln Arg Leu Glu Glu Asn
        435                 440                 445

Leu Pro Thr Arg Cys Gly Phe Cys His Ile Pro Tyr Asp Glu Leu Asn
    450                 455                 460

Met Pro Phe Pro Ala His Leu Thr Tyr Cys Tyr Asn Cys Arg Lys Gln
465                 470                 475                 480

Lys Val Pro Asp Val Leu Phe Thr Thr Ile Asp Leu Pro Thr Asp Ala
                485                 490                 495

Thr Val Ile Gly Lys Gly Cys Leu Ile Gln Ala Arg Leu Cys Arg Leu
            500                 505                 510

Lys Lys Lys Ala Gln Ala Glu Ala Asn Ala Thr Ala Ile Ser Asn Leu
        515                 520                 525

Leu Pro Phe Met Glu Tyr Glu Val His Thr Gln Leu Met Asn Lys Leu
    530                 535                 540

Lys Leu Lys Gly Met Asn Ala Leu Phe Gly Leu Arg Ile Gln Ile Thr
545                 550                 555                 560

Val Gly Glu Asn Met Leu Met Gly Leu Ala Ser Ala Thr Gly Val Tyr
                565                 570                 575

Leu Ala Ala Leu Pro Thr Pro Gly Gly Ile Gln Ile Ala Gly Lys Thr
            580                 585                 590

Pro Asn Asp Gly Ser Tyr Glu Gln His Ile Ser His Met Gln Lys Lys
        595                 600                 605

Ile Asn Asp Thr Ile Ala Lys Asn Lys Glu Leu Tyr Glu Ile Asn Pro
    610                 615                 620

Pro Glu Ile Ser Glu Glu Ile Ile Gly Ser Pro Ile Pro Glu Pro Arg
625                 630                 635                 640

Gln Arg Ser Arg Leu Leu Arg Ser Gln Ser Glu Ser Ser Asp Glu Val
                645                 650                 655
```

```
Thr Glu Leu Asp Leu Ser His Gly Lys Lys Asp Ala Phe Val Leu Glu
            660                 665                 670

Ile Asp Asp Thr Asp Ala Met Glu Asp Val His Ser Leu Leu Thr Asp
        675                 680                 685

Val Pro Pro Pro Ser Gly Phe Tyr Ser Cys Asn Thr Glu Ile Met Pro
    690                 695                 700

Gly Ile Asn Asn Trp Thr Ser Glu Ile Gln Met Phe Thr Ser Val Arg
705                 710                 715                 720

Val Ile Arg Leu Ser Ser Leu Asn Leu Thr Asn Gln Ala Leu Asn Lys
                725                 730                 735

Asn Phe Asn Asp Leu Cys Glu Asn Leu Leu Lys Ser Leu Tyr Phe Lys
            740                 745                 750

Leu Arg Ser Met Ile Pro Cys Cys Leu Cys His Val Asn Phe Thr Val
        755                 760                 765

Ser Leu Pro Glu Asp Glu Leu Ile Gln Val Thr Val Thr Ala Val Ala
    770                 775                 780

Ile Thr Phe Asp Lys Asn Gln Ala Leu Gln Thr Thr Lys Thr Pro Val
785                 790                 795                 800

Glu Lys Ser Leu Gln Arg Ala Ser Thr Asp Asn Glu Glu Leu Leu Gln
                805                 810                 815

Phe Pro Leu Glu Leu Cys Ser Asp Ser Leu Pro Ser His Pro Phe Pro
            820                 825                 830

Pro Ala Lys Glu His Leu Glu Ser Ala Ser Ser Asn Ser Gly Ile Pro
        835                 840                 845

Ala Ala Gln Arg Ala Thr Ser Val Asp Tyr Ser Ser Phe Ala Asp Arg
    850                 855                 860

Cys Ser Ser Trp Ile Glu Leu Ile Lys Leu Lys Ala Gln Thr Ile Arg
865                 870                 875                 880
```

```
Arg Gly Ser Ile Lys Thr Thr Met Thr Val Glu Lys Ala Ser Pro Val
                885                 890                 895

Gly Asp Gly Asn Phe Arg Asn Arg Ser Ala Pro Pro Cys Ala Asn Ser
            900                 905                 910

Thr Val Gly Val Val Lys Met Thr Pro Leu Ser Phe Ile Pro Gly Ala
        915                 920                 925

Lys Ile Thr Lys Tyr Leu Gly Ile Ile Asn Met Phe Phe Ile Arg Glu
    930                 935                 940

Thr Thr Ser Leu Arg Glu Glu Gly Gly Val Ser Gly Phe Leu His Ala
945                 950                 955                 960

Phe Ile Ala Glu Val Phe Ala Met Val Arg Ala His Val Ala Ala Leu
                965                 970                 975

Gly Gly Asn Ala Val Val Ser Tyr Ile Met Lys Gln Cys Val Phe Met
            980                 985                 990

Glu Asn Pro Asn Lys Asn Gln Ala  Gln Cys Leu Ile Asn  Val Ser
Gly
        995                 1000                1005

Asp Ala  Val Val Phe Val Arg  Glu Ser Asp Leu Glu  Val Val Ser
    1010                1015                1020

Ser Gln  Gln Pro Thr Thr Asn  Cys Gln Ser Ser Cys  Thr Glu Gly
    1025                1030                1035

Glu Val  Thr Thr
    1040


<210> 10243
<211> 1051
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2053; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD5; "
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<220>
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domain containing 5; "

<220>
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<223> /note="Uniprot ID: Q86YS7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388756"

<400> 10243
Met Pro Gly Lys Leu Lys Val Lys Ile Val Ala Gly Arg His Leu Pro
1   5   10   15

Val Met Asp Arg Ala Ser Asp Leu Thr Asp Ala Phe Val Glu Val Lys
            20   25   30

Phe Gly Asn Thr Thr Phe Lys Thr Asp Val Tyr Leu Lys Ser Leu Asn
        35   40   45

Pro Gln Trp Asn Ser Glu Trp Phe Lys Phe Glu Val Asp Asp Glu Asp
    50   55   60

Leu Gln Asp Glu Pro Leu Gln Ile Thr Val Leu Asp His Asp Thr Tyr
65   70   75   80

Ser Ala Asn Asp Ala Ile Gly Lys Val Tyr Ile Asp Ile Asp Pro Leu
                85   90   95

Leu Tyr Ser Glu Ala Ala Thr Val Ile Ser Gly Trp Phe Pro Ile Tyr
            100   105   110

Asp Thr Ile His Gly Ile Arg Gly Glu Ile Asn Val Val Val Lys Val
        115   120   125

Asp Leu Phe Asn Asp Leu Asn Arg Phe Arg Gln Ser Ser Cys Gly Val
    130   135   140

Lys Phe Phe Cys Thr Thr Ser Ile Pro Lys Cys Tyr Arg Ala Val Ile
145   150   155   160

Ile His Gly Phe Val Glu Glu Leu Val Val Asn Glu Asp Pro Glu Tyr
                165   170   175

```
Gln Trp Ile Asp Arg Ile Arg Thr Pro Arg Ala Ser Asn Glu Ala Arg
            180                 185                 190

Gln Arg Leu Ile Ser Leu Met Ser Gly Glu Leu Gln Arg Lys Ile Gly
        195                 200                 205

Leu Lys Val Leu Glu Met Arg Gly Asn Ala Val Val Gly Tyr Leu Gln
    210                 215                 220

Cys Phe Asp Leu Glu Gly Glu Ser Gly Leu Val Val Arg Ala Ile Gly
225                 230                 235                 240

Thr Ala Cys Thr Leu Asp Lys Leu Ser Ser Pro Ala Ala Phe Leu Pro
                245                 250                 255

Ala Cys Asn Ser Pro Ser Lys Glu Met Lys Glu Ile Pro Phe Asn Glu
            260                 265                 270

Asp Pro Asn Pro Asn Thr His Ser Ser Gly Pro Ser Thr Pro Leu Lys
        275                 280                 285

Asn Gln Thr Tyr Ser Phe Ser Pro Ser Lys Ser Tyr Ser Arg Gln Ser
    290                 295                 300

Ser Ser Ser Asp Thr Asp Leu Ser Leu Thr Pro Lys Thr Gly Met Gly
305                 310                 315                 320

Ser Gly Ser Ala Gly Lys Glu Gly Gly Pro Phe Lys Ala Leu Leu Arg
                325                 330                 335

Gln Gln Thr Gln Ser Ala Leu Glu Gln Arg Glu Phe Pro Phe Phe Thr
            340                 345                 350

Leu Thr Ala Phe Pro Pro Gly Phe Leu Val His Val Gly Gly Val Val
        355                 360                 365

Ser Ala Arg Ser Val Lys Leu Leu Asp Arg Ile His Asn Pro Asp Glu
    370                 375                 380

Pro Glu Thr Arg Asp Ala Trp Trp Ala Glu Ile Arg Gln Glu Ile Lys
385                 390                 395                 400
```

```
Ser His Ala Lys Ala Leu Gly Cys His Ala Val Val Gly Tyr Ser Glu
                405                 410                 415

Ser Thr Ser Ile Cys Glu Glu Val Cys Ile Leu Ser Ala Ser Gly Thr
            420                 425                 430

Ala Ala Val Leu Asn Pro Arg Phe Leu Gln Asp Gly Thr Val Glu Gly
        435                 440                 445

Cys Leu Glu Gln Arg Leu Glu Glu Asn Leu Pro Thr Arg Cys Gly Phe
    450                 455                 460

Cys His Ile Pro Tyr Asp Glu Leu Asn Met Pro Phe Pro Ala His Leu
465                 470                 475                 480

Thr Tyr Cys Tyr Asn Cys Arg Lys Gln Lys Val Pro Asp Val Leu Phe
                485                 490                 495

Thr Thr Ile Asp Leu Pro Thr Asp Ala Thr Val Ile Gly Lys Gly Cys
            500                 505                 510

Leu Ile Gln Ala Arg Leu Cys Arg Leu Lys Lys Lys Ala Gln Ala Glu
        515                 520                 525

Ala Asn Ala Thr Ala Ile Ser Asn Leu Leu Pro Phe Met Glu Tyr Glu
    530                 535                 540

Val His Thr Gln Leu Met Asn Lys Leu Lys Leu Lys Gly Met Asn Ala
545                 550                 555                 560

Leu Phe Gly Leu Arg Ile Gln Ile Thr Val Gly Glu Asn Met Leu Met
                565                 570                 575

Gly Leu Ala Ser Ala Thr Gly Val Tyr Leu Ala Ala Leu Pro Thr Pro
            580                 585                 590

Gly Gly Ile Gln Ile Ala Gly Lys Thr Pro Asn Asp Gly Ser Tyr Glu
        595                 600                 605

Gln His Ile Ser His Met Gln Lys Lys Ile Asn Asp Thr Ile Ala Lys
    610                 615                 620
```

```
Asn Lys Glu Leu Tyr Glu Ile Asn Pro Pro Glu Ile Ser Glu Glu Ile
625                 630                 635                 640

Ile Gly Ser Pro Ile Pro Glu Pro Arg Gln Arg Ser Arg Leu Leu Arg
                645                 650                 655

Ser Gln Ser Glu Ser Ser Asp Glu Val Thr Glu Leu Asp Leu Ser His
            660                 665                 670

Gly Lys Lys Asp Ala Phe Val Leu Glu Ile Asp Asp Thr Asp Ala Met
        675                 680                 685

Glu Asp Val His Ser Leu Leu Thr Asp Val Pro Pro Pro Ser Gly Phe
    690                 695                 700

Tyr Ser Cys Asn Thr Glu Ile Met Pro Gly Ile Asn Asn Trp Thr Ser
705                 710                 715                 720

Glu Ile Gln Met Phe Thr Ser Val Arg Val Ile Arg Leu Ser Ser Leu
                725                 730                 735

Asn Leu Thr Asn Gln Ala Leu Asn Lys Asn Phe Asn Asp Leu Cys Glu
            740                 745                 750

Asn Leu Leu Lys Ser Leu Tyr Phe Lys Leu Arg Ser Met Ile Pro Cys
        755                 760                 765

Cys Leu Cys His Val Asn Phe Thr Val Ser Leu Pro Glu Asp Glu Leu
    770                 775                 780

Ile Gln Val Thr Val Thr Ala Val Ala Ile Thr Phe Asp Lys Asn Gln
785                 790                 795                 800

Ala Leu Gln Thr Thr Lys Thr Pro Val Glu Lys Ser Leu Gln Arg Ala
                805                 810                 815

Ser Thr Asp Asn Glu Glu Leu Leu Gln Phe Pro Leu Glu Leu Cys Ser
            820                 825                 830

Asp Ser Leu Pro Ser His Pro Phe Pro Pro Ala Lys Glu His Leu Glu
        835                 840                 845

Ser Ala Ser Ser Asn Ser Gly Ile Pro Ala Ala Gln Arg Ala Thr Ser
```

```
    850                 855                 860

Val Asp Tyr Ser Ser Phe Ala Asp Arg Cys Ser Ser Trp Ile Glu Leu
865                 870                 875                 880

Ile Lys Leu Lys Ala Gln Thr Ile Arg Arg Gly Ser Ile Lys Thr Thr
                885                 890                 895

Met Thr Val Glu Lys Ala Ser Pro Val Gly Asp Gly Asn Phe Arg Asn
            900                 905                 910

Arg Ser Ala Pro Pro Cys Ala Asn Ser Thr Val Gly Val Val Lys Met
        915                 920                 925

Thr Pro Leu Ser Phe Ile Pro Gly Ala Lys Ile Thr Lys Tyr Leu Gly
    930                 935                 940

Ile Ile Asn Met Phe Phe Ile Arg Glu Thr Thr Ser Leu Arg Glu Glu
945                 950                 955                 960

Gly Gly Val Ser Gly Phe Leu His Ala Phe Ile Ala Glu Val Phe Ala
                965                 970                 975

Met Val Arg Ala His Val Ala Ala Leu Gly Gly Asn Ala Val Val Ser
            980                 985                 990

Tyr Ile Met Lys Gln Cys Val Phe  Met Glu Asn Pro Asn  Lys Asn
Gln
        995                 1000                1005

Ala Gln  Cys Leu Ile Asn Val  Ser Gly Asp Ala Val  Val Phe Val
    1010                1015                1020

Arg Glu  Ser Asp Leu Glu Val  Val Ser Ser Gln Gln  Pro Thr Thr
    1025                1030                1035

Asn Cys  Gln Ser Ser Cys Thr  Glu Gly Glu Val Thr  Thr
    1040                1045                1050

<210> 10244
<211> 283
<212> PRT
<213> Homo sapiens
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<220>
<221> source
<223> /note="Payload ID: 2053; "

<220>
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<223> /note="Gene Symbol: C2CD5; "

<220>
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<223> /note="Gene Name: C2 calcium-dependent
domain containing 5; "

<220>
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<223> /note="ENSP ID: ENSP00000437935"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10244
Xaa Trp Thr Ser Glu Ile Gln Met Phe Thr Ser Val Arg Val Ile Arg
1 5 10 15

Leu Ser Ser Leu Asn Leu Thr Asn Gln Ala Leu Asn Lys Asn Phe Asn
20 25 30

Asp Leu Cys Glu Asn Leu Leu Lys Ser Leu Tyr Phe Lys Leu Arg Ser
35 40 45

Met Ile Pro Cys Cys Leu Cys His Val Asn Phe Thr Val Ser Leu Pro
50 55 60

Glu Asp Glu Leu Ile Gln Val Thr Val Thr Ala Val Ala Ile Thr Phe
65 70 75 80

Asp Lys Asn Gln Ala Leu Gln Thr Thr Lys Thr Pro Val Glu Lys Ser
85 90 95

Leu Gln Arg Ala Ser Thr Asp Asn Glu Glu Leu Leu Gln Phe Pro Leu
100 105 110

Glu Leu Cys Ser Asp Ser Leu Pro Ser His Pro Phe Pro Pro Ala Lys
115 120 125

Glu His Leu Glu Ser Ala Ser Ser Asn Ser Gly Ile Pro Ala Ala Gln

```
    130                 135                 140

Arg Ala Met Thr Val Glu Lys Ala Ser Pro Val Gly Asp Gly Asn Phe
145                 150                 155                 160

Arg Asn Arg Ser Ala Pro Pro Cys Ala Asn Ser Thr Val Gly Val Val
                165                 170                 175

Lys Met Thr Pro Leu Ser Phe Ile Pro Gly Ala Lys Ile Thr Lys Tyr
            180                 185                 190

Leu Gly Ile Ile Asn Met Phe Phe Ile Arg Glu Thr Thr Ser Leu Arg
        195                 200                 205

Glu Glu Gly Gly Val Ser Gly Phe Leu His Ala Phe Ile Ala Glu Val
    210                 215                 220

Phe Ala Met Val Arg Ala His Val Ala Ala Leu Gly Gly Asn Ala Val
225                 230                 235                 240

Val Ser Tyr Ile Met Lys Gln Cys Val Phe Met Glu Asn Pro Asn Lys
                245                 250                 255

Asn Gln Ala Gln Cys Leu Ile Asn Val Ser Gly Asp Ala Val Val Phe
            260                 265                 270

Val Arg Glu Ser Asp Leu Glu Val Val Ser Ser
        275                 280


<210> 10245
<211> 165
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> Any amino acid

<400> 10245
Xaa Met Ser Gly Glu Leu Gln Arg Lys Ile Gly Leu Lys Val Leu Glu
1 5 10 15

Met Arg Gly Asn Ala Val Val Gly Tyr Leu Gln Cys Phe Asp Leu Glu
20 25 30

Gly Glu Ser Gly Leu Val Val Arg Ala Ile Gly Thr Ala Cys Thr Leu
35 40 45

Asp Lys Leu Ser Ser Pro Ala Ala Phe Leu Pro Ala Cys Asn Ser Pro
50 55 60

Ser Lys Glu Met Lys Glu Ile Pro Phe Asn Glu Asp Pro Asn Pro Asn
65 70 75 80

Thr His Ser Ser Gly Pro Ser Thr Pro Leu Lys Asn Gln Thr Tyr Ser
85 90 95

Phe Ser Pro Ser Lys Ser Tyr Ser Arg Gln Ser Ser Ser Ser Asp Thr
100 105 110

Asp Leu Ser Leu Thr Pro Lys Thr Gly Met Gly Ser Gly Ser Ala Gly
115 120 125

Lys Glu Gly Gly Pro Phe Lys Ala Leu Leu Arg Gln Gln Thr Gln Ser
130 135 140

Ala Leu Glu Gln Arg Met Asn Gln Lys Leu Glu Met His Gly Gly Gln
145 150 155 160

Lys Ser Asp Lys Lys
165

<210> 10246
<211> 1053

<212> PRT
<213> Homo sapiens

<220>
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domain containing 5; "

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<400> 10246

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Met Pro Gly Lys Leu Lys Val Lys Ile Val Ala Gly Arg His Leu Pro
1               5                   10                  15


Val Met Asp Arg Ala Ser Asp Leu Thr Asp Ala Phe Val Glu Val Lys
            20                  25                  30


Phe Gly Asn Thr Thr Phe Lys Thr Asp Val Tyr Leu Lys Ser Leu Asn
        35                  40                  45


Pro Gln Trp Asn Ser Glu Trp Phe Lys Phe Glu Val Asp Asp Glu Asp
    50                  55                  60


Leu Gln Asp Glu Pro Leu Gln Ile Thr Val Leu Asp His Asp Thr Tyr
65                  70                  75                  80


Ser Ala Asn Asp Ala Ile Gly Lys Val Tyr Ile Asp Ile Asp Pro Leu
                85                  90                  95


Leu Tyr Ser Glu Ala Ala Thr Val Ile Ser Gly Trp Phe Pro Ile Tyr
            100                 105                 110


Asp Thr Ile His Gly Ile Arg Gly Glu Ile Asn Val Val Val Lys Val
        115                 120                 125
```

```
Asp Leu Phe Asn Asp Leu Asn Arg Phe Arg Gln Ser Ser Cys Gly Val
    130                 135                 140

Lys Phe Phe Cys Thr Thr Ser Ile Pro Lys Cys Tyr Arg Ala Val Ile
145                 150                 155                 160

Ile His Gly Phe Val Glu Glu Leu Val Val Asn Glu Asp Pro Glu Tyr
                165                 170                 175

Gln Trp Ile Asp Arg Ile Arg Thr Pro Arg Ala Ser Asn Glu Ala Arg
            180                 185                 190

Gln Arg Leu Ile Ser Leu Met Ser Gly Glu Leu Gln Arg Lys Ile Gly
        195                 200                 205

Leu Lys Val Leu Glu Met Arg Gly Asn Ala Val Val Gly Tyr Leu Gln
    210                 215                 220

Cys Phe Asp Leu Glu Gly Glu Ser Gly Leu Val Val Arg Ala Ile Gly
225                 230                 235                 240

Thr Ala Cys Thr Leu Asp Lys Leu Ser Ser Pro Ala Ala Phe Leu Pro
                245                 250                 255

Ala Cys Asn Ser Pro Ser Lys Glu Met Lys Glu Ser Pro Leu Val His
            260                 265                 270

Pro Pro Ser His Gly Cys Arg Ser Thr His Asn Ser Pro Ile His Thr
        275                 280                 285

Ala Thr Gly Ser Arg Leu Thr Gln Asn Phe Ser Val Ser Val Pro Thr
    290                 295                 300

Leu Ile Tyr Thr Gly Met Gly Ser Gly Ser Ala Gly Lys Glu Gly Gly
305                 310                 315                 320

Pro Phe Lys Ala Leu Leu Arg Gln Gln Thr Gln Ser Ala Leu Glu Gln
                325                 330                 335

Arg Gly Gly Ser Pro His Arg Phe Cys Arg Arg Arg Glu Phe Pro Phe
            340                 345                 350

Phe Thr Leu Thr Ala Phe Pro Pro Gly Phe Leu Val His Val Gly Gly
```

```
        355                 360                 365

Val Val Ser Ala Arg Ser Val Lys Leu Leu Asp Arg Ile His Asn Pro
    370                 375                 380

Asp Glu Pro Glu Thr Arg Asp Ala Trp Trp Ala Glu Ile Arg Gln Glu
385                 390                 395                 400

Ile Lys Ser His Ala Lys Ala Leu Gly Cys His Ala Val Val Gly Tyr
                405                 410                 415

Ser Glu Ser Thr Ser Ile Cys Glu Glu Val Cys Ile Leu Ser Ala Ser
            420                 425                 430

Gly Thr Ala Ala Val Leu Asn Pro Arg Phe Leu Gln Asp Gly Thr Val
        435                 440                 445

Glu Gly Cys Leu Glu Gln Arg Leu Glu Glu Asn Leu Pro Thr Arg Cys
    450                 455                 460

Gly Phe Cys His Ile Pro Tyr Asp Glu Leu Asn Met Pro Phe Pro Ala
465                 470                 475                 480

His Leu Thr Tyr Cys Tyr Asn Cys Arg Lys Gln Lys Val Pro Asp Val
                485                 490                 495

Leu Phe Thr Thr Ile Asp Leu Pro Thr Asp Ala Thr Val Ile Gly Lys
            500                 505                 510

Gly Cys Leu Ile Gln Ala Arg Leu Cys Arg Leu Lys Lys Lys Ala Gln
        515                 520                 525

Ala Glu Ala Asn Ala Thr Ala Ile Ser Asn Leu Leu Pro Phe Met Glu
    530                 535                 540

Tyr Glu Val His Thr Gln Leu Met Asn Lys Leu Lys Leu Lys Gly Met
545                 550                 555                 560

Asn Ala Leu Phe Gly Leu Arg Ile Gln Ile Thr Val Gly Glu Asn Met
                565                 570                 575

Leu Met Gly Leu Ala Ser Ala Thr Gly Val Tyr Leu Ala Ala Leu Pro
            580                 585                 590
```

```
Thr Pro Gly Gly Ile Gln Ile Ala Gly Lys Thr Pro Asn Asp Gly Ser
        595                 600                 605

Tyr Glu Gln His Ile Ser His Met Gln Lys Lys Ile Asn Asp Thr Ile
    610                 615                 620

Ala Lys Asn Lys Glu Leu Tyr Glu Ile Asn Pro Pro Glu Ile Ser Glu
625                 630                 635                 640

Glu Ile Ile Gly Ser Pro Ile Pro Glu Pro Arg Gln Arg Ser Arg Leu
                645                 650                 655

Leu Arg Ser Gln Ser Glu Ser Ser Asp Glu Val Thr Glu Leu Asp Leu
            660                 665                 670

Ser His Gly Lys Lys Asp Ala Phe Val Leu Glu Ile Asp Asp Thr Asp
        675                 680                 685

Ala Met Glu Asp Val His Ser Leu Leu Thr Asp Val Pro Pro Pro Ser
    690                 695                 700

Gly Phe Tyr Ser Cys Asn Thr Glu Ile Met Pro Gly Ile Asn Asn Trp
705                 710                 715                 720

Thr Ser Glu Ile Gln Met Phe Thr Ser Val Arg Val Ile Arg Leu Ser
                725                 730                 735

Ser Leu Asn Leu Thr Asn Gln Ala Leu Asn Lys Asn Phe Asn Asp Leu
            740                 745                 750

Cys Glu Asn Leu Leu Lys Ser Leu Tyr Phe Lys Leu Arg Ser Met Ile
        755                 760                 765

Pro Cys Cys Leu Cys His Val Asn Phe Thr Val Ser Leu Pro Glu Asp
    770                 775                 780

Glu Leu Ile Gln Val Thr Val Thr Ala Val Ala Ile Thr Phe Asp Lys
785                 790                 795                 800

Asn Gln Ala Leu Gln Thr Thr Lys Thr Pro Val Glu Lys Ser Leu Gln
                805                 810                 815
```

```
Arg Ala Ser Thr Asp Asn Glu Glu Leu Leu Gln Phe Pro Leu Glu Leu
            820                 825                 830

Cys Ser Asp Ser Leu Pro Ser His Pro Phe Pro Pro Ala Lys Glu His
        835                 840                 845

Leu Glu Ser Ala Ser Ser Asn Ser Gly Ile Pro Ala Ala Gln Arg Ala
    850                 855                 860

Thr Ser Val Asp Tyr Ser Ser Phe Ala Asp Arg Cys Ser Ser Trp Ile
865                 870                 875                 880

Glu Leu Ile Lys Leu Lys Ala Gln Thr Ile Arg Arg Gly Ser Ile Lys
                885                 890                 895

Thr Thr Met Thr Val Glu Lys Ala Ser Pro Val Gly Asp Gly Asn Phe
            900                 905                 910

Arg Asn Arg Ser Ala Pro Pro Cys Ala Asn Ser Thr Val Gly Val Val
        915                 920                 925

Lys Met Thr Pro Leu Ser Phe Ile Pro Gly Ala Lys Ile Thr Lys Tyr
    930                 935                 940

Leu Gly Ile Ile Asn Met Phe Phe Ile Arg Glu Thr Thr Ser Leu Arg
945                 950                 955                 960

Glu Glu Gly Gly Val Ser Gly Phe Leu His Ala Phe Ile Ala Glu Val
                965                 970                 975

Phe Ala Met Val Arg Ala His Val Ala Ala Leu Gly Gly Asn Ala Val
            980                 985                 990

Val Ser Tyr Ile Met Lys Gln Cys  Val Phe Met Glu Asn  Pro Asn
Lys
        995                 1000                1005

Asn Gln  Ala Gln Cys Leu Ile  Asn Val Ser Gly Asp  Ala Val Val
    1010                1015                1020

Phe Val  Arg Glu Ser Asp Leu  Glu Val Val Ser Ser  Gln Gln Pro
    1025                1030                1035
```

Thr Thr Asn Cys Gln Ser Ser Cys Thr Glu Gly Glu Val Thr Thr
1040 1045 1050

<210> 10247
<211> 1051
<212> PRT
<213> Homo sapiens

<220>
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domain containing 5; "

<220>
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<220>
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Met Pro Gly Lys Leu Lys Val Lys Ile Val Ala Gly Arg His Leu Pro
1 5 10 15

Val Met Asp Arg Ala Ser Asp Leu Thr Asp Ala Phe Val Glu Val Lys
20 25 30

Phe Gly Asn Thr Thr Phe Lys Thr Asp Val Tyr Leu Lys Ser Leu Asn
35 40 45

Pro Gln Trp Asn Ser Glu Trp Phe Lys Phe Glu Val Asp Asp Glu Asp
50 55 60

Leu Gln Asp Glu Pro Leu Gln Ile Thr Val Leu Asp His Asp Thr Tyr
65 70 75 80

Ser Ala Asn Asp Ala Ile Gly Lys Val Tyr Ile Asp Ile Asp Pro Leu
85 90 95

Leu Tyr Ser Glu Ala Ala Thr Val Ile Ser Gly Trp Phe Pro Ile Tyr

```
            100                 105                 110

Asp Thr Ile His Gly Ile Arg Gly Glu Ile Asn Val Val Val Lys Val
        115                 120                 125

Asp Leu Phe Asn Asp Leu Asn Arg Phe Arg Gln Ser Ser Cys Gly Val
    130                 135                 140

Lys Phe Phe Cys Thr Thr Ser Ile Pro Lys Cys Tyr Arg Ala Val Ile
145                 150                 155                 160

Ile His Gly Phe Val Glu Glu Leu Val Val Asn Glu Asp Pro Glu Tyr
                165                 170                 175

Gln Trp Ile Asp Arg Ile Arg Thr Pro Arg Ala Ser Asn Glu Ala Arg
            180                 185                 190

Gln Arg Leu Ile Ser Leu Met Ser Gly Glu Leu Gln Arg Lys Ile Gly
        195                 200                 205

Leu Lys Val Leu Glu Met Arg Gly Asn Ala Val Val Gly Tyr Leu Gln
    210                 215                 220

Cys Phe Asp Leu Glu Gly Glu Ser Gly Leu Val Val Arg Ala Ile Gly
225                 230                 235                 240

Thr Ala Cys Thr Leu Asp Lys Leu Ser Ser Pro Ala Ala Phe Leu Pro
                245                 250                 255

Ala Cys Asn Ser Pro Ser Lys Glu Met Lys Glu Ile Pro Phe Asn Glu
            260                 265                 270

Asp Pro Asn Pro Asn Thr His Ser Ser Gly Pro Ser Thr Pro Leu Lys
        275                 280                 285

Asn Gln Thr Tyr Ser Phe Ser Pro Ser Lys Ser Tyr Ser Arg Gln Ser
    290                 295                 300

Ser Ser Ser Asp Thr Asp Leu Ser Leu Thr Pro Lys Thr Gly Met Gly
305                 310                 315                 320

Ser Gly Ser Ala Gly Lys Glu Gly Gly Pro Phe Lys Ala Leu Leu Arg
                325                 330                 335
```

```
Gln Gln Thr Gln Ser Ala Leu Glu Gln Arg Glu Phe Pro Phe Phe Thr
            340                 345                 350

Leu Thr Ala Phe Pro Pro Gly Phe Leu Val His Val Gly Gly Val Val
        355                 360                 365

Ser Ala Arg Ser Val Lys Leu Leu Asp Arg Ile His Asn Pro Asp Glu
    370                 375                 380

Pro Glu Thr Arg Asp Ala Trp Trp Ala Glu Ile Arg Gln Glu Ile Lys
385                 390                 395                 400

Ser His Ala Lys Ala Leu Gly Cys His Ala Val Val Gly Tyr Ser Glu
                405                 410                 415

Ser Thr Ser Ile Cys Glu Glu Val Cys Ile Leu Ser Ala Ser Gly Thr
            420                 425                 430

Ala Ala Val Leu Asn Pro Arg Phe Leu Gln Asp Gly Thr Val Glu Gly
        435                 440                 445

Cys Leu Glu Gln Arg Leu Glu Glu Asn Leu Pro Thr Arg Cys Gly Phe
    450                 455                 460

Cys His Ile Pro Tyr Asp Glu Leu Asn Met Pro Phe Pro Ala His Leu
465                 470                 475                 480

Thr Tyr Cys Tyr Asn Cys Arg Lys Gln Lys Val Pro Asp Val Leu Phe
                485                 490                 495

Thr Thr Ile Asp Leu Pro Thr Asp Ala Thr Val Ile Gly Lys Gly Cys
            500                 505                 510

Leu Ile Gln Ala Arg Leu Cys Arg Leu Lys Lys Lys Ala Gln Ala Glu
        515                 520                 525

Ala Asn Ala Thr Ala Ile Ser Asn Leu Leu Pro Phe Met Glu Tyr Glu
    530                 535                 540

Val His Thr Gln Leu Met Asn Lys Leu Lys Leu Lys Gly Met Asn Ala
545                 550                 555                 560
```

```
Leu Phe Gly Leu Arg Ile Gln Ile Thr Val Gly Glu Asn Met Leu Met
                565                 570                 575

Gly Leu Ala Ser Ala Thr Gly Val Tyr Leu Ala Ala Leu Pro Thr Pro
            580                 585                 590

Gly Gly Ile Gln Ile Ala Gly Lys Thr Pro Asn Asp Gly Ser Tyr Glu
        595                 600                 605

Gln His Ile Ser His Met Gln Lys Lys Ile Asn Asp Thr Ile Ala Lys
    610                 615                 620

Asn Lys Glu Leu Tyr Glu Ile Asn Pro Pro Glu Ile Ser Glu Glu Ile
625                 630                 635                 640

Ile Gly Ser Pro Ile Pro Glu Pro Arg Gln Arg Ser Arg Leu Leu Arg
                645                 650                 655

Ser Gln Ser Glu Ser Ser Asp Glu Val Thr Glu Leu Asp Leu Ser His
            660                 665                 670

Gly Lys Lys Asp Ala Phe Val Leu Glu Ile Asp Asp Thr Asp Ala Met
        675                 680                 685

Glu Asp Val His Ser Leu Leu Thr Asp Val Pro Pro Pro Ser Gly Phe
    690                 695                 700

Tyr Ser Cys Asn Thr Glu Ile Met Pro Gly Ile Asn Asn Trp Thr Ser
705                 710                 715                 720

Glu Ile Gln Met Phe Thr Ser Val Arg Val Ile Arg Leu Ser Ser Leu
                725                 730                 735

Asn Leu Thr Asn Gln Ala Leu Asn Lys Asn Phe Asn Asp Leu Cys Glu
            740                 745                 750

Asn Leu Leu Lys Ser Leu Tyr Phe Lys Leu Arg Ser Met Ile Pro Cys
        755                 760                 765

Cys Leu Cys His Val Asn Phe Thr Val Ser Leu Pro Glu Asp Glu Leu
    770                 775                 780
```

```
Ile Gln Val Thr Val Thr Ala Val Ala Ile Thr Phe Asp Lys Asn Gln
785                 790                 795                 800

Ala Leu Gln Thr Thr Lys Thr Pro Val Glu Lys Ser Leu Gln Arg Ala
                805                 810                 815

Ser Thr Asp Asn Glu Glu Leu Leu Gln Phe Pro Leu Glu Leu Cys Ser
            820                 825                 830

Asp Ser Leu Pro Ser His Pro Phe Pro Pro Ala Lys Glu His Leu Glu
        835                 840                 845

Ser Ala Ser Ser Asn Ser Gly Ile Pro Ala Ala Gln Arg Ala Thr Ser
    850                 855                 860

Val Asp Tyr Ser Ser Phe Ala Asp Arg Cys Ser Ser Trp Ile Glu Leu
865                 870                 875                 880

Ile Lys Leu Lys Ala Gln Thr Ile Arg Arg Gly Ser Ile Lys Thr Thr
                885                 890                 895

Met Thr Val Glu Lys Ala Ser Pro Val Gly Asp Gly Asn Phe Arg Asn
            900                 905                 910

Arg Ser Ala Pro Pro Cys Ala Asn Ser Thr Val Gly Val Val Lys Met
        915                 920                 925

Thr Pro Leu Ser Phe Ile Pro Gly Ala Lys Ile Thr Lys Tyr Leu Gly
    930                 935                 940

Ile Ile Asn Met Phe Phe Ile Arg Glu Thr Thr Ser Leu Arg Glu Glu
945                 950                 955                 960

Gly Gly Val Ser Gly Phe Leu His Ala Phe Ile Ala Glu Val Phe Ala
                965                 970                 975

Met Val Arg Ala His Val Ala Ala Leu Gly Gly Asn Ala Val Val Ser
            980                 985                 990

Tyr Ile Met Lys Gln Cys Val Phe  Met Glu Asn Pro Asn  Lys Asn
Gln
        995                 1000                1005
```

```
Ala Gln  Cys Leu Ile Asn Val  Ser Gly Asp Ala Val  Val Phe Val
    1010                1015                1020


Arg Glu  Ser Asp Leu Glu Val  Val Ser Ser Gln Gln  Pro Thr Thr
    1025                1030                1035


Asn Cys  Gln Ser Ser Cys Thr  Glu Gly Glu Val Thr  Thr
    1040                1045                1050


<210> 10248
<211> 1054
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2053; "

<220>
<221> source
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<220>
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      domain containing 5; "

<220>
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<223> /note="Uniprot ID:  Q86YS7; "

<220>
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<223> /note="ENSP ID: ENSP00000443204"

<400> 10248
Met Pro Gly Lys Leu Lys Val Lys Ile Val Ala Gly Arg His Leu Pro
1               5                  10                  15


Val Met Asp Arg Ala Ser Asp Leu Thr Asp Ala Phe Val Glu Val Lys
            20                  25                  30


Phe Gly Asn Thr Thr Phe Lys Thr Asp Val Tyr Leu Lys Ser Leu Asn
        35                  40                  45


Pro Gln Trp Asn Ser Glu Trp Phe Lys Phe Glu Val Asp Asp Glu Asp
    50                  55                  60


Leu Gln Asp Glu Pro Leu Gln Ile Thr Val Leu Asp His Asp Thr Tyr
65                  70                  75                  80
```

```
Ser Ala Asn Asp Ala Ile Gly Lys Val Tyr Ile Asp Ile Asp Pro Leu
                85                  90                  95

Leu Tyr Ser Glu Ala Ala Thr Val Ile Ser Gly Trp Phe Pro Ile Tyr
            100                 105                 110

Asp Thr Ile His Gly Ile Arg Gly Glu Ile Asn Val Val Val Lys Val
        115                 120                 125

Asp Leu Phe Asn Asp Leu Asn Arg Phe Arg Gln Ser Ser Cys Gly Val
    130                 135                 140

Lys Phe Phe Cys Thr Thr Ser Ile Pro Lys Cys Tyr Arg Ala Val Ile
145                 150                 155                 160

Ile His Gly Phe Val Glu Glu Leu Val Val Asn Glu Asp Pro Glu Tyr
                165                 170                 175

Gln Trp Ile Asp Arg Ile Arg Thr Pro Arg Ala Ser Asn Glu Ala Arg
            180                 185                 190

Gln Arg Leu Ile Ser Leu Met Ser Gly Glu Leu Gln Arg Lys Ile Gly
        195                 200                 205

Leu Lys Val Leu Glu Met Arg Gly Asn Ala Val Val Gly Tyr Leu Gln
    210                 215                 220

Cys Phe Asp Leu Glu Gly Glu Ser Gly Leu Val Val Arg Ala Ile Gly
225                 230                 235                 240

Thr Ala Cys Thr Leu Asp Lys Leu Ser Ser Pro Ala Ala Phe Leu Pro
                245                 250                 255

Ala Cys Asn Ser Pro Ser Lys Glu Met Lys Glu Ser Pro Leu Val His
            260                 265                 270

Pro Pro Ser His Gly Cys Arg Ser Thr His Asn Ser Pro Ile His Thr
        275                 280                 285

Ala Thr Gly Ser Arg Leu Thr Gln Asn Phe Ser Val Ser Val Pro Thr
    290                 295                 300
```

```
Leu Ile Tyr Thr Gly Met Gly Ser Gly Ser Ala Gly Lys Glu Gly Gly
305                 310                 315                 320

Pro Phe Lys Ala Leu Leu Arg Gln Gln Thr Gln Ser Ala Leu Glu Gln
                325                 330                 335

Arg Glu Phe Pro Phe Phe Thr Leu Thr Ala Phe Pro Pro Gly Phe Leu
            340                 345                 350

Val His Val Gly Gly Val Val Ser Ala Arg Ser Val Lys Leu Leu Asp
        355                 360                 365

Arg Ile His Asn Pro Ala Phe Val Gly Ile Met Gly Asn Thr Arg Ser
    370                 375                 380

Tyr Lys Leu Leu Asp Trp Asn Ser Phe Asn Ser Asp Glu Pro Glu Thr
385                 390                 395                 400

Arg Asp Ala Trp Trp Ala Glu Ile Arg Gln Glu Ile Lys Ser His Ala
                405                 410                 415

Lys Ala Leu Gly Cys His Ala Val Val Gly Tyr Ser Glu Ser Thr Ser
            420                 425                 430

Ile Cys Glu Glu Val Cys Ile Leu Ser Ala Ser Gly Thr Ala Ala Val
        435                 440                 445

Leu Asn Pro Arg Phe Leu Gln Asp Gly Thr Val Glu Gly Cys Leu Glu
    450                 455                 460

Gln Arg Leu Glu Glu Asn Leu Pro Thr Arg Cys Gly Phe Cys His Ile
465                 470                 475                 480

Pro Tyr Asp Glu Leu Asn Met Pro Phe Pro Ala His Leu Thr Tyr Cys
                485                 490                 495

Tyr Asn Cys Arg Lys Gln Lys Val Pro Asp Val Leu Phe Thr Thr Ile
            500                 505                 510

Asp Leu Pro Thr Asp Ala Thr Val Ile Gly Lys Gly Cys Leu Ile Gln
        515                 520                 525
```

```
Ala Arg Leu Cys Arg Leu Lys Lys Lys Ala Gln Ala Glu Ala Asn Ala
    530                 535                 540

Thr Ala Ile Ser Asn Leu Leu Pro Phe Met Glu Tyr Glu Val His Thr
545                 550                 555                 560

Gln Leu Met Asn Lys Leu Lys Leu Lys Gly Met Asn Ala Leu Phe Gly
                565                 570                 575

Leu Arg Ile Gln Ile Thr Val Gly Glu Asn Met Leu Met Gly Leu Ala
            580                 585                 590

Ser Ala Thr Gly Val Tyr Leu Ala Ala Leu Pro Thr Pro Gly Gly Ile
        595                 600                 605

Gln Ile Ala Gly Lys Thr Pro Asn Asp Gly Ser Tyr Glu Gln His Ile
    610                 615                 620

Ser His Met Gln Lys Lys Ile Asn Asp Thr Ile Ala Lys Asn Lys Glu
625                 630                 635                 640

Leu Tyr Glu Ile Asn Pro Pro Glu Ile Ser Glu Glu Ile Ile Gly Ser
                645                 650                 655

Pro Ile Pro Glu Pro Arg Gln Arg Ser Arg Leu Leu Arg Ser Gln Ser
            660                 665                 670

Glu Ser Ser Asp Glu Val Thr Glu Leu Asp Leu Ser His Gly Lys Lys
        675                 680                 685

Asp Ala Phe Val Leu Glu Ile Asp Asp Thr Asp Ala Met Glu Asp Val
    690                 695                 700

His Ser Leu Leu Thr Asp Val Pro Pro Pro Ser Gly Phe Tyr Ser Cys
705                 710                 715                 720

Asn Thr Glu Ile Met Pro Gly Ile Asn Asn Trp Thr Ser Glu Ile Gln
                725                 730                 735

Met Phe Thr Ser Val Arg Val Ile Arg Leu Ser Ser Leu Asn Leu Thr
            740                 745                 750

Asn Gln Ala Leu Asn Lys Asn Phe Asn Asp Leu Cys Glu Asn Leu Leu
```

```
        755                 760                 765

Lys Ser Leu Tyr Phe Lys Leu Arg Ser Met Ile Pro Cys Cys Leu Cys
    770                 775                 780

His Val Asn Phe Thr Val Ser Leu Pro Glu Asp Glu Leu Ile Gln Val
785                 790                 795                 800

Thr Val Thr Ala Val Ala Ile Thr Phe Asp Lys Asn Gln Ala Leu Gln
                805                 810                 815

Thr Thr Lys Thr Pro Val Glu Lys Ser Leu Gln Arg Ala Ser Thr Asp
            820                 825                 830

Asn Glu Glu Leu Leu Gln Phe Pro Leu Glu Leu Cys Ser Asp Ser Leu
        835                 840                 845

Pro Ser His Pro Phe Pro Pro Ala Lys Glu His Leu Glu Ser Ala Ser
    850                 855                 860

Ser Asn Ser Gly Ile Pro Ala Ala Gln Arg Asp Arg Cys Ser Ser Trp
865                 870                 875                 880

Ile Glu Leu Ile Lys Leu Lys Ala Gln Thr Ile Arg Arg Gly Ser Ile
                885                 890                 895

Lys Thr Thr Met Thr Val Glu Lys Ala Ser Pro Val Gly Asp Gly Asn
            900                 905                 910

Phe Arg Asn Arg Ser Ala Pro Pro Cys Ala Asn Ser Thr Val Gly Val
        915                 920                 925

Val Lys Met Thr Pro Leu Ser Phe Ile Pro Gly Ala Lys Ile Thr Lys
    930                 935                 940

Tyr Leu Gly Ile Ile Asn Met Phe Phe Ile Arg Glu Thr Thr Ser Leu
945                 950                 955                 960

Arg Glu Glu Gly Gly Val Ser Gly Phe Leu His Ala Phe Ile Ala Glu
                965                 970                 975

Val Phe Ala Met Val Arg Ala His Val Ala Ala Leu Gly Gly Asn Ala
            980                 985                 990
```

Val Val Ser Tyr Ile Met Lys Gln Cys Val Phe Met Glu Asn Pro
Asn
        995   1000   1005

Lys Asn Gln Ala Gln Cys Leu Ile Asn Val Ser Gly Asp Ala Val
    1010   1015   1020

Val Phe Val Arg Glu Ser Asp Leu Glu Val Val Ser Ser Gln Gln
    1025   1030   1035

Pro Thr Thr Asn Cys Gln Ser Ser Cys Thr Glu Gly Glu Val Thr
    1040   1045   1050

Thr

<210> 10249
<211> 182
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: C2CD5; "

<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000444857"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10249
Xaa Gln Gln Thr Gln Ser Ala Leu Glu Gln Arg Gly Gly Ser Pro His
1   5   10   15

Arg Phe Cys Arg Arg Arg Glu Phe Pro Phe Phe Thr Leu Thr Ala Phe

```
            20                  25                  30

Pro Pro Gly Phe Leu Val His Val Gly Gly Val Val Ser Ala Arg Ser
        35                  40                  45

Val Lys Leu Leu Asp Arg Ile His Asn Pro Ala Phe Val Gly Ile Met
    50                  55                  60

Gly Asn Thr Arg Ser Tyr Lys Leu Leu Asp Trp Asn Ser Phe Asn Ser
65                  70                  75                  80

Asp Glu Pro Glu Thr Arg Asp Ala Trp Trp Ala Glu Ile Arg Gln Glu
                85                  90                  95

Ile Lys Ser His Ala Lys Ala Leu Gly Cys His Ala Val Val Gly Tyr
            100                 105                 110

Ser Glu Ser Thr Ser Ile Cys Glu Glu Val Cys Ile Leu Ser Ala Ser
        115                 120                 125

Gly Thr Ala Ala Val Leu Asn Pro Arg Phe Leu Gln Asp Gly Thr Val
    130                 135                 140

Glu Gly Cys Leu Glu Gln Arg Leu Glu Glu Asn Leu Pro Thr Arg Cys
145                 150                 155                 160

Gly Phe Cys His Ile Pro Tyr Asp Glu Leu Asn Met Pro Phe Pro Ala
                165                 170                 175

His Leu Thr Tyr Cys Tyr
            180


<210> 10250
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2054; "

<220>
<221> source
<223> /note="Gene Symbol: C21orf62-AS1; "

<220>
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<221> source
<223> /note="Gene Name: C21orf62 antisense RNA 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q17RA5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000459537"

<400> 10250
Met His His Val Arg Gln Leu Met Met Pro Ile Cys Pro Met Ala Leu
1   5   10   15

Asn Ser Thr Thr Ser Ser Ser Thr Thr Phe Gly Ala Phe Arg Ile Met
            20   25   30

Thr Leu Asn Val Glu Glu Trp Ala Thr Ala Trp Lys Val Leu Ile Leu
        35   40   45

Leu Glu Ala Ala Val Glu Glu Glu Lys Arg Ser Glu Glu Lys Arg Ile
    50   55   60

Leu Val Cys Gly Thr Cys Gly Thr Arg Ser Ser Gln Lys Asn Leu
65   70   75

<210> 10251
<211> 14
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2054; "

<220>
<221> source
<223> /note="Gene Symbol: C21orf62-AS1; "

<220>
<221> source
<223> /note="Gene Name: C21orf62 antisense RNA 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460208"

<400> 10251
Met His His Val Arg Gln Leu Met Met Pro Ile Cys Pro Met
1   5   10

<210> 10252
<211> 49
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2054; "

<220>
<221> source
<223> /note="Gene Symbol: C21orf62-AS1; "

<220>
<221> source
<223> /note="Gene Name: C21orf62 antisense RNA 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460870"

<400> 10252
Met His His Val Arg Gln Leu Met Met Pro Ile Cys Pro Met Val Leu
1   5   10   15

Ile Leu Leu Glu Ala Ala Val Glu Glu Glu Lys Arg Ser Glu Glu Lys
            20   25   30

Arg Ile Leu Val Cys Gly Thr Cys Gly Thr Arg Ser Ser Gln Lys Asn
        35   40   45

Leu

<210> 10253
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: C21orf62-AS1; "

<220>
<221> source
<223> /note="Gene Name: C21orf62 antisense RNA 1; "

<220>

<221> source
<223> /note="Uniprot ID: Q17RA5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461835"

<400> 10253
Met His His Val Arg Gln Leu Met Met Pro Ile Cys Pro Met Ala Leu
1   5   10   15

Asn Ser Thr Thr Ser Ser Ser Thr Thr Phe Gly Ala Phe Arg Ile Met
            20   25   30

Thr Leu Asn Val Glu Glu Trp Ala Thr Ala Trp Lys Val Leu Ile Leu
        35   40   45

Leu Glu Ala Ala Val Glu Glu Glu Lys Arg Ser Glu Glu Lys Arg Ile
    50   55   60

Leu Val Cys Gly Thr Cys Gly Thr Arg Ser Ser Gln Lys Asn Leu
65   70   75

<210> 10254
<211> 707
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2055; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD2L; "

<220>
<221> source
<223> /note="Gene Name: C2CD2-like; "

<220>
<221> source
<223> /note="Uniprot ID: O14523; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000338885"

<400> 10254
Met Asp Pro Gly Trp Gly Gln Arg Asp Val Gly Trp Ala Ala Leu Leu
1   5   10   15

```
Ile Leu Phe Ala Ala Ser Leu Leu Thr Val Phe Ala Trp Leu Leu Gln
            20                  25                  30

Tyr Ala Arg Gly Leu Trp Leu Ala Arg Ala Arg Gly Asp Arg Gly Pro
        35                  40                  45

Gly Pro Ala Leu Ala Gly Glu Pro Ala Gly Ser Leu Arg Glu Leu Gly
    50                  55                  60

Val Trp Arg Ser Leu Leu Arg Leu Arg Ala Thr Arg Ala Gly Ala Ala
65                  70                  75                  80

Glu Glu Pro Gly Val Arg Gly Leu Leu Ala Ser Leu Phe Ala Phe Lys
                85                  90                  95

Ser Phe Arg Glu Asn Trp Gln Arg Ala Trp Val Arg Ala Leu Asn Glu
            100                 105                 110

Gln Ala Cys Arg Asn Gly Ser Ser Ile Gln Ile Ala Phe Glu Glu Val
        115                 120                 125

Pro Gln Leu Pro Pro Arg Ala Ser Ile Ser His Val Thr Cys Val Asp
    130                 135                 140

Gln Ser Glu His Thr Met Val Leu Arg Cys Gln Leu Ser Ala Glu Glu
145                 150                 155                 160

Val Arg Phe Pro Val Ser Val Thr Gln Gln Ser Pro Ala Ala Val Ser
                165                 170                 175

Met Glu Thr Tyr His Val Thr Leu Thr Leu Pro Pro Thr Gln Leu Glu
            180                 185                 190

Val Asn Leu Glu Glu Ile Pro Gly Glu Gly Leu Leu Ile Ser Trp Ala
        195                 200                 205

Phe Thr Asp Arg Pro Asp Leu Ser Leu Thr Val Leu Pro Lys Leu Gln
    210                 215                 220

Ala Arg Glu Arg Gly Glu Glu Gln Val Glu Leu Ser Thr Ile Glu Glu
225                 230                 235                 240
```

```
Leu Ile Lys Asp Ala Ile Val Ser Thr Gln Pro Ala Met Met Val Asn
                245                 250                 255

Leu Arg Ala Cys Ser Ala Pro Gly Gly Leu Val Pro Ser Glu Lys Pro
            260                 265                 270

Pro Met Met Pro Gln Ala Gln Pro Ala Ile Pro Arg Pro Asn Arg Leu
        275                 280                 285

Phe Leu Arg Gln Leu Arg Ala Ser His Leu Gly Asn Glu Leu Glu Gly
    290                 295                 300

Thr Glu Glu Leu Cys Cys Val Ala Glu Leu Asp Asn Pro Met Gln Gln
305                 310                 315                 320

Lys Trp Thr Lys Pro Ala Arg Ala Gly Ser Glu Val Glu Trp Thr Glu
                325                 330                 335

Asp Leu Ala Leu Asp Leu Gly Pro Gln Ser Arg Glu Leu Thr Leu Lys
            340                 345                 350

Val Leu Arg Ser Ser Ser Cys Gly Asp Thr Glu Leu Leu Gly Gln Ala
        355                 360                 365

Thr Leu Pro Val Gly Ser Pro Ser Arg Pro Leu Ser Arg Arg Gln Leu
    370                 375                 380

Cys Pro Leu Thr Pro Gly Pro Gly Lys Ala Leu Gly Pro Ala Ala Thr
385                 390                 395                 400

Met Ala Val Glu Leu His Tyr Glu Glu Gly Ser Pro Arg Asn Leu Gly
                405                 410                 415

Thr Pro Thr Ser Ser Thr Pro Arg Pro Ser Ile Thr Pro Thr Lys Lys
            420                 425                 430

Ile Glu Leu Asp Arg Thr Ile Met Pro Asp Gly Thr Ile Val Thr Thr
        435                 440                 445

Val Thr Thr Val Gln Ser Arg Pro Arg Ile Asp Gly Lys Leu Asp Ser
    450                 455                 460

Pro Ser Arg Ser Pro Ser Lys Val Glu Val Thr Glu Lys Thr Thr Thr
```

```
465                 470                 475                 480

Val Leu Ser Glu Ser Ser Gly Pro Ser Asn Thr Ser His Ser Ser Ser
                485                 490                 495

Pro Gly Asp Ser His Leu Ser Asn Gly Leu Asp Pro Val Ala Glu Thr
            500                 505                 510

Ala Ile Arg Gln Leu Thr Glu Pro Ser Gly Arg Val Ala Lys Lys Thr
        515                 520                 525

Pro Thr Lys Arg Ser Thr Leu Ile Ile Ser Gly Val Ser Lys Val Pro
    530                 535                 540

Ile Ala Gln Asp Glu Leu Ala Leu Ser Leu Gly Tyr Ala Ala Ser Leu
545                 550                 555                 560

Glu Ala Ser Val Gln Asp Asp Ala Gly Thr Ser Gly Gly Pro Ser Ser
                565                 570                 575

Pro Pro Ser Asp Pro Pro Ala Met Ser Pro Gly Pro Leu Asp Ala Leu
            580                 585                 590

Ser Ser Pro Thr Ser Val Gln Glu Ala Asp Glu Thr Thr Arg Ser Asp
        595                 600                 605

Ile Ser Glu Arg Pro Ser Val Asp Asp Ile Glu Ser Glu Thr Gly Ser
    610                 615                 620

Thr Gly Ala Leu Glu Thr Arg Ser Leu Lys Asp His Lys Val Ser Phe
625                 630                 635                 640

Leu Arg Ser Gly Thr Lys Leu Ile Phe Arg Arg Arg Pro Arg Gln Lys
                645                 650                 655

Glu Ala Gly Leu Ser Gln Ser His Asp Asp Leu Ser Asn Ala Thr Ala
            660                 665                 670

Thr Pro Ser Val Arg Lys Lys Ala Gly Ser Phe Ser Arg Arg Leu Ile
        675                 680                 685

Lys Arg Phe Ser Phe Lys Ser Lys Pro Lys Ala Asn Gly Asn Pro Ser
    690                 695                 700
```

Pro Gln Leu
705

<210> 10255
<211> 391
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2055; "

<220>
<221> source
<223> /note="Gene Symbol: C2CD2L; "

<220>
<221> source
<223> /note="Gene Name: C2CD2-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433600"

<400> 10255
Met Met Val Asn Leu Arg Ala Cys Ser Ala Pro Gly Gly Leu Val Pro
1 5 10 15

Ser Glu Lys Pro Pro Met Met Pro Gln Ala Gln Pro Ala Ile Pro Arg
20 25 30

Pro Asn Arg Leu Phe Leu Arg Gln Leu Arg Ala Ser His Leu Gly Asn
35 40 45

Glu Leu Glu Gly Thr Glu Glu Leu Cys Cys Val Ala Glu Leu Asp Asn
50 55 60

Pro Met Gln Gln Lys Trp Thr Lys Pro Ala Arg Ala Gly Ser Glu Val
65 70 75 80

Glu Trp Thr Glu Asp Leu Ala Leu Asp Leu Gly Pro Gln Ser Arg Glu
85 90 95

Leu Thr Leu Lys Val Leu Arg Ser Ser Ser Cys Gly Asp Thr Glu Leu
100 105 110

Leu Gly Gln Ala Thr Leu Pro Val Gly Ser Pro Ser Arg Pro Leu Ser

```
        115                 120                 125

Arg Arg Gln Leu Cys Pro Leu Thr Pro Gly Pro Gly Lys Ala Leu Gly
    130                 135                 140

Pro Ala Ala Thr Met Ala Val Glu Leu His Tyr Glu Glu Gly Ser Pro
145                 150                 155                 160

Arg Asn Leu Gly Thr Pro Thr Ser Ser Thr Pro Arg Pro Ser Ile Thr
                165                 170                 175

Pro Thr Lys Lys Ile Glu Leu Asp Arg Thr Ile Met Pro Asp Gly Thr
            180                 185                 190

Ile Val Thr Thr Val Thr Thr Val Gln Ser Arg Pro Arg Ile Asp Gly
        195                 200                 205

Lys Leu Asp Ser Pro Ser Arg Ser Pro Ser Lys Val Glu Val Thr Glu
    210                 215                 220

Lys Thr Thr Thr Val Leu Ser Glu Ser Ser Gly Pro Ser Asn Thr Ser
225                 230                 235                 240

His Ser Ser Ser Arg Asp Ser His Leu Ser Asn Gly Leu Asp Pro Val
                245                 250                 255

Ala Glu Thr Ala Ile Arg Gln Leu Thr Glu Pro Ser Gly Arg Val Ala
            260                 265                 270

Lys Lys Thr Pro Thr Lys Arg Ser Thr Leu Ile Ile Ser Gly Val Ser
        275                 280                 285

Lys Val Pro Ile Ala Gln Asp Glu Leu Ala Leu Ser Leu Gly Tyr Ala
    290                 295                 300

Ala Ser Leu Glu Ala Ser Val Gln Asp Asp Ala Gly Thr Ser Gly Gly
305                 310                 315                 320

Pro Ser Ser Pro Pro Ser Asp Pro Pro Ala Met Ser Pro Gly Pro Leu
                325                 330                 335

Asp Ala Leu Ser Ser Pro Thr Ser Val Gln Glu Ala Asp Glu Thr Thr
            340                 345                 350
```

```
Arg Ser Asp Ile Ser Glu Arg Pro Ser Val Asp Asp Ile Glu Ser Glu
        355                 360                 365

Thr Gly Ser Thr Gly Ala Leu Glu Thr Arg Ser Leu Lys Asp His Lys
    370                 375                 380

Ala Ser Pro Leu Pro Leu Gln
385                 390
```

<210> 10256
<211> 550
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2056; "

<220>
<221> source
<223> /note="Gene Symbol: CPAMD8; "

<220>
<221> source
<223> /note="Gene Name: C3 and PZP-like, alpha-2-macroglobulin
domain containing 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZJ3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000291440"

<400> 10256

```
Met Ala Pro Gly Ala Leu Arg Gly Gly Cys Glu Gln Arg Ala Pro Gly
1               5                  10                  15

Gly Gly Ala Arg Thr Ala Ala Leu Gly Pro Trp Pro Trp Pro Ser Pro
            20                  25                  30

Gly Pro Ala Pro Ser Pro Gly Ala Ala Pro Pro Arg Ser Arg Lys Met
        35                  40                  45

Ser Gly Ala Leu Leu Trp Pro Leu Leu Pro Leu Leu Leu Leu Leu Leu
    50                  55                  60
```

```
Ser Ala Arg Asp Gly Val Arg Ala Ala Gln Pro Gln Ala Pro Gly Tyr
65                  70                  75                  80

Leu Ile Ala Ala Pro Ser Val Phe Arg Ala Gly Val Glu Glu Val Ile
                85                  90                  95

Ser Val Thr Ile Phe Asn Ser Pro Arg Glu Val Thr Val Gln Ala Gln
            100                 105                 110

Leu Val Ala Gln Gly Glu Pro Val Val Gln Ser Gln Gly Ala Ile Leu
        115                 120                 125

Asp Lys Gly Thr Ile Lys Leu Lys Val Pro Thr Gly Leu Arg Gly Gln
    130                 135                 140

Ala Leu Leu Lys Val Trp Gly Arg Gly Trp Gln Ala Glu Glu Gly Pro
145                 150                 155                 160

Leu Phe His Asn Gln Thr Ser Val Thr Val Asp Gly Arg Gly Ala Ser
                165                 170                 175

Val Phe Ile Gln Thr Asp Lys Pro Val Tyr Arg Pro Gln His Arg Val
            180                 185                 190

Leu Ile Ser Ile Phe Thr Val Ser Pro Asn Leu Arg Pro Val Asn Glu
        195                 200                 205

Lys Leu Glu Ala Tyr Ile Leu Asp Pro Arg Gly Ser Arg Met Ile Glu
    210                 215                 220

Trp Arg His Leu Lys Pro Phe Cys Cys Gly Ile Thr Asn Met Ser Phe
225                 230                 235                 240

Pro Leu Ser Asp Gln Pro Val Leu Gly Glu Trp Phe Ile Phe Val Glu
                245                 250                 255

Met Gln Gly His Ala Tyr Asn Lys Ser Phe Glu Val Gln Lys Tyr Val
            260                 265                 270

Leu Pro Lys Phe Glu Leu Leu Ile Asp Pro Pro Arg Tyr Ile Gln Asp
        275                 280                 285

Leu Asp Ala Cys Glu Thr Gly Thr Val Arg Ala Arg Tyr Thr Phe Gly
```

290 295 300

Lys Pro Val Ala Gly Ala Leu Met Ile Asn Met Thr Val Asn Gly Val
305 310 315 320

Gly Tyr Tyr Ser His Glu Val Gly Arg Pro Val Leu Arg Thr Thr Lys
325 330 335

Ile Leu Gly Ser Arg Asp Phe Asp Ile Cys Val Arg Asp Met Ile Pro
340 345 350

Ala Asp Val Pro Glu His Phe Arg Gly Arg Val Ser Ile Trp Ala Met
355 360 365

Val Thr Ser Val Asp Gly Ser Gln Gln Val Ala Phe Asp Asp Ser Thr
370 375 380

Pro Val Gln Arg Gln Leu Val Asp Ile Arg Tyr Ser Lys Asp Thr Arg
385 390 395 400

Lys Gln Phe Lys Pro Gly Leu Ala Tyr Val Gly Lys Val Glu Leu Ser
405 410 415

Tyr Pro Asp Gly Ser Pro Ala Glu Gly Val Thr Val Gln Ile Lys Ala
420 425 430

Glu Leu Thr Pro Lys Asp Asn Ile Tyr Thr Ser Glu Val Val Ser Gln
435 440 445

Arg Gly Leu Val Gly Phe Glu Ile Pro Ser Ile Pro Thr Ser Ala Gln
450 455 460

His Val Trp Leu Glu Val Phe Gln Glu Leu Glu Asp Tyr Asp Val Ser
465 470 475 480

Asp Ser Phe Gly Val Ser Arg Glu Asp Gly Pro Phe Trp Trp Ala Gly
485 490 495

Leu Thr Ala Gln Arg Arg Arg Arg Ser Ser Val Phe Pro Trp Pro Trp
500 505 510

Gly Ile Thr Lys Asp Ser Gly Phe Ala Phe Thr Val Arg Arg Gly Asn
515 520 525

Gly Thr Gly Gly Asp Asp Arg Pro Ser Glu Pro Glu Pro Pro Ala Gly
530 535 540

Arg Trp Pro Leu His Arg
545 550

<210> 10257
<211> 503
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2056; "

<220>
<221> source
<223> /note="Gene Symbol: CPAMD8; "

<220>
<221> source
<223> /note="Gene Name: C3 and PZP-like, alpha-2-macroglobulin domain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000373577"

<400> 10257
Met Ser Gly Ala Leu Leu Trp Pro Leu Leu Pro Leu Leu Leu Leu Leu
1 5 10 15

Leu Ser Ala Arg Asp Gly Val Arg Ala Ala Gln Pro Gln Ala Pro Gly
20 25 30

Tyr Leu Ile Ala Ala Pro Ser Val Phe Arg Ala Gly Val Glu Glu Val
35 40 45

Ile Ser Val Thr Ile Phe Asn Ser Pro Arg Glu Val Thr Val Gln Ala
50 55 60

Gln Leu Val Ala Gln Gly Glu Pro Val Val Gln Ser Gln Gly Ala Ile
65 70 75 80

Leu Asp Lys Gly Thr Ile Lys Leu Lys Val Pro Thr Gly Leu Arg Gly
85 90 95

```
Gln Ala Leu Leu Lys Val Trp Gly Arg Gly Trp Gln Ala Glu Glu Gly
            100                 105                 110

Pro Leu Phe His Asn Gln Thr Ser Val Thr Val Asp Gly Arg Gly Ala
        115                 120                 125

Ser Val Phe Ile Gln Thr Asp Lys Pro Val Tyr Arg Pro Gln His Arg
    130                 135                 140

Val Leu Ile Ser Ile Phe Thr Val Ser Pro Asn Leu Arg Pro Val Asn
145                 150                 155                 160

Glu Lys Leu Glu Ala Tyr Ile Leu Asp Pro Arg Gly Ser Arg Met Ile
                165                 170                 175

Glu Trp Arg His Leu Lys Pro Phe Cys Cys Gly Ile Thr Asn Met Ser
            180                 185                 190

Phe Pro Leu Ser Asp Gln Pro Val Leu Gly Glu Trp Phe Ile Phe Val
        195                 200                 205

Glu Met Gln Gly His Ala Tyr Asn Lys Ser Phe Glu Val Gln Lys Tyr
    210                 215                 220

Val Leu Pro Lys Phe Glu Leu Leu Ile Asp Pro Pro Arg Tyr Ile Gln
225                 230                 235                 240

Asp Leu Asp Ala Cys Glu Thr Gly Thr Val Arg Ala Arg Tyr Thr Phe
                245                 250                 255

Gly Lys Pro Val Ala Gly Ala Leu Met Ile Asn Met Thr Val Asn Gly
            260                 265                 270

Val Gly Tyr Tyr Ser His Glu Val Gly Arg Pro Val Leu Arg Thr Thr
        275                 280                 285

Lys Ile Leu Gly Ser Arg Asp Phe Asp Ile Cys Val Arg Asp Met Ile
    290                 295                 300

Pro Ala Asp Val Pro Glu His Phe Arg Gly Arg Val Ser Ile Trp Ala
305                 310                 315                 320

Met Val Thr Ser Val Asp Gly Ser Gln Gln Val Ala Phe Asp Asp Ser
```

```
                325                 330                 335

Thr Pro Val Gln Arg Gln Leu Val Asp Ile Arg Tyr Ser Lys Asp Thr
            340                 345                 350

Arg Lys Gln Phe Lys Pro Gly Leu Ala Tyr Val Gly Lys Val Glu Leu
        355                 360                 365

Ser Tyr Pro Asp Gly Ser Pro Ala Glu Gly Val Thr Val Gln Ile Lys
    370                 375                 380

Ala Glu Leu Thr Pro Lys Asp Asn Ile Tyr Thr Ser Glu Val Val Ser
385                 390                 395                 400

Gln Arg Gly Leu Val Gly Phe Glu Ile Pro Ser Ile Pro Thr Ser Ala
                405                 410                 415

Gln His Val Trp Leu Glu Val Phe Gln Glu Leu Glu Asp Tyr Asp Val
            420                 425                 430

Ser Asp Ser Phe Gly Val Ser Arg Glu Asp Gly Pro Phe Trp Trp Ala
        435                 440                 445

Gly Leu Thr Ala Gln Arg Arg Arg Arg Ser Ser Val Phe Pro Trp Pro
    450                 455                 460

Trp Gly Ile Thr Lys Asp Ser Gly Phe Ala Phe Thr Val Arg Arg Gly
465                 470                 475                 480

Asn Gly Thr Gly Gly Asp Asp Arg Pro Ser Glu Pro Glu Pro Pro Ala
                485                 490                 495

Gly Arg Trp Pro Leu His Arg
            500


<210> 10258
<211> 1932
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2056; "

<220>
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<221> source
<223> /note="Gene Symbol: CPAMD8; "

<220>
<221> source
<223> /note="Gene Name: C3 and PZP-like, alpha-2-macroglobulin
domain containing 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IZJ3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000402505"

<400> 10258
Met Ala Pro Gly Ala Leu Arg Gly Gly Cys Glu Gln Arg Ala Pro Gly
1   5   10   15

Gly Gly Ala Arg Thr Ala Ala Leu Gly Pro Trp Pro Trp Pro Ser Pro
            20   25   30

Gly Pro Ala Pro Ser Pro Gly Ala Ala Pro Pro Arg Ser Arg Lys Met
        35   40   45

Ser Gly Ala Leu Leu Trp Pro Leu Leu Pro Leu Leu Leu Leu Leu Leu
    50   55   60

Ser Ala Arg Asp Gly Val Arg Ala Ala Gln Pro Gln Ala Pro Gly Tyr
65   70   75   80

Leu Ile Ala Ala Pro Ser Val Phe Arg Ala Gly Val Glu Glu Val Ile
                85   90   95

Ser Val Thr Ile Phe Asn Ser Pro Arg Glu Val Thr Val Gln Ala Gln
            100   105   110

Leu Val Ala Gln Gly Glu Pro Val Val Gln Ser Gln Gly Ala Ile Leu
        115   120   125

Asp Lys Gly Thr Ile Lys Leu Lys Val Pro Thr Gly Leu Arg Gly Gln
    130   135   140

Ala Leu Leu Lys Val Trp Gly Arg Gly Trp Gln Ala Glu Glu Gly Pro
145   150   155   160

```
Leu Phe His Asn Gln Thr Ser Val Thr Val Asp Gly Arg Gly Ala Ser
                165                 170                 175

Val Phe Ile Gln Thr Asp Lys Pro Val Tyr Arg Pro Gln His Arg Val
            180                 185                 190

Leu Ile Ser Ile Phe Thr Val Ser Pro Asn Leu Arg Pro Val Asn Glu
        195                 200                 205

Lys Leu Glu Ala Tyr Ile Leu Asp Pro Arg Gly Ser Arg Met Ile Glu
    210                 215                 220

Trp Arg His Leu Lys Pro Phe Cys Cys Gly Ile Thr Asn Met Ser Phe
225                 230                 235                 240

Pro Leu Ser Asp Gln Pro Val Leu Gly Glu Trp Phe Ile Phe Val Glu
                245                 250                 255

Met Gln Gly His Ala Tyr Asn Lys Ser Phe Glu Val Gln Lys Tyr Val
            260                 265                 270

Leu Pro Lys Phe Glu Leu Leu Ile Asp Pro Pro Arg Tyr Ile Gln Asp
        275                 280                 285

Leu Asp Ala Cys Glu Thr Gly Thr Val Arg Ala Arg Tyr Thr Phe Gly
    290                 295                 300

Lys Pro Val Ala Gly Ala Leu Met Ile Asn Met Thr Val Asn Gly Val
305                 310                 315                 320

Gly Tyr Tyr Ser His Glu Val Gly Arg Pro Val Leu Arg Thr Thr Lys
                325                 330                 335

Ile Leu Gly Ser Arg Asp Phe Asp Ile Cys Val Arg Asp Met Ile Pro
            340                 345                 350

Ala Asp Val Pro Glu His Phe Arg Gly Arg Val Ser Ile Trp Ala Met
        355                 360                 365

Val Thr Ser Val Asp Gly Ser Gln Gln Val Ala Phe Asp Asp Ser Thr
    370                 375                 380

Pro Val Gln Arg Gln Leu Val Asp Ile Arg Tyr Ser Lys Asp Thr Arg
```

385 390 395 400

Lys Gln Phe Lys Pro Gly Leu Ala Tyr Val Gly Lys Val Glu Leu Ser
405 410 415

Tyr Pro Asp Gly Ser Pro Ala Glu Gly Val Thr Val Gln Ile Lys Ala
420 425 430

Glu Leu Thr Pro Lys Asp Asn Ile Tyr Thr Ser Glu Val Val Ser Gln
435 440 445

Arg Gly Leu Val Gly Phe Glu Ile Pro Ser Ile Pro Thr Ser Ala Gln
450 455 460

His Val Trp Leu Glu Thr Lys Val Met Ala Leu Asn Gly Lys Pro Val
465 470 475 480

Gly Ala Gln Tyr Leu Pro Ser Tyr Leu Ser Leu Gly Ser Trp Tyr Ser
485 490 495

Pro Ser Gln Cys Tyr Leu Gln Leu Gln Pro Pro Ser His Pro Leu Gln
500 505 510

Val Gly Glu Glu Ala Tyr Phe Ser Val Lys Ser Thr Cys Pro Cys Asn
515 520 525

Phe Thr Leu Tyr Tyr Glu Val Ala Ala Arg Gly Asn Ile Val Leu Ser
530 535 540

Gly Gln Gln Pro Ala His Thr Thr Gln Gln Arg Ser Lys Arg Ala Ala
545 550 555 560

Pro Ala Leu Glu Lys Pro Ile Arg Leu Thr His Leu Ser Glu Thr Glu
565 570 575

Pro Pro Pro Ala Pro Glu Ala Glu Val Asp Val Cys Val Thr Ser Leu
580 585 590

His Leu Ala Val Thr Pro Ser Met Val Pro Leu Gly Arg Leu Leu Val
595 600 605

Phe Tyr Val Arg Glu Asn Gly Glu Gly Val Ala Asp Ser Leu Gln Phe
610 615 620

```
Ala Val Glu Thr Phe Phe Glu Asn Gln Val Ser Val Thr Tyr Ser Ala
625                 630                 635                 640

Asn Glu Thr Gln Pro Gly Glu Val Val Asp Leu Arg Ile Arg Ala Ala
                645                 650                 655

Arg Gly Ser Cys Val Cys Val Ala Ala Val Asp Lys Ser Val Tyr Leu
            660                 665                 670

Leu Arg Ser Gly Phe Arg Leu Thr Pro Ala Gln Val Phe Gln Glu Leu
        675                 680                 685

Glu Asp Tyr Asp Val Ser Asp Ser Phe Gly Val Ser Arg Glu Asp Gly
    690                 695                 700

Pro Phe Trp Trp Ala Gly Leu Thr Ala Gln Arg Arg Arg Arg Ser Ser
705                 710                 715                 720

Val Phe Pro Trp Pro Trp Gly Ile Thr Lys Asp Ser Gly Phe Ala Phe
                725                 730                 735

Thr Glu Thr Gly Leu Val Val Met Thr Asp Arg Val Ser Leu Asn His
            740                 745                 750

Arg Gln Asp Gly Gly Leu Tyr Thr Asp Glu Ala Val Pro Ala Phe Gln
        755                 760                 765

Pro His Thr Gly Ser Leu Val Ala Val Ala Pro Ser Arg His Pro Pro
    770                 775                 780

Arg Thr Glu Lys Arg Lys Arg Thr Phe Phe Pro Glu Thr Trp Ile Trp
785                 790                 795                 800

His Cys Leu Asn Ile Ser Asp Pro Ser Gly Glu Gly Thr Leu Ser Val
                805                 810                 815

Lys Val Pro Asp Ser Ile Thr Ser Trp Val Gly Glu Ala Val Ala Leu
            820                 825                 830

Ser Thr Ser Gln Gly Leu Gly Ile Ala Glu Pro Ser Leu Leu Lys Thr
        835                 840                 845
```

```
Phe Lys Pro Phe Phe Val Asp Phe Met Leu Pro Ala Leu Ile Ile Arg
    850                 855                 860

Gly Glu Gln Val Lys Ile Pro Leu Ser Val Tyr Asn Tyr Met Gly Thr
865                 870                 875                 880

Cys Ala Glu Val Tyr Met Lys Leu Ser Val Pro Lys Gly Ile Gln Phe
                885                 890                 895

Val Gly His Pro Gly Lys Arg His Val Thr Lys Lys Met Cys Val Ala
            900                 905                 910

Pro Gly Glu Ala Glu Pro Ile Trp Val Val Leu Ser Phe Ser Asp Leu
        915                 920                 925

Gly Leu Asn Asn Ile Thr Ala Lys Ala Leu Ala Tyr Gly Asp Thr Asn
    930                 935                 940

Cys Cys Arg Asp Gly Arg Ser Ser Lys His Pro Glu Glu Asn His Ala
945                 950                 955                 960

Asp Arg Arg Val Pro Ile Gly Val Asp His Val Arg Arg Ser Val Met
                965                 970                 975

Val Glu Ala Glu Gly Val Pro Arg Ala Tyr Thr Tyr Ser Ala Phe Phe
            980                 985                 990

Cys Pro Ser Glu Arg Val His Ile  Ser Thr Pro Asn Lys  Tyr Glu
Phe
        995                 1000                1005

Gln Tyr  Val Gln Arg Pro Leu  Arg Leu Thr Arg Phe  Asp Val Ala
    1010                1015                1020

Val Arg  Ala His Asn Asp Ala  Arg Val Ala Leu Ser  Ser Gly Pro
    1025                1030                1035

Gln Asp  Thr Ala Gly Met Ile  Glu Ile Val Leu Gly  Gly His Gln
    1040                1045                1050

Asn Thr  Arg Ser Trp Ile Ser  Thr Ser Lys Met Gly  Glu Pro Val
    1055                1060                1065
```

```
Ala Ser  Ala His Thr Ala Lys  Ile Leu Ser Trp Asp  Glu Phe Arg
    1070                1075                1080

Thr Phe  Trp Ile Ser Trp Arg  Gly Gly Leu Ile Gln  Val Gly His
    1085                1090                1095

Gly Pro  Glu Pro Ser Asn Glu  Ser Val Ile Val Ala  Trp Thr Leu
    1100                1105                1110

Pro Arg  Pro Pro Glu Val Gln  Phe Ile Gly Phe Ser  Thr Gly Trp
    1115                1120                1125

Gly Ser  Met Gly Glu Phe Arg  Ile Trp Arg Lys Met  Glu Val Asp
    1130                1135                1140

Glu Ser  Tyr Ser Glu Ala Phe  Thr Leu Gly Val Pro  His Gly Ala
    1145                1150                1155

Ile Pro  Gly Ser Glu Arg Ala  Thr Ala Ser Ile Ile  Gly Asp Val
    1160                1165                1170

Met Gly  Pro Thr Leu Asn His  Leu Asn Asn Leu Leu  Arg Leu Pro
    1175                1180                1185

Phe Gly  Cys Gly Glu Gln Asn  Met Ile His Phe Ala  Pro Asn Val
    1190                1195                1200

Phe Val  Leu Lys Tyr Leu Gln  Lys Thr Gln Gln Leu  Ser Pro Glu
    1205                1210                1215

Val Glu  Arg Glu Thr Thr Asp  Tyr Leu Val Gln Gly  Tyr Gln Arg
    1220                1225                1230

Gln Leu  Thr Tyr Lys Arg Gln  Asp Gly Ser Tyr Ser  Ala Phe Gly
    1235                1240                1245

Glu Arg  Asp Ala Ser Gly Ser  Met Trp Leu Thr Ala  Phe Val Leu
    1250                1255                1260

Lys Ser  Phe Ala Gln Ala Arg  Ser Phe Ile Phe Val  Asp Pro Arg
    1265                1270                1275
```

```
Glu Leu  Ala Ala Ala Lys Ser  Trp Ile Ile Gln Gln  Gln Gln Ala
    1280                1285                1290

Asp Gly  Ser Phe Leu Ala Val  Gly Arg Val Leu Asn  Lys Asp Ile
    1295                1300                1305

Gln Gly  Gly Ile His Gly Thr  Val Pro Leu Thr Ala  Tyr Val Val
    1310                1315                1320

Val Ala  Leu Leu Glu Thr Gly  Thr Ala Ser Glu Glu  Glu Arg Gly
    1325                1330                1335

Ser Thr  Asp Lys Ala Arg His  Phe Leu Glu Ser Ala  Ala Pro Leu
    1340                1345                1350

Ala Met  Asp Pro Tyr Ser Cys  Ala Leu Thr Thr Tyr  Ala Leu Thr
    1355                1360                1365

Leu Leu  Arg Ser Pro Ala Ala  Pro Glu Ala Leu Arg  Lys Leu Arg
    1370                1375                1380

Ser Leu  Ala Ile Met Arg Asp  Gly Val Thr His Trp  Ser Leu Ser
    1385                1390                1395

Asn Ser  Trp Asp Val Asp Lys  Gly Thr Phe Leu Ser  Phe Ser Asp
    1400                1405                1410

Arg Val  Ser Gln Ser Val Val  Ser Ala Glu Val Glu  Met Thr Ala
    1415                1420                1425

Tyr Ala  Leu Leu Thr Tyr Thr  Leu Leu Gly Asp Val  Ala Ala Ala
    1430                1435                1440

Leu Pro  Val Val Lys Trp Leu  Ser Gln Gln Arg Asn  Ala Leu Gly
    1445                1450                1455

Gly Phe  Ser Ser Thr Gln Asp  Thr Cys Val Ala Leu  Gln Ala Leu
    1460                1465                1470

Ala Glu  Tyr Ala Ile Leu Ser  Tyr Ala Gly Gly Ile  Asn Leu Thr
    1475                1480                1485

Val Ser  Leu Ala Ser Thr Asn  Leu Asp Tyr Gln Glu  Thr Phe Glu
```

1490 1495 1500

Leu His Arg Thr Asn Gln Lys Val Leu Gln Thr Ala Ala Ile Pro
1505 1510 1515

Ser Leu Pro Thr Gly Leu Phe Val Ser Ala Lys Gly Asp Gly Cys
1520 1525 1530

Cys Leu Met Gln Ile Asp Val Thr Tyr Asn Val Pro Asp Pro Val
1535 1540 1545

Ala Lys Pro Ala Phe Gln Leu Leu Val Ser Leu Gln Glu Pro Glu
1550 1555 1560

Ala Gln Gly Arg Pro Pro Pro Met Pro Ala Ser Ala Ala Glu Gly
1565 1570 1575

Ser Arg Gly Asp Trp Pro Pro Ala Asp Asp Asp Asp Pro Ala Ala
1580 1585 1590

Asp Gln His His Gln Glu Tyr Lys Val Met Leu Glu Val Cys Thr
1595 1600 1605

Arg Trp Leu His Ala Gly Ser Ser Asn Met Ala Val Leu Glu Val
1610 1615 1620

Pro Leu Leu Ser Gly Phe Arg Ala Asp Ile Glu Ser Leu Glu Gln
1625 1630 1635

Leu Leu Leu Asp Lys His Met Gly Met Lys Arg Tyr Glu Val Ala
1640 1645 1650

Gly Arg Arg Val Leu Phe Tyr Phe Asp Glu Ile Pro Ser Arg Cys
1655 1660 1665

Leu Thr Cys Val Arg Phe Arg Ala Leu Arg Glu Cys Val Val Gly
1670 1675 1680

Arg Thr Ser Ala Leu Pro Val Ser Val Tyr Asp Tyr Tyr Glu Pro
1685 1690 1695

Ala Phe Glu Ala Thr Arg Phe Tyr Asn Val Ser Thr His Ser Pro
1700 1705 1710

```
Leu Ala  Arg Glu Leu Cys Ala  Gly Pro Ala Cys Asn  Glu Val Glu
    1715                1720                1725

Arg Ala  Pro Ala Arg Gly Pro  Gly Trp Phe Pro Gly  Glu Ser Gly
    1730                1735                1740

Pro Ala  Val Ala Pro Glu Glu  Gly Ala Ala Ile Ala  Arg Cys Gly
    1745                1750                1755

Cys Asp  His Asp Cys Gly Ala  Gln Gly Asn Pro Val  Cys Gly Ser
    1760                1765                1770

Asp Gly  Val Val Tyr Ala Ser  Ala Cys Arg Leu Arg  Glu Ala Ala
    1775                1780                1785

Cys Arg  Gln Ala Ala Pro Leu  Glu Pro Ala Pro Pro  Ser Cys Cys
    1790                1795                1800

Ala Leu  Glu Gln Arg Leu Pro  Ala Ser Ser Ser Ser  Thr Tyr Gly
    1805                1810                1815

Asp Asp  Leu Ala Ser Val Ala  Pro Gly Pro Leu Gln  Gln Asp Val
    1820                1825                1830

Lys Leu  Asn Gly Ala Gly Leu  Glu Val Glu Asp Ser  Asp Pro Glu
    1835                1840                1845

Pro Glu  Gly Glu Ala Glu Asp  Arg Val Thr Ala Gly  Pro Arg Pro
    1850                1855                1860

Pro Val  Ser Ser Gly Asn Leu  Glu Ser Ser Thr Gln  Ser Ala Ser
    1865                1870                1875

Pro Phe  His Arg Trp Gly Gln  Thr Pro Ala Pro Gln  Arg His Ser
    1880                1885                1890

Gly Arg  Val Val Gly Ala His  Arg Pro Gly Leu Leu  Ser Pro Val
    1895                1900                1905

Phe Val  Tyr Ser Pro Ala Phe  Gln Ser Gly Gly Glu  Glu Gly Leu
    1910                1915                1920
```

Trp Met Ser Asn Thr Cys Thr Leu Arg
1925 1930

<210> 10259
<211> 175
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2056; "

<220>
<221> source
<223> /note="Gene Symbol: CPAMD8; "

<220>
<221> source
<223> /note="Gene Name: C3 and PZP-like, alpha-2-macroglobulin domain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000469163"

<400> 10259
Leu Leu Leu Asp Lys His Met Gly Met Lys Arg Tyr Glu Val Ala Gly
1 5 10 15

Arg Arg Val Leu Phe Tyr Phe Asp Glu Ile Pro Ser Arg Cys Leu Thr
20 25 30

Cys Val Arg Phe Arg Ala Leu Arg Glu Cys Val Val Gly Arg Thr Ser
35 40 45

Ala Leu Pro Val Ser Val Tyr Asp Tyr Tyr Glu Pro Ala Phe Glu Ala
50 55 60

Thr Arg Phe Tyr Asn Val Ser Thr His Ser Pro Leu Ala Arg Glu Leu
65 70 75 80

Cys Ala Gly Pro Ala Cys Asn Glu Val Glu Arg Ala Pro Ala Arg Gly
85 90 95

Pro Gly Trp Phe Pro Gly Glu Ser Gly Pro Ala Val Ala Pro Glu Glu
100 105 110

Gly Ala Ala Ile Ala Arg Cys Gly Cys Asp His Asp Cys Gly Ala Gln

115 120 125

Gly Asn Pro Val Cys Gly Ser Asp Gly Val Val Tyr Ala Ser Ala Cys
130 135 140

Arg Leu Arg Glu Ala Ala Cys Arg Gln Ala Ala Pro Leu Glu Pro Ala
145 150 155 160

Pro Pro Ser Cys Cys Ala Leu Ala Gly Arg Glu Ala Glu Trp Ser
165 170 175

<210> 10260
<211> 338
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2056; "

<220>
<221> source
<223> /note="Gene Symbol: CPAMD8; "

<220>
<221> source
<223> /note="Gene Name: C3 and PZP-like, alpha-2-macroglobulin domain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000471545"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10260
Xaa Val Ser Ala Lys Gly Asp Gly Cys Cys Leu Met Gln Ile Asp Val
1 5 10 15

Thr Tyr Asn Val Pro Asp Pro Val Ala Lys Pro Ala Phe Gln Leu Leu
20 25 30

Val Ser Leu Gln Glu Pro Glu Ala Gln Gly Arg Pro Pro Pro Met Pro
35 40 45

Ala Ser Ala Ala Glu Gly Ser Arg Gly Asp Trp Pro Pro Ala Asp Asp

```
    50                  55                  60

Asp Asp Pro Ala Ala Asp Gln His His Gln Glu Tyr Lys Val Met Leu
65                  70                  75                  80

Glu Val Cys Thr Arg Trp Leu His Ala Gly Ser Ser Asn Met Ala Val
                85                  90                  95

Leu Glu Val Pro Leu Leu Ser Gly Phe Arg Ala Asp Ile Glu Ser Leu
            100                 105                 110

Glu Gln Leu Leu Leu Asp Lys His Met Gly Met Lys Arg Tyr Glu Val
        115                 120                 125

Ala Gly Arg Arg Val Leu Phe Tyr Phe Asp Glu Ile Pro Ser Arg Cys
    130                 135                 140

Leu Thr Cys Val Arg Phe Arg Ala Leu Arg Glu Cys Val Val Gly Arg
145                 150                 155                 160

Thr Ser Ala Leu Pro Val Ser Val Tyr Asp Tyr Tyr Glu Pro Ala Phe
                165                 170                 175

Glu Ala Thr Arg Phe Tyr Asn Val Ser Thr His Ser Pro Leu Ala Arg
            180                 185                 190

Glu Leu Cys Ala Gly Pro Ala Cys Asn Glu Val Glu Arg Ala Pro Ala
        195                 200                 205

Arg Gly Pro Gly Trp Phe Pro Gly Glu Ser Gly Pro Ala Val Ala Pro
    210                 215                 220

Glu Glu Gly Ala Ala Ile Ala Arg Cys Gly Cys Asp His Asp Cys Gly
225                 230                 235                 240

Ala Gln Gly Asn Pro Val Cys Gly Ser Asp Gly Val Val Tyr Ala Ser
                245                 250                 255

Ala Cys Arg Leu Arg Glu Ala Ala Cys Arg Gln Ala Ala Pro Leu Glu
            260                 265                 270

Pro Ala Pro Pro Ser Cys Cys Ala Leu Glu Gln Arg Leu Pro Ala Ser
        275                 280                 285
```

```
Ser Ser Ser Thr Tyr Gly Asp Asp Leu Ala Ser Val Ala Pro Gly Pro
    290                 295                 300

Leu Gln Gln Asp Val Lys Leu Asn Gly Ala Gly Leu Glu Val Glu Asp
305                 310                 315                 320

Ser Asp Pro Glu Pro Glu Gly Glu Ala Glu Asp Ser Gln Ser Gly Phe
                325                 330                 335

Ser Ser
```

<210> 10261
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2056; "

<220>
<221> source
<223> /note="Gene Symbol: CPAMD8; "

<220>
<221> source
<223> /note="Gene Name: C3 and PZP-like, alpha-2-macroglobulin
domain containing 8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473216"

<400> 10261

```
Arg Thr Gln Thr Leu Ser Leu Lys Gly Arg Arg Arg Thr Glu Arg Leu
1               5                   10                  15

Leu Phe Leu Thr Ala Ala Leu Leu Arg Ala Gly Arg His His Leu Ala
            20                  25                  30

Ala Ser Cys Pro Tyr Gln Pro Val Thr Leu Tyr Gly Gly Trp Ala Asp
        35                  40                  45

Leu Ser Pro Gly Asp Thr Cys Leu
    50                  55
```

<210> 10262
<211> 458
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2057; "

<220>
<221> source
<223> /note="Gene Symbol: C7orf55-LUC7L2; "

<220>
<221> source
<223> /note="Gene Name: C7orf55-LUC7L2 readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440222"

<400> 10262
Met Ala Ala Leu Gly Ser Pro Ser His Thr Phe Arg Gly Leu Leu Arg
1   5   10   15

Glu Leu Arg Tyr Leu Ser Ala Ala Thr Gly Arg Pro Tyr Arg Asp Thr
            20   25   30

Ala Ala Tyr Arg Tyr Leu Val Lys Ala Phe Arg Ala His Arg Val Thr
        35   40   45

Ser Glu Lys Leu Cys Arg Ala Gln His Glu Leu His Phe Gln Ala Ala
    50   55   60

Thr Tyr Leu Cys Leu Leu Arg Ser Ile Arg Lys His Val Ala Leu His
65   70   75   80

Gln Glu Phe His Gly Lys Gly Asp Thr Thr Arg Gln Arg Ile Lys Phe
                85   90   95

Ser Asp Asp Arg Val Cys Lys Ser His Leu Leu Asn Cys Cys Pro His
            100   105   110

Asp Val Leu Ser Gly Thr Arg Met Asp Leu Gly Glu Cys Leu Lys Val
        115   120   125

His Asp Leu Ala Leu Arg Ala Asp Tyr Glu Ile Ala Ser Lys Glu Gln
    130   135   140

```
Asp Phe Phe Phe Glu Leu Asp Ala Met Asp His Leu Gln Ser Phe Ile
145                 150                 155                 160

Ala Asp Cys Asp Arg Arg Thr Glu Val Ala Lys Lys Arg Leu Ala Glu
                165                 170                 175

Thr Gln Glu Glu Ile Ser Ala Glu Val Ala Ala Lys Ala Glu Arg Val
            180                 185                 190

His Glu Leu Asn Glu Glu Ile Gly Lys Leu Leu Ala Lys Val Glu Gln
        195                 200                 205

Leu Gly Ala Glu Gly Asn Val Glu Glu Ser Gln Lys Val Met Asp Glu
    210                 215                 220

Val Glu Lys Ala Arg Ala Lys Lys Arg Glu Ala Glu Glu Val Tyr Arg
225                 230                 235                 240

Asn Ser Met Pro Ala Ser Ser Phe Gln Gln Gln Lys Leu Arg Val Cys
                245                 250                 255

Glu Val Cys Ser Ala Tyr Leu Gly Leu His Asp Asn Asp Arg Arg Leu
            260                 265                 270

Ala Asp His Phe Gly Gly Lys Leu His Leu Gly Phe Ile Glu Ile Arg
        275                 280                 285

Glu Lys Leu Glu Glu Leu Lys Arg Val Val Ala Glu Lys Gln Glu Lys
    290                 295                 300

Arg Asn Gln Glu Arg Leu Lys Arg Arg Glu Glu Arg Glu Arg Glu Glu
305                 310                 315                 320

Arg Glu Lys Leu Arg Arg Ser Arg Ser His Ser Lys Asn Pro Lys Arg
                325                 330                 335

Ser Arg Ser Arg Glu His Arg Arg His Arg Ser Arg Ser Met Ser Arg
            340                 345                 350

Glu Arg Lys Arg Arg Thr Arg Ser Lys Ser Arg Glu Lys Arg His Arg
        355                 360                 365
```

```
His Arg Ser Arg Ser Ser Ser Arg Ser Arg Ser Arg Ser His Gln Arg
    370                 375                 380

Ser Arg His Ser Ser Arg Asp Arg Ser Arg Glu Arg Ser Lys Arg Arg
385                 390                 395                 400

Ser Ser Lys Glu Arg Phe Arg Asp Gln Asp Leu Ala Ser Cys Asp Arg
                405                 410                 415

Asp Arg Ser Ser Arg Asp Arg Ser Pro Arg Asp Arg Asp Arg Lys Asp
            420                 425                 430

Lys Lys Arg Ser Tyr Glu Ser Ala Asn Gly Arg Ser Glu Asp Arg Arg
        435                 440                 445

Ser Ser Glu Glu Arg Glu Ala Gly Glu Ile
    450                 455


<210> 10263
<211> 496
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2058; "

<220>
<221> source
<223> /note="Gene Symbol: C8orf44-SGK3; "

<220>
<221> source
<223> /note="Gene Name: C8orf44-SGK3 readthrough; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429022"

<400> 10263
Met Gln Arg Asp His Thr Met Asp Tyr Lys Glu Ser Cys Pro Ser Val
1               5                   10                  15

Ser Ile Pro Ser Ser Asp Glu His Arg Glu Lys Lys Lys Arg Phe Thr
            20                  25                  30

Val Tyr Lys Val Leu Val Ser Val Gly Arg Ser Glu Trp Phe Val Phe
        35                  40                  45
```

```
Arg Arg Tyr Ala Glu Phe Asp Lys Leu Tyr Asn Thr Leu Lys Lys Gln
    50                  55                  60

Phe Pro Ala Met Ala Leu Lys Ile Pro Ala Lys Arg Ile Phe Gly Asp
65                  70                  75                  80

Asn Phe Asp Pro Asp Phe Ile Lys Gln Arg Arg Ala Gly Leu Asn Glu
                85                  90                  95

Phe Ile Gln Asn Leu Val Arg Tyr Pro Glu Leu Tyr Asn His Pro Asp
            100                 105                 110

Val Arg Ala Phe Leu Gln Met Asp Ser Pro Lys His Gln Ser Asp Pro
        115                 120                 125

Ser Glu Asp Glu Asp Glu Arg Ser Ser Gln Lys Leu His Ser Thr Ser
    130                 135                 140

Gln Asn Ile Asn Leu Gly Pro Ser Gly Asn Pro His Ala Lys Pro Thr
145                 150                 155                 160

Asp Phe Asp Phe Leu Lys Val Ile Gly Lys Gly Ser Phe Gly Lys Val
                165                 170                 175

Leu Leu Ala Lys Arg Lys Leu Asp Gly Lys Phe Tyr Ala Val Lys Val
            180                 185                 190

Leu Gln Lys Lys Ile Val Leu Asn Arg Lys Glu Gln Lys His Ile Met
        195                 200                 205

Ala Glu Arg Asn Val Leu Leu Lys Asn Val Lys His Pro Phe Leu Val
    210                 215                 220

Gly Leu His Tyr Ser Phe Gln Thr Thr Glu Lys Leu Tyr Phe Val Leu
225                 230                 235                 240

Asp Phe Val Asn Gly Gly Glu Leu Phe Phe His Leu Gln Arg Glu Arg
                245                 250                 255

Ser Phe Pro Glu His Arg Ala Arg Phe Tyr Ala Ala Glu Ile Ala Ser
            260                 265                 270
```

Ala Leu Gly Tyr Leu His Ser Ile Lys Ile Val Tyr Arg Asp Leu Lys
275 280 285

Pro Glu Asn Ile Leu Leu Asp Ser Val Gly His Val Val Leu Thr Asp
290 295 300

Phe Gly Leu Cys Lys Glu Gly Ile Ala Ile Ser Asp Thr Thr Thr Thr
305 310 315 320

Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro Glu Val Ile Arg Lys Gln
325 330 335

Pro Tyr Asp Asn Thr Val Asp Trp Trp Cys Leu Gly Ala Val Leu Tyr
340 345 350

Glu Met Leu Tyr Gly Leu Pro Pro Phe Tyr Cys Arg Asp Val Ala Glu
355 360 365

Met Tyr Asp Asn Ile Leu His Lys Pro Leu Ser Leu Arg Pro Gly Val
370 375 380

Ser Leu Thr Ala Trp Ser Ile Leu Glu Glu Leu Leu Glu Lys Asp Arg
385 390 395 400

Gln Asn Arg Leu Gly Ala Lys Glu Asp Phe Leu Glu Ile Gln Asn His
405 410 415

Pro Phe Phe Glu Ser Leu Ser Trp Ala Asp Leu Val Gln Lys Lys Ile
420 425 430

Pro Pro Pro Phe Asn Pro Asn Val Ala Gly Pro Asp Asp Ile Arg Asn
435 440 445

Phe Asp Thr Ala Phe Thr Glu Glu Thr Val Pro Tyr Ser Val Cys Val
450 455 460

Ser Ser Asp Tyr Ser Ile Val Asn Ala Ser Val Leu Glu Ala Asp Asp
465 470 475 480

Ala Phe Val Gly Phe Ser Tyr Ala Pro Pro Ser Glu Asp Leu Phe Leu
485 490 495

<210> 10264

<211> 1314
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2059; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
<221> source
<223> /note="Uniprot ID: Q9ULU8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000283269"

<400> 10264
Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Ile Val Glu
1   5   10   15

Glu Glu Ser Gly Lys Glu Val Leu Gly Ser Ala Pro Ser Gly Ala Arg
            20   25   30

Leu Ser Pro Ser Arg Thr Ser Glu Gly Ser Ala Gly Ser Ala Gly Leu
        35   40   45

Gly Gly Gly Gly Ala Gly Ala Gly Ala Gly Val Gly Ala Gly Gly Gly
    50   55   60

Gly Gly Ser Gly Ala Ser Ser Gly Gly Gly Ala Gly Gly Leu Gln Pro
65   70   75   80

Ser Ser Arg Ala Gly Gly Gly Arg Pro Ser Ser Pro Ser Pro Ser Val
                85   90   95

Val Ser Glu Lys Glu Lys Glu Glu Leu Glu Arg Leu Gln Lys Glu Glu
            100   105   110

Glu Glu Arg Lys Lys Arg Leu Gln Leu Tyr Val Phe Val Met Arg Cys
        115   120   125

```
Ile Ala Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg
    130                 135                 140

Gln Gln Lys Ile Ser Lys Gln Gln Leu Gln Thr Val Lys Asp Arg Phe
145                 150                 155                 160

Gln Ala Phe Leu Asn Gly Glu Thr Gln Ile Met Ala Asp Glu Ala Phe
                165                 170                 175

Met Asn Ala Val Gln Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg
            180                 185                 190

Val Ala Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Ser Arg
        195                 200                 205

Glu Val Phe Lys Lys His Ile Glu Lys Arg Val Arg Ser Leu Pro Glu
    210                 215                 220

Ile Asp Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Met Ala Lys
225                 230                 235                 240

Phe Asp Ala Ile Tyr Arg Gly Glu Glu Asp Pro Arg Lys Gln Gln Ala
                245                 250                 255

Arg Met Thr Ala Ser Ala Ala Ser Glu Leu Ile Leu Ser Lys Glu Gln
            260                 265                 270

Leu Tyr Glu Met Phe Gln Asn Ile Leu Gly Ile Lys Lys Phe Glu His
        275                 280                 285

Gln Leu Leu Tyr Asn Ala Cys Gln Leu Asp Asn Pro Asp Glu Gln Ala
    290                 295                 300

Ala Gln Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Met Ala Asp Gln
305                 310                 315                 320

Ile Ala Arg Glu Arg Lys Phe Pro Lys Phe Val Ser Lys Glu Met Glu
                325                 330                 335

Asn Met Tyr Ile Glu Glu Leu Lys Ser Ser Val Asn Leu Leu Met Ala
            340                 345                 350

Asn Leu Glu Ser Met Pro Val Ser Lys Gly Gly Glu Phe Lys Leu Gln
```

```
        355                 360                 365

Lys Leu Lys Arg Ser His Asn Ala Ser Ile Ile Asp Met Gly Glu Glu
    370                 375                 380

Ser Glu Asn Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Ser Leu
385                 390                 395                 400

Glu Val Val Ile Met Glu Val Gln Gly Leu Lys Ser Leu Ala Pro Asn
                405                 410                 415

Arg Ile Val Tyr Cys Thr Met Glu Val Glu Gly Gly Glu Lys Leu Gln
            420                 425                 430

Thr Asp Gln Ala Glu Ala Ser Lys Pro Thr Trp Gly Thr Gln Gly Asp
        435                 440                 445

Phe Ser Thr Thr His Ala Leu Pro Ala Val Lys Val Lys Leu Phe Thr
    450                 455                 460

Glu Ser Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val
465                 470                 475                 480

Ile Leu His Pro Thr Pro Asn Ser Pro Lys Gln Ser Glu Trp His Lys
                485                 490                 495

Met Thr Val Ser Lys Asn Cys Pro Asp Gln Asp Leu Lys Ile Lys Leu
            500                 505                 510

Ala Val Arg Met Asp Lys Pro Gln Asn Met Lys His Ser Gly Tyr Leu
        515                 520                 525

Trp Ala Ile Gly Lys Asn Val Trp Lys Arg Trp Lys Lys Arg Phe Phe
    530                 535                 540

Val Leu Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg
545                 550                 555                 560

Glu Lys Lys Ala Glu Pro Gln Glu Leu Leu Gln Leu Asp Gly Tyr Thr
                565                 570                 575

Val Asp Tyr Thr Asp Pro Gln Pro Gly Leu Glu Gly Gly Arg Ala Phe
            580                 585                 590
```

```
Phe Asn Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp
        595                 600                 605

Glu Gln Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly
    610                 615                 620

Gln Ser His Lys Pro Val Pro Pro Thr Gln Val Gln Lys Leu Asn Ala
625                 630                 635                 640

Lys Gly Gly Asn Val Pro Gln Leu Asp Ala Pro Ile Ser Gln Phe Tyr
                645                 650                 655

Ala Asp Arg Ala Gln Lys His Gly Met Asp Glu Phe Ile Ser Ser Asn
            660                 665                 670

Pro Cys Asn Phe Asp His Ala Ser Leu Phe Glu Met Val Gln Arg Leu
        675                 680                 685

Thr Leu Asp His Arg Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe
    690                 695                 700

Ser Pro Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Asn Gly
705                 710                 715                 720

Val Arg Gly Cys His Arg His Leu Cys Tyr Leu Arg Asp Leu Leu Glu
                725                 730                 735

Arg Ala Glu Asn Gly Ala Met Ile Asp Pro Thr Leu Leu His Tyr Ser
            740                 745                 750

Phe Ala Phe Cys Ala Ser His Val His Gly Asn Arg Pro Asp Gly Ile
        755                 760                 765

Gly Thr Val Thr Val Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu
    770                 775                 780

Arg Leu Arg Val Leu Leu Glu Asn Gln Ile Thr His Phe Arg Tyr Cys
785                 790                 795                 800

Phe Pro Phe Gly Arg Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu
                805                 810                 815
```

```
Leu Glu Arg Val Leu Met Lys Asp Ile Val Thr Pro Val Pro Gln Glu
            820                 825                 830

Glu Val Lys Thr Val Ile Arg Lys Cys Leu Glu Gln Ala Ala Leu Val
        835                 840                 845

Asn Tyr Ser Arg Leu Ser Glu Tyr Ala Lys Ile Glu Gly Lys Lys Arg
    850                 855                 860

Glu Met Tyr Glu His Pro Val Phe Cys Leu Ala Ser Gln Val Met Asp
865                 870                 875                 880

Leu Thr Ile Gln Asn Val Gly Arg Leu Ile Thr Pro Ala Lys Lys Leu
                885                 890                 895

Glu Asp Thr Ile Arg Leu Ala Glu Leu Val Ile Glu Val Leu Gln Gln
            900                 905                 910

Asn Glu Glu His His Ala Glu Ala Phe Ala Trp Trp Ser Asp Leu Met
        915                 920                 925

Val Glu His Ala Glu Thr Phe Leu Ser Leu Phe Ala Val Asp Met Asp
    930                 935                 940

Ala Ala Leu Glu Val Gln Pro Pro Asp Thr Trp Asp Ser Phe Pro Leu
945                 950                 955                 960

Phe Gln Leu Leu Asn Asp Phe Leu Arg Thr Asp Tyr Asn Leu Cys Asn
                965                 970                 975

Gly Lys Phe His Lys His Leu Gln Asp Leu Phe Ala Pro Leu Val Val
            980                 985                 990

Arg Tyr Val Asp Leu Met Glu Ser  Ser Ile Ala Gln Ser  Ile His
Arg
        995                 1000                1005

Gly Phe  Glu Arg Glu Ser Trp  Glu Pro Val Asn Asn  Gly Ser Gly
    1010                1015                1020

Thr Ser  Glu Asp Leu Phe Trp  Lys Leu Asp Ala Leu  Gln Thr Phe
    1025                1030                1035
```

Ile Arg Asp Leu His Trp Pro Glu Glu Glu Phe Gly Lys His Leu
1040 1045 1050

Glu Gln Arg Leu Lys Leu Met Ala Ser Asp Met Ile Glu Ser Cys
1055 1060 1065

Val Lys Arg Thr Arg Ile Ala Phe Glu Val Lys Leu Gln Lys Thr
1070 1075 1080

Ser Arg Ser Thr Asp Phe Arg Val Pro Gln Ser Ile Cys Thr Met
1085 1090 1095

Phe Asn Val Met Val Asp Ala Lys Ala Gln Ser Thr Lys Leu Cys
1100 1105 1110

Ser Met Glu Met Gly Gln Glu His Gln Tyr His Ser Lys Ile Asp
1115 1120 1125

Glu Leu Ile Glu Glu Thr Val Lys Glu Met Ile Thr Leu Leu Val
1130 1135 1140

Ala Lys Phe Val Thr Ile Leu Glu Gly Val Leu Ala Lys Leu Ser
1145 1150 1155

Arg Tyr Asp Glu Gly Thr Leu Phe Ser Ser Phe Leu Ser Phe Thr
1160 1165 1170

Val Lys Ala Ala Ser Lys Tyr Val Asp Val Pro Lys Pro Gly Met
1175 1180 1185

Asp Val Ala Asp Ala Tyr Val Thr Phe Val Arg His Ser Gln Asp
1190 1195 1200

Val Leu Arg Asp Lys Val Asn Glu Glu Met Tyr Ile Glu Arg Leu
1205 1210 1215

Phe Asp Gln Trp Tyr Asn Ser Ser Met Asn Val Ile Cys Thr Trp
1220 1225 1230

Leu Thr Asp Arg Met Asp Leu Gln Leu His Ile Tyr Gln Leu Lys
1235 1240 1245

```
Thr Leu  Ile Arg Met Val Lys  Lys Thr Tyr Arg Asp  Phe Arg Leu
    1250                1255                1260


Gln Gly  Val Leu Asp Ser Thr  Leu Asn Ser Lys Thr  Tyr Glu Thr
    1265                1270                1275


Ile Arg  Asn Arg Leu Thr Val  Glu Glu Ala Thr Ala  Ser Val Ser
    1280                1285                1290


Glu Gly  Gly Gly Leu Gln Gly  Ile Ser Met Lys Asp  Ser Asp Glu
    1295                1300                1305


Glu Asp  Glu Glu Asp Asp
    1310


<210> 10265
<211> 1274
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2059; "

<220>
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<223> /note="Gene Symbol: CADPS; "

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<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
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<220>
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<400> 10265
Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Ile Val Glu
1               5                  10                  15


Glu Glu Ser Gly Lys Glu Val Leu Gly Ser Ala Pro Ser Gly Ala Arg
            20                  25                  30


Leu Ser Pro Ser Arg Thr Ser Glu Gly Ser Ala Gly Ser Ala Gly Leu
        35                  40                  45
```

Gly Gly Gly Gly Ala Gly Ala Gly Ala Gly Val Gly Ala Gly Gly Gly
50 55 60

Gly Gly Ser Gly Ala Ser Ser Gly Gly Gly Ala Gly Gly Leu Gln Pro
65 70 75 80

Ser Ser Arg Ala Gly Gly Gly Arg Pro Ser Ser Pro Ser Pro Ser Val
85 90 95

Val Ser Glu Lys Glu Lys Glu Glu Leu Glu Arg Leu Gln Lys Glu Glu
100 105 110

Glu Glu Arg Lys Lys Arg Leu Gln Leu Tyr Val Phe Val Met Arg Cys
115 120 125

Ile Ala Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg
130 135 140

Gln Gln Lys Ile Ser Lys Gln Gln Leu Gln Thr Val Lys Asp Arg Phe
145 150 155 160

Gln Ala Phe Leu Asn Gly Glu Thr Gln Ile Met Ala Asp Glu Ala Phe
165 170 175

Met Asn Ala Val Gln Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg
180 185 190

Val Ala Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Ser Arg
195 200 205

Glu Val Phe Lys Lys His Ile Glu Lys Arg Val Arg Ser Leu Pro Glu
210 215 220

Ile Asp Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Met Ala Lys
225 230 235 240

Phe Asp Ala Ile Tyr Arg Gly Glu Glu Asp Pro Arg Lys Gln Gln Ala
245 250 255

Arg Met Thr Ala Ser Ala Ala Ser Glu Leu Ile Leu Ser Lys Glu Gln
260 265 270

```
Leu Tyr Glu Met Phe Gln Asn Ile Leu Gly Ile Lys Lys Phe Glu His
        275                 280                 285

Gln Leu Leu Tyr Asn Ala Cys Gln Leu Asp Asn Pro Asp Glu Gln Ala
    290                 295                 300

Ala Gln Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Met Ala Asp Gln
305                 310                 315                 320

Ile Ala Arg Glu Arg Lys Phe Pro Lys Phe Val Ser Lys Glu Met Glu
                325                 330                 335

Asn Met Tyr Ile Glu Glu Leu Lys Ser Ser Val Asn Leu Leu Met Ala
            340                 345                 350

Asn Leu Glu Ser Met Pro Val Ser Lys Gly Gly Glu Phe Lys Leu Gln
        355                 360                 365

Lys Leu Lys Arg Ser His Asn Ala Ser Ile Ile Asp Met Gly Glu Glu
    370                 375                 380

Ser Glu Asn Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Ser Leu
385                 390                 395                 400

Glu Val Val Ile Met Glu Val Gln Gly Leu Lys Ser Leu Ala Pro Asn
                405                 410                 415

Arg Ile Val Tyr Cys Thr Met Glu Val Glu Gly Gly Glu Lys Leu Gln
            420                 425                 430

Thr Asp Gln Ala Glu Ala Ser Lys Pro Thr Trp Gly Thr Gln Gly Asp
        435                 440                 445

Phe Ser Thr Thr His Ala Leu Pro Ala Val Lys Val Lys Leu Phe Thr
    450                 455                 460

Glu Ser Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val
465                 470                 475                 480

Ile Leu His Pro Thr Pro Asn Ser Pro Lys Gln Ser Glu Trp His Lys
                485                 490                 495

Met Thr Val Ser Lys Asn Cys Pro Asp Gln Asp Leu Lys Ile Lys Leu
```

```
            500                 505                 510

Ala Val Arg Met Asp Lys Pro Gln Asn Met Lys His Ser Gly Tyr Leu
        515                 520                 525

Trp Ala Ile Gly Lys Asn Val Trp Lys Arg Trp Lys Lys Arg Phe Phe
    530                 535                 540

Val Leu Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg
545                 550                 555                 560

Glu Lys Lys Ala Glu Pro Gln Glu Leu Leu Gln Leu Asp Gly Tyr Thr
                565                 570                 575

Val Asp Tyr Thr Asp Pro Gln Pro Gly Leu Glu Gly Gly Arg Ala Phe
            580                 585                 590

Phe Asn Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp
        595                 600                 605

Glu Gln Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly
    610                 615                 620

Gln Ser His Lys Pro Val Pro Pro Thr Gln Val Gln Lys Leu Asn Ala
625                 630                 635                 640

Lys Gly Gly Asn Val Pro Gln Leu Asp Ala Pro Ile Ser Gln Phe Tyr
                645                 650                 655

Ala Asp Arg Ala Gln Lys His Gly Met Asp Glu Phe Ile Ser Ser Asn
            660                 665                 670

Pro Cys Asn Phe Asp His Ala Ser Leu Phe Glu Met Gly Trp Phe Ser
        675                 680                 685

Pro Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Asn Gly Val
    690                 695                 700

Arg Gly Cys His Arg His Leu Cys Tyr Leu Arg Asp Leu Leu Glu Arg
705                 710                 715                 720

Ala Glu Asn Gly Ala Met Ile Asp Pro Thr Leu Leu His Tyr Ser Phe
                725                 730                 735
```

```
Ala Phe Cys Ala Ser His Val His Gly Asn Arg Pro Asp Gly Ile Gly
            740                 745                 750

Thr Val Thr Val Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu Arg
        755                 760                 765

Leu Arg Val Leu Leu Glu Asn Gln Ile Thr His Phe Arg Tyr Cys Phe
    770                 775                 780

Pro Phe Gly Arg Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu Leu
785                 790                 795                 800

Glu Arg Val Leu Met Lys Asp Ile Val Thr Pro Val Pro Gln Glu Glu
                805                 810                 815

Val Lys Thr Val Ile Arg Lys Cys Leu Glu Gln Ala Ala Leu Val Asn
            820                 825                 830

Tyr Ser Arg Leu Ser Glu Tyr Ala Lys Ile Glu Glu Asn Val Gly Arg
        835                 840                 845

Leu Ile Thr Pro Ala Lys Lys Leu Glu Asp Thr Ile Arg Leu Ala Glu
    850                 855                 860

Leu Val Ile Glu Val Leu Gln Gln Asn Glu Glu His His Ala Glu Ala
865                 870                 875                 880

Phe Ala Trp Trp Ser Asp Leu Met Val Glu His Ala Glu Thr Phe Leu
                885                 890                 895

Ser Leu Phe Ala Val Asp Met Asp Ala Ala Leu Glu Val Gln Pro Pro
            900                 905                 910

Asp Thr Trp Asp Ser Phe Pro Leu Phe Gln Leu Leu Asn Asp Phe Leu
        915                 920                 925

Arg Thr Asp Tyr Asn Leu Cys Asn Gly Lys Phe His Lys His Leu Gln
    930                 935                 940

Asp Leu Phe Ala Pro Leu Val Val Arg Tyr Val Asp Leu Met Glu Ser
945                 950                 955                 960
```

Ser Ile Ala Gln Ser Ile His Arg Gly Phe Glu Arg Glu Ser Trp Glu
965 970 975

Pro Val Asn Asn Gly Ser Gly Thr Ser Glu Asp Leu Phe Trp Lys Leu
980 985 990

Asp Ala Leu Gln Thr Phe Ile Arg Asp Leu His Trp Pro Glu Glu Glu
995 1000 1005

Phe Gly Lys His Leu Glu Gln Arg Leu Lys Leu Met Ala Ser Asp
1010 1015 1020

Met Ile Glu Ser Cys Val Lys Arg Thr Arg Ile Ala Phe Glu Val
1025 1030 1035

Lys Leu Gln Lys Thr Ser Arg Ser Thr Asp Phe Arg Val Pro Gln
1040 1045 1050

Ser Ile Cys Thr Met Phe Asn Val Met Val Asp Ala Lys Ala Gln
1055 1060 1065

Ser Thr Lys Leu Cys Ser Met Glu Met Gly Gln Glu His Gln Tyr
1070 1075 1080

His Ser Lys Ile Asp Glu Leu Ile Glu Glu Thr Val Lys Glu Met
1085 1090 1095

Ile Thr Leu Leu Val Ala Lys Phe Val Thr Ile Leu Glu Gly Val
1100 1105 1110

Leu Ala Lys Leu Ser Arg Tyr Asp Glu Gly Thr Leu Phe Ser Ser
1115 1120 1125

Phe Leu Ser Phe Thr Val Lys Ala Ala Ser Lys Tyr Val Asp Val
1130 1135 1140

Pro Lys Pro Gly Met Asp Val Ala Asp Ala Tyr Val Thr Phe Val
1145 1150 1155

Arg His Ser Gln Asp Val Leu Arg Asp Lys Val Asn Glu Glu Met
1160 1165 1170

```
Tyr Ile  Glu Arg Leu Phe Asp  Gln Trp Tyr Asn Ser  Ser Met Asn
    1175                1180                1185

Val Ile  Cys Thr Trp Leu Thr  Asp Arg Met Asp Leu  Gln Leu His
    1190                1195                1200

Ile Tyr  Gln Leu Lys Thr Leu  Ile Arg Met Val Lys  Lys Thr Tyr
    1205                1210                1215

Arg Asp  Phe Arg Leu Gln Gly  Val Leu Asp Ser Thr  Leu Asn Ser
    1220                1225                1230

Lys Thr  Tyr Glu Thr Ile Arg  Asn Arg Leu Thr Val  Glu Glu Ala
    1235                1240                1245

Thr Ala  Ser Val Ser Glu Gly  Gly Gly Leu Gln Gly  Ile Ser Met
    1250                1255                1260

Lys Asp  Ser Asp Glu Glu Asp  Glu Glu Asp Asp
    1265                1270


<210> 10266
<211> 1353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2059; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS; "

<220>
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<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9ULU8; "

<220>
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<223> /note="ENSP ID: ENSP00000373215"

<400> 10266
Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Ile Val Glu
1               5                  10                  15
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Glu Glu Ser Gly Lys Glu Val Leu Gly Ser Ala Pro Ser Gly Ala Arg
            20                  25                  30

Leu Ser Pro Ser Arg Thr Ser Glu Gly Ser Ala Gly Ser Ala Gly Leu
        35                  40                  45

Gly Gly Gly Gly Ala Gly Ala Gly Ala Gly Val Gly Ala Gly Gly Gly
    50                  55                  60

Gly Gly Ser Gly Ala Ser Ser Gly Gly Gly Ala Gly Gly Leu Gln Pro
65                  70                  75                  80

Ser Ser Arg Ala Gly Gly Gly Arg Pro Ser Ser Pro Ser Pro Ser Val
                85                  90                  95

Val Ser Glu Lys Glu Lys Glu Glu Leu Glu Arg Leu Gln Lys Glu Glu
            100                 105                 110

Glu Glu Arg Lys Lys Arg Leu Gln Leu Tyr Val Phe Val Met Arg Cys
        115                 120                 125

Ile Ala Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg
    130                 135                 140

Gln Gln Lys Ile Ser Lys Gln Gln Leu Gln Thr Val Lys Asp Arg Phe
145                 150                 155                 160

Gln Ala Phe Leu Asn Gly Glu Thr Gln Ile Met Ala Asp Glu Ala Phe
                165                 170                 175

Met Asn Ala Val Gln Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg
            180                 185                 190

Val Ala Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Ser Arg
        195                 200                 205

Glu Val Phe Lys Lys His Ile Glu Lys Arg Val Arg Ser Leu Pro Glu
    210                 215                 220

Ile Asp Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Met Ala Lys
225                 230                 235                 240
```

```
Phe Asp Ala Ile Tyr Arg Gly Glu Glu Asp Pro Arg Lys Gln Gln Ala
                245                 250                 255

Arg Met Thr Ala Ser Ala Ala Ser Glu Leu Ile Leu Ser Lys Glu Gln
            260                 265                 270

Leu Tyr Glu Met Phe Gln Asn Ile Leu Gly Ile Lys Lys Phe Glu His
        275                 280                 285

Gln Leu Leu Tyr Asn Ala Cys Gln Leu Asp Asn Pro Asp Glu Gln Ala
    290                 295                 300

Ala Gln Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Met Ala Asp Gln
305                 310                 315                 320

Ile Ala Arg Glu Arg Lys Phe Pro Lys Phe Val Ser Lys Glu Met Glu
                325                 330                 335

Asn Met Tyr Ile Glu Glu Leu Lys Ser Ser Val Asn Leu Leu Met Ala
            340                 345                 350

Asn Leu Glu Ser Met Pro Val Ser Lys Gly Gly Glu Phe Lys Leu Gln
        355                 360                 365

Lys Leu Lys Arg Ser His Asn Ala Ser Ile Ile Asp Met Gly Glu Glu
    370                 375                 380

Ser Glu Asn Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Ser Leu
385                 390                 395                 400

Glu Val Val Ile Met Glu Val Gln Gly Leu Lys Ser Leu Ala Pro Asn
                405                 410                 415

Arg Ile Val Tyr Cys Thr Met Glu Val Glu Gly Gly Glu Lys Leu Gln
            420                 425                 430

Thr Asp Gln Ala Glu Ala Ser Lys Pro Thr Trp Gly Thr Gln Gly Asp
        435                 440                 445

Phe Ser Thr Thr His Ala Leu Pro Ala Val Lys Val Lys Leu Phe Thr
    450                 455                 460
```

```
Glu Ser Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val
465                 470                 475                 480

Ile Leu His Pro Thr Pro Asn Ser Pro Lys Gln Ser Glu Trp His Lys
                485                 490                 495

Met Thr Val Ser Lys Asn Cys Pro Asp Gln Asp Leu Lys Ile Lys Leu
            500                 505                 510

Ala Val Arg Met Asp Lys Pro Gln Asn Met Lys His Ser Gly Tyr Leu
        515                 520                 525

Trp Ala Ile Gly Lys Asn Val Trp Lys Arg Trp Lys Lys Arg Phe Phe
    530                 535                 540

Val Leu Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg
545                 550                 555                 560

Glu Lys Lys Ala Glu Pro Gln Glu Leu Leu Gln Leu Asp Gly Tyr Thr
                565                 570                 575

Val Asp Tyr Thr Asp Pro Gln Pro Gly Leu Glu Gly Gly Arg Ala Phe
            580                 585                 590

Phe Asn Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp
        595                 600                 605

Glu Gln Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly
    610                 615                 620

Gln Ser His Lys Pro Val Pro Pro Thr Gln Val Gln Lys Leu Asn Ala
625                 630                 635                 640

Lys Gly Gly Asn Val Pro Gln Leu Asp Ala Pro Ile Ser Gln Phe Tyr
                645                 650                 655

Ala Asp Arg Ala Gln Lys His Gly Met Asp Glu Phe Ile Ser Ser Asn
            660                 665                 670

Pro Cys Asn Phe Asp His Ala Ser Leu Phe Glu Met Val Gln Arg Leu
        675                 680                 685

Thr Leu Asp His Arg Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe
```

690 695 700

Ser Pro Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Asn Gly
705 710 715 720

Val Arg Gly Cys His Arg His Leu Cys Tyr Leu Arg Asp Leu Leu Glu
725 730 735

Arg Ala Glu Asn Gly Ala Met Ile Asp Pro Thr Leu Leu His Tyr Ser
740 745 750

Phe Ala Phe Cys Ala Ser His Val His Gly Asn Arg Pro Asp Gly Ile
755 760 765

Gly Thr Val Thr Val Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu
770 775 780

Arg Leu Arg Val Leu Leu Glu Asn Gln Ile Thr His Phe Arg Tyr Cys
785 790 795 800

Phe Pro Phe Gly Arg Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu
805 810 815

Leu Glu Arg Val Leu Met Lys Asp Ile Val Thr Pro Val Pro Gln Glu
820 825 830

Glu Val Lys Thr Val Ile Arg Lys Cys Leu Glu Gln Ala Ala Leu Val
835 840 845

Asn Tyr Ser Arg Leu Ser Glu Tyr Ala Lys Ile Glu Glu Asn Gln Lys
850 855 860

Asp Ala Glu Asn Val Gly Arg Leu Ile Thr Pro Ala Lys Lys Leu Glu
865 870 875 880

Asp Thr Ile Arg Leu Ala Glu Leu Val Ile Glu Val Leu Gln Gln Asn
885 890 895

Glu Glu His His Ala Glu Pro His Val Asp Lys Gly Glu Ala Phe Ala
900 905 910

Trp Trp Ser Asp Leu Met Val Glu His Ala Glu Thr Phe Leu Ser Leu
915 920 925

```
Phe Ala Val Asp Met Asp Ala Ala Leu Glu Val Gln Pro Pro Asp Thr
    930                 935                 940

Trp Asp Ser Phe Pro Leu Phe Gln Leu Leu Asn Asp Phe Leu Arg Thr
945                 950                 955                 960

Asp Tyr Asn Leu Cys Asn Gly Lys Phe His Lys His Leu Gln Asp Leu
                965                 970                 975

Phe Ala Pro Leu Val Val Arg Tyr Val Asp Leu Met Glu Ser Ser Ile
            980                 985                 990

Ala Gln Ser Ile His Arg Gly Phe  Glu Arg Glu Ser Trp  Glu Pro
Val
        995                 1000                1005

Lys Ser  Leu Thr Ser Asn Leu  Pro Asn Val Asn Leu  Pro Asn Val
    1010                1015                1020

Asn Leu  Pro Lys Val Pro Asn  Leu Pro Val Asn Ile  Pro Leu Gly
    1025                1030                1035

Ile Pro  Gln Met Pro Thr Phe  Ser Ala Pro Ser Trp  Met Ala Ala
    1040                1045                1050

Ile Tyr  Asp Ala Asp Asn Gly  Ser Gly Thr Ser Glu  Asp Leu Phe
    1055                1060                1065

Trp Lys  Leu Asp Ala Leu Gln  Thr Phe Ile Arg Asp  Leu His Trp
    1070                1075                1080

Pro Glu  Glu Glu Phe Gly Lys  His Leu Glu Gln Arg  Leu Lys Leu
    1085                1090                1095

Met Ala  Ser Asp Met Ile Glu  Ser Cys Val Lys Arg  Thr Arg Ile
    1100                1105                1110

Ala Phe  Glu Val Lys Leu Gln  Lys Thr Ser Arg Ser  Thr Asp Phe
    1115                1120                1125

Arg Val  Pro Gln Ser Ile Cys  Thr Met Phe Asn Val  Met Val Asp
    1130                1135                1140
```

Ala Lys Ala Gln Ser Thr Lys Leu Cys Ser Met Glu Met Gly Gln
1145 1150 1155

Glu His Gln Tyr His Ser Lys Ile Asp Glu Leu Ile Glu Glu Thr
1160 1165 1170

Val Lys Glu Met Ile Thr Leu Leu Val Ala Lys Phe Val Thr Ile
1175 1180 1185

Leu Glu Gly Val Leu Ala Lys Leu Ser Arg Tyr Asp Glu Gly Thr
1190 1195 1200

Leu Phe Ser Ser Phe Leu Ser Phe Thr Val Lys Ala Ala Ser Lys
1205 1210 1215

Tyr Val Asp Val Pro Lys Pro Gly Met Asp Val Ala Asp Ala Tyr
1220 1225 1230

Val Thr Phe Val Arg His Ser Gln Asp Val Leu Arg Asp Lys Val
1235 1240 1245

Asn Glu Glu Met Tyr Ile Glu Arg Leu Phe Asp Gln Trp Tyr Asn
1250 1255 1260

Ser Ser Met Asn Val Ile Cys Thr Trp Leu Thr Asp Arg Met Asp
1265 1270 1275

Leu Gln Leu His Ile Tyr Gln Leu Lys Thr Leu Ile Arg Met Val
1280 1285 1290

Lys Lys Thr Tyr Arg Asp Phe Arg Leu Gln Gly Val Leu Asp Ser
1295 1300 1305

Thr Leu Asn Ser Lys Thr Tyr Glu Thr Ile Arg Asn Arg Leu Thr
1310 1315 1320

Val Glu Glu Ala Thr Ala Ser Val Ser Glu Gly Gly Gly Leu Gln
1325 1330 1335

Gly Ile Ser Met Lys Asp Ser Asp Glu Glu Asp Glu Glu Asp Asp
1340 1345 1350

<210> 10267
<211> 190
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2059; "

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<223> /note="Gene Symbol: CADPS; "

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<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
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<223> /note="ENSP ID: ENSP00000417568"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10267
Xaa Lys His Leu Glu Gln Arg Leu Lys Leu Met Ala Ser Asp Met Ile
1 5 10 15

Glu Ser Cys Val Lys Arg Thr Arg Ile Ala Phe Glu Val Lys Leu Gln
20 25 30

Lys Thr Ser Arg Ser Thr Asp Phe Arg Val Pro Gln Ser Ile Cys Thr
35 40 45

Met Phe Asn Val Met Val Asp Ala Lys Ala Gln Ser Thr Lys Leu Cys
50 55 60

Ser Met Glu Met Gly Gln Glu His Gln Tyr His Ser Lys Ile Asp Glu
65 70 75 80

Leu Ile Glu Glu Thr Val Lys Glu Met Ile Thr Leu Leu Val Ala Lys
85 90 95

Phe Val Thr Ile Leu Glu Gly Val Leu Ala Lys Leu Ser Arg Tyr Asp
100 105 110

```
Glu Gly Thr Leu Phe Ser Ser Phe Leu Ser Phe Thr Lys Pro Gly Met
        115                 120                 125

Asp Val Ala Asp Ala Tyr Val Thr Phe Val Arg His Ser Gln Asp Val
    130                 135                 140

Leu Arg Asp Lys Val Asn Glu Glu Met Tyr Ile Glu Arg Leu Phe Asp
145                 150                 155                 160

Gln Trp Tyr Asn Ser Ser Met Asn Val Ile Cys Thr Trp Leu Thr Asp
                165                 170                 175

Arg Met Asp Leu Gln Leu His Ile Tyr Gln Leu Lys Thr Leu
            180                 185                 190


<210> 10268
<211> 240
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417827"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10268
Xaa Ala Asp Arg Ala Gln Lys His Gly Met Asp Glu Phe Ile Ser Ser
1               5                   10                  15

Asn Pro Cys Asn Phe Asp His Ala Ser Leu Phe Glu Met Val Gln Arg
            20                  25                  30

Leu Thr Leu Asp His Arg Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp
```

```
        35                  40                  45

Phe Ser Pro Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Asn
    50                  55                  60

Gly Val Arg Gly Cys His Arg His Leu Cys Tyr Leu Arg Asp Leu Leu
65                  70                  75                  80

Glu Arg Ala Glu Asn Gly Ala Met Ile Asp Pro Thr Leu Leu His Tyr
                85                  90                  95

Ser Phe Ala Phe Cys Ala Ser His Val His Gly Asn Ser Gln Gln Met
            100                 105                 110

His Val Tyr Leu Ser Gly Leu Pro Pro Asn Thr Asp Pro Glu Gly Ser
        115                 120                 125

Lys Thr Pro Ser Pro Pro Glu Pro Glu Ala Lys Lys Asp Thr Lys Lys
    130                 135                 140

Glu Ser Lys Lys Arg Lys Asp Ser Lys Thr Gln Ala Asn Gln Glu Leu
145                 150                 155                 160

Lys Arg Pro Asp Gly Ile Gly Thr Val Thr Val Glu Glu Lys Glu Arg
                165                 170                 175

Phe Glu Glu Ile Lys Glu Arg Leu Arg Val Leu Leu Glu Asn Gln Ile
            180                 185                 190

Thr His Phe Arg Tyr Cys Phe Pro Phe Gly Arg Pro Glu Gly Ala Leu
        195                 200                 205

Lys Ala Thr Leu Ser Leu Leu Glu Arg Val Leu Met Lys Asp Ile Val
    210                 215                 220

Thr Pro Val Pro Gln Glu Glu Val Lys Thr Val Ile Arg Lys Cys Leu
225                 230                 235                 240
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<210> 10269
<211> 311
<212> PRT
<213> Homo sapiens

<220>

<221> source
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<220>
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<220>
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10269
Xaa Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe Ser Pro Gly Gln Val
1 5 10 15

Phe Val Leu Asp Glu Tyr Cys Ala Arg Asn Gly Val Arg Gly Cys His
20 25 30

Arg His Leu Cys Tyr Leu Arg Asp Leu Leu Glu Arg Ala Glu Asn Gly
35 40 45

Ala Met Ile Asp Pro Thr Leu Leu His Tyr Ser Phe Ala Phe Cys Ala
50 55 60

Ser His Val His Gly Asn Arg Pro Asp Gly Ile Gly Thr Val Thr Val
65 70 75 80

Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu Arg Leu Arg Val Leu
85 90 95

Leu Glu Asn Gln Ile Thr His Phe Arg Tyr Cys Phe Pro Phe Gly Arg
100 105 110

Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu Leu Glu Arg Val Leu
115 120 125

Met Lys Asp Ile Val Thr Pro Val Pro Gln Glu Glu Val Lys Thr Val
130 135 140

```
Ile Arg Lys Cys Leu Glu Gln Ala Ala Leu Val Asn Tyr Ser Arg Leu
145                 150                 155                 160

Ser Glu Tyr Ala Lys Ile Glu Glu Asn Gln Lys Asp Ala Glu Asn Val
                165                 170                 175

Gly Arg Leu Ile Thr Pro Ala Lys Lys Leu Glu Asp Thr Ile Arg Leu
            180                 185                 190

Ala Glu Leu Val Ile Glu Val Leu Gln Gln Asn Glu Glu His His Ala
        195                 200                 205

Glu Gly Lys Glu Ala Phe Ala Trp Trp Ser Asp Leu Met Val Glu His
    210                 215                 220

Ala Glu Thr Phe Leu Ser Leu Phe Ala Val Asp Met Asp Ala Ala Leu
225                 230                 235                 240

Glu Val Gln Pro Pro Asp Thr Trp Asp Ser Phe Pro Leu Phe Gln Leu
                245                 250                 255

Leu Asn Asp Phe Leu Arg Thr Asp Tyr Asn Leu Cys Asn Gly Lys Phe
            260                 265                 270

His Lys His Leu Gln Asp Leu Phe Ala Pro Leu Val Val Arg Tyr Val
        275                 280                 285

Asp Leu Met Glu Ser Ser Ile Ala Gln Ser Ile His Arg Gly Phe Glu
    290                 295                 300

Arg Glu Ser Trp Glu Pro Val
305                 310


<210> 10270
<211> 457
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q9ULU8; "

<220>
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<223> /note="ENSP ID: ENSP00000418736"

<400> 10270
Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Ile Val Glu
1   5   10   15

Glu Glu Ser Gly Lys Glu Val Leu Gly Ser Ala Pro Ser Gly Ala Arg
            20   25   30

Leu Ser Pro Ser Arg Thr Ser Glu Gly Ser Ala Gly Ser Ala Gly Leu
        35   40   45

Gly Gly Gly Gly Ala Gly Ala Gly Ala Gly Val Gly Ala Gly Gly Gly
    50   55   60

Gly Gly Ser Gly Ala Ser Ser Gly Gly Gly Ala Gly Gly Leu Gln Pro
65   70   75   80

Ser Ser Arg Ala Gly Gly Gly Arg Pro Ser Ser Pro Ser Pro Ser Val
                85   90   95

Val Ser Glu Lys Glu Lys Glu Glu Leu Glu Arg Leu Gln Lys Glu Glu
            100   105   110

Glu Glu Arg Lys Lys Arg Leu Gln Leu Tyr Val Phe Val Met Arg Cys
        115   120   125

Ile Ala Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg
    130   135   140

Gln Gln Lys Ile Ser Lys Gln Gln Leu Gln Thr Val Lys Asp Arg Phe
145   150   155   160

Gln Ala Phe Leu Asn Gly Glu Thr Gln Ile Met Ala Asp Glu Ala Phe
                165   170   175

```
Met Asn Ala Val Gln Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg
            180                 185                 190

Val Ala Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Ser Arg
        195                 200                 205

Glu Val Phe Lys Lys His Ile Glu Lys Arg Val Arg Ser Leu Pro Glu
    210                 215                 220

Ile Asp Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Met Ala Lys
225                 230                 235                 240

Phe Asp Ala Ile Tyr Arg Gly Glu Glu Asp Pro Arg Lys Gln Gln Ala
                245                 250                 255

Arg Met Thr Ala Ser Ala Ala Ser Glu Leu Ile Leu Ser Lys Glu Gln
            260                 265                 270

Leu Tyr Glu Met Phe Gln Asn Ile Leu Gly Ile Lys Lys Phe Glu His
        275                 280                 285

Gln Leu Leu Tyr Asn Ala Cys Gln Leu Asp Asn Pro Asp Glu Gln Ala
    290                 295                 300

Ala Gln Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Met Ala Asp Gln
305                 310                 315                 320

Ile Ala Arg Glu Arg Lys Phe Pro Lys Phe Val Ser Lys Glu Met Glu
                325                 330                 335

Asn Met Tyr Ile Glu Glu Leu Lys Ser Ser Val Asn Leu Leu Met Ala
            340                 345                 350

Asn Leu Glu Ser Met Pro Val Ser Lys Gly Gly Glu Phe Lys Leu Gln
        355                 360                 365

Lys Leu Lys Arg Ser His Asn Ala Ser Ile Ile Asp Met Gly Glu Glu
    370                 375                 380

Ser Glu Asn Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Ser Leu
385                 390                 395                 400
```

```
Glu Val Val Ile Met Glu Val Gln Gly Leu Lys Ser Leu Ala Pro Asn
                405                 410                 415


Arg Ile Val Tyr Cys Thr Met Glu Val Glu Gly Gly Glu Lys Leu Gln
            420                 425                 430


Thr Asp Gln Ala Glu Ala Ser Lys Pro Thr Val Ile Arg Arg Asn Arg
        435                 440                 445


Arg Glu Gln Leu Pro His Ser Ala Ile
    450                 455


<210> 10271
<211> 345
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2059; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418889"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10271
Xaa Leu Pro Asn Val Asn Leu Pro Asn Val Asn Leu Pro Lys Val Pro
1               5                   10                  15


Asn Leu Pro Val Asn Ile Pro Leu Gly Ile Pro Gln Met Pro Thr Phe
            20                  25                  30


Ser Ala Pro Ser Trp Met Ala Ala Ile Tyr Asp Ala Asp Asn Gly Ser
        35                  40                  45


Gly Thr Ser Glu Asp Leu Phe Trp Lys Leu Asp Ala Leu Gln Thr Phe
```

```
    50                  55                  60

Ile Arg Asp Leu His Trp Pro Glu Glu Glu Phe Gly Lys His Leu Glu
65                  70                  75                  80

Gln Arg Leu Lys Leu Met Ala Ser Asp Met Ile Glu Ser Cys Val Lys
                85                  90                  95

Arg Thr Arg Ile Ala Phe Glu Val Lys Leu Gln Lys Thr Ser Arg Ser
            100                 105                 110

Thr Asp Phe Arg Val Pro Gln Ser Ile Cys Thr Met Phe Asn Val Met
        115                 120                 125

Val Asp Ala Lys Ala Gln Ser Thr Lys Leu Cys Ser Met Glu Met Gly
    130                 135                 140

Gln Glu Phe Ala Lys Met Trp His Gln Tyr His Ser Lys Ile Asp Glu
145                 150                 155                 160

Leu Ile Glu Glu Thr Val Lys Glu Met Ile Thr Leu Leu Val Ala Lys
                165                 170                 175

Phe Val Thr Ile Leu Glu Gly Val Leu Ala Lys Leu Ser Arg Tyr Asp
            180                 185                 190

Glu Gly Thr Leu Phe Ser Ser Phe Leu Ser Phe Thr Val Lys Ala Ala
        195                 200                 205

Ser Lys Tyr Val Asp Val Pro Lys Pro Gly Met Asp Val Ala Asp Ala
    210                 215                 220

Tyr Val Thr Phe Val Arg His Ser Gln Asp Val Leu Arg Asp Lys Val
225                 230                 235                 240

Asn Glu Glu Met Tyr Ile Glu Arg Leu Phe Asp Gln Trp Tyr Asn Ser
                245                 250                 255

Ser Met Asn Val Ile Cys Thr Trp Leu Thr Asp Arg Met Asp Leu Gln
            260                 265                 270

Leu His Ile Tyr Gln Leu Lys Thr Leu Ile Arg Met Val Lys Lys Thr
        275                 280                 285
```

```
Tyr Arg Asp Phe Arg Leu Gln Gly Val Leu Asp Ser Thr Leu Asn Ser
    290                 295                 300

Lys Thr Tyr Glu Thr Ile Arg Asn Arg Leu Thr Val Glu Glu Ala Thr
305                 310                 315                 320

Ala Ser Val Ser Glu Gly Gly Gly Leu Gln Gly Ile Ser Met Lys Asp
                325                 330                 335

Ser Asp Glu Glu Asp Glu Glu Asp Asp
            340                 345


<210> 10272
<211> 212
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CADPS; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439528"

<400> 10272
Gln Asp Leu Lys Ile Lys Leu Ala Val Arg Met Asp Lys Pro Gln Asn
1               5                   10                  15

Met Lys His Ser Gly Tyr Leu Trp Ala Ile Gly Lys Asn Val Trp Lys
            20                  25                  30

Arg Trp Lys Lys Arg Phe Phe Val Leu Val Gln Val Ser Gln Tyr Thr
        35                  40                  45

Phe Ala Met Cys Ser Tyr Arg Glu Lys Lys Ala Glu Pro Gln Glu Leu
    50                  55                  60

Leu Gln Leu Asp Gly Tyr Thr Val Asp Tyr Thr Asp Pro Gln Pro Gly
```

65 70 75 80

Leu Glu Gly Gly Arg Ala Phe Phe Asn Ala Val Lys Glu Gly Asp Thr
85 90 95

Val Ile Phe Ala Ser Asp Asp Glu Gln Asp Arg Ile Leu Trp Val Gln
100 105 110

Ala Met Tyr Arg Ala Thr Gly Gln Ser His Lys Pro Val Pro Pro Thr
115 120 125

Gln Val Gln Lys Leu Asn Ala Lys Gly Gly Asn Val Pro Gln Leu Asp
130 135 140

Ala Pro Ile Ser Gln Phe Ser Gly Leu Lys Asp Ala Asp Arg Ala Gln
145 150 155 160

Lys His Gly Met Asp Glu Phe Ile Ser Ser Asn Pro Cys Asn Phe Asp
165 170 175

His Ala Ser Leu Phe Glu Met Val Gln Arg Leu Thr Leu Asp His Arg
180 185 190

Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe Ser Pro Gly Gln Val
195 200 205

Phe Val Leu Asp
210

<210> 10273
<211> 222
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2059; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000482556"

<400> 10273

```
Met Phe Asn Val Met Val Asp Ala Lys Ala Gln Ser Thr Lys Leu Cys
1               5                  10                  15

Ser Met Glu Met Gly Gln Glu Phe Ala Lys Met Trp His Gln Tyr His
            20                  25                  30

Ser Lys Ile Asp Glu Leu Ile Glu Glu Thr Val Lys Glu Met Ile Thr
        35                  40                  45

Leu Leu Val Ala Lys Phe Val Thr Ile Leu Glu Gly Val Leu Ala Lys
    50                  55                  60

Leu Ser Arg Tyr Asp Glu Gly Thr Leu Phe Ser Ser Phe Leu Ser Phe
65                  70                  75                  80

Thr Val Lys Ala Ala Ser Lys Tyr Val Asp Val Pro Lys Pro Gly Met
                85                  90                  95

Asp Val Ala Asp Ala Tyr Val Thr Phe Val Arg His Ser Gln Asp Val
            100                 105                 110

Leu Arg Asp Lys Val Asn Glu Glu Met Tyr Ile Glu Arg Leu Phe Asp
        115                 120                 125

Gln Trp Tyr Asn Ser Ser Met Asn Val Ile Cys Thr Trp Leu Thr Asp
    130                 135                 140

Arg Met Asp Leu Gln Leu His Ile Tyr Gln Leu Lys Thr Leu Ile Arg
145                 150                 155                 160

Met Val Lys Lys Thr Tyr Arg Asp Phe Arg Leu Gln Gly Val Leu Asp
                165                 170                 175

Ser Thr Leu Asn Ser Lys Thr Tyr Glu Thr Ile Arg Asn Arg Leu Thr
            180                 185                 190

Val Glu Glu Ala Thr Ala Ser Val Ser Glu Gly Gly Gly Leu Gln Gly
        195                 200                 205

Ile Ser Met Lys Asp Ser Asp Glu Glu Asp Glu Glu Asp Asp
```

210 215 220

<210> 10274
<211> 1344
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2059; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484365"

<400> 10274
Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Ile Val Glu
1 5 10 15

Glu Glu Ser Gly Lys Glu Val Leu Gly Ser Ala Pro Ser Gly Ala Arg
20 25 30

Leu Ser Pro Ser Arg Thr Ser Glu Gly Ser Ala Gly Ser Ala Gly Leu
35 40 45

Gly Gly Gly Gly Ala Gly Ala Gly Ala Gly Val Gly Ala Gly Gly Gly
50 55 60

Gly Gly Ser Gly Ala Ser Ser Gly Gly Gly Ala Gly Gly Leu Gln Pro
65 70 75 80

Ser Ser Arg Ala Gly Gly Gly Arg Pro Ser Ser Pro Ser Pro Ser Val
85 90 95

Val Ser Glu Lys Glu Lys Glu Glu Leu Glu Arg Leu Gln Lys Glu Glu
100 105 110

Glu Glu Arg Lys Lys Arg Leu Gln Leu Tyr Val Phe Val Met Arg Cys
115 120 125

```
Ile Ala Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg
    130                 135                 140

Gln Gln Lys Ile Ser Lys Gln Gln Leu Gln Thr Val Lys Asp Arg Phe
145                 150                 155                 160

Gln Ala Phe Leu Asn Gly Glu Thr Gln Ile Met Ala Asp Glu Ala Phe
                165                 170                 175

Met Asn Ala Val Gln Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg
            180                 185                 190

Val Ala Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Ser Arg
        195                 200                 205

Glu Val Phe Lys Lys His Ile Glu Lys Arg Val Arg Ser Leu Pro Glu
    210                 215                 220

Ile Asp Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Met Ala Lys
225                 230                 235                 240

Phe Asp Ala Ile Tyr Arg Gly Glu Glu Asp Pro Arg Lys Gln Gln Ala
                245                 250                 255

Arg Met Thr Ala Ser Ala Ala Ser Glu Leu Ile Leu Ser Lys Glu Gln
            260                 265                 270

Leu Tyr Glu Met Phe Gln Asn Ile Leu Gly Ile Lys Lys Phe Glu His
        275                 280                 285

Gln Leu Leu Tyr Asn Ala Cys Gln Leu Asp Asn Pro Asp Glu Gln Ala
    290                 295                 300

Ala Gln Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Met Ala Asp Gln
305                 310                 315                 320

Ile Ala Arg Glu Arg Lys Phe Pro Lys Phe Val Ser Lys Glu Met Glu
                325                 330                 335

Asn Met Tyr Ile Glu Glu Leu Lys Ser Ser Val Asn Leu Leu Met Ala
            340                 345                 350

Asn Leu Glu Ser Met Pro Val Ser Lys Gly Gly Glu Phe Lys Leu Gln
```

```
        355                 360                 365

Lys Leu Lys Arg Ser His Asn Ala Ser Ile Ile Asp Met Gly Glu Glu
    370                 375                 380

Ser Glu Asn Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Ser Leu
385                 390                 395                 400

Glu Val Val Ile Met Glu Val Gln Gly Leu Lys Ser Leu Ala Pro Asn
                405                 410                 415

Arg Ile Val Tyr Cys Thr Met Glu Val Glu Gly Gly Glu Lys Leu Gln
            420                 425                 430

Thr Asp Gln Ala Glu Ala Ser Lys Pro Thr Trp Gly Thr Gln Gly Asp
        435                 440                 445

Phe Ser Thr Thr His Ala Leu Pro Ala Val Lys Val Lys Leu Phe Thr
    450                 455                 460

Glu Ser Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val
465                 470                 475                 480

Ile Leu His Pro Thr Pro Asn Ser Pro Lys Gln Ser Glu Trp His Lys
                485                 490                 495

Met Thr Val Ser Lys Asn Cys Pro Asp Gln Asp Leu Lys Ile Lys Leu
            500                 505                 510

Ala Val Arg Met Asp Lys Pro Gln Asn Met Lys His Ser Gly Tyr Leu
        515                 520                 525

Trp Ala Ile Gly Lys Asn Val Trp Lys Arg Trp Lys Lys Arg Phe Phe
    530                 535                 540

Val Leu Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg
545                 550                 555                 560

Glu Lys Lys Ala Glu Pro Gln Glu Leu Leu Gln Leu Asp Gly Tyr Thr
                565                 570                 575

Val Asp Tyr Thr Asp Pro Gln Pro Gly Leu Glu Gly Gly Arg Ala Phe
            580                 585                 590
```

```
Phe Asn Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp
        595                 600                 605

Glu Gln Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly
    610                 615                 620

Gln Ser His Lys Pro Val Pro Pro Thr Gln Val Gln Lys Leu Asn Ala
625                 630                 635                 640

Lys Gly Gly Asn Val Pro Gln Leu Asp Ala Pro Ile Ser Gln Phe Tyr
                645                 650                 655

Ala Asp Arg Ala Gln Lys His Gly Met Asp Glu Phe Ile Ser Ser Asn
            660                 665                 670

Pro Cys Asn Phe Asp His Ala Ser Leu Phe Glu Met Val Gln Arg Leu
        675                 680                 685

Thr Leu Asp His Arg Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe
    690                 695                 700

Ser Pro Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Asn Gly
705                 710                 715                 720

Val Arg Gly Cys His Arg His Leu Cys Tyr Leu Arg Asp Leu Leu Glu
                725                 730                 735

Arg Ala Glu Asn Gly Ala Met Ile Asp Pro Thr Leu Leu His Tyr Ser
            740                 745                 750

Phe Ala Phe Cys Ala Ser His Val His Gly Asn Ser Gln Gln Met His
        755                 760                 765

Val Tyr Leu Ser Gly Leu Pro Pro Asn Thr Asp Pro Glu Gly Ser Lys
    770                 775                 780

Thr Pro Ser Pro Pro Glu Pro Glu Ala Lys Lys Asp Thr Lys Lys Glu
785                 790                 795                 800

Ser Lys Lys Arg Lys Asp Ser Lys Thr Gln Ala Asn Gln Glu Leu Lys
                805                 810                 815
```

```
Arg Pro Asp Gly Ile Gly Thr Val Thr Val Glu Glu Lys Glu Arg Phe
            820                 825                 830

Glu Glu Ile Lys Glu Arg Leu Arg Val Leu Leu Glu Asn Gln Ile Thr
        835                 840                 845

His Phe Arg Tyr Cys Phe Pro Phe Gly Arg Pro Glu Gly Ala Leu Lys
    850                 855                 860

Ala Thr Leu Ser Leu Leu Glu Arg Val Leu Met Lys Asp Ile Val Thr
865                 870                 875                 880

Pro Val Pro Gln Glu Glu Val Lys Thr Val Ile Arg Lys Cys Leu Glu
                885                 890                 895

Gln Ala Ala Leu Val Asn Tyr Ser Arg Leu Ser Glu Tyr Ala Lys Ile
            900                 905                 910

Glu Glu Asn Val Gly Arg Leu Ile Thr Pro Ala Lys Lys Leu Glu Asp
        915                 920                 925

Thr Ile Arg Leu Ala Glu Leu Val Ile Glu Val Leu Gln Gln Asn Glu
    930                 935                 940

Glu His His Ala Glu Ala Phe Ala Trp Trp Ser Asp Leu Met Val Glu
945                 950                 955                 960

His Ala Glu Thr Phe Leu Ser Leu Phe Ala Val Asp Met Asp Ala Ala
                965                 970                 975

Leu Glu Val Gln Pro Pro Asp Thr Trp Asp Ser Phe Pro Leu Phe Gln
            980                 985                 990

Leu Leu Asn Asp Phe Leu Arg Thr  Asp Tyr Asn Leu Cys  Asn Gly
Lys
        995                 1000                1005

Phe His  Lys His Leu Gln Asp  Leu Phe Ala Pro Leu  Val Val Arg
    1010                1015                1020

Tyr Val  Asp Leu Met Glu Ser  Ser Ile Ala Gln Ser  Ile His Arg
    1025                1030                1035
```

Gly Phe Glu Arg Glu Ser Trp Glu Pro Val Asn Asn Gly Ser Gly
1040 1045 1050

Thr Ser Glu Asp Leu Phe Trp Lys Leu Asp Ala Leu Gln Thr Phe
1055 1060 1065

Ile Arg Asp Leu His Trp Pro Glu Glu Glu Phe Gly Lys His Leu
1070 1075 1080

Glu Gln Arg Leu Lys Leu Met Ala Ser Asp Met Ile Glu Ser Cys
1085 1090 1095

Val Lys Arg Thr Arg Ile Ala Phe Glu Val Lys Leu Gln Lys Thr
1100 1105 1110

Ser Arg Ser Thr Asp Phe Arg Val Pro Gln Ser Ile Cys Thr Met
1115 1120 1125

Phe Asn Val Met Val Asp Ala Lys Ala Gln Ser Thr Lys Leu Cys
1130 1135 1140

Ser Met Glu Met Gly Gln Glu His Gln Tyr His Ser Lys Ile Asp
1145 1150 1155

Glu Leu Ile Glu Glu Thr Val Lys Glu Met Ile Thr Leu Leu Val
1160 1165 1170

Ala Lys Phe Val Thr Ile Leu Glu Gly Val Leu Ala Lys Leu Ser
1175 1180 1185

Arg Tyr Asp Glu Gly Thr Leu Phe Ser Ser Phe Leu Ser Phe Thr
1190 1195 1200

Val Lys Ala Ala Ser Lys Tyr Val Asp Val Pro Lys Pro Gly Met
1205 1210 1215

Asp Val Ala Asp Ala Tyr Val Thr Phe Val Arg His Ser Gln Asp
1220 1225 1230

Val Leu Arg Asp Lys Val Asn Glu Glu Met Tyr Ile Glu Arg Leu
1235 1240 1245

```
Phe Asp  Gln Trp Tyr Asn Ser  Ser Met Asn Val Ile  Cys Thr Trp
    1250                1255                1260

Leu Thr  Asp Arg Met Asp Leu  Gln Leu His Ile Tyr  Gln Leu Lys
    1265                1270                1275

Thr Leu  Ile Arg Met Val Lys  Lys Thr Tyr Arg Asp  Phe Arg Leu
    1280                1285                1290

Gln Gly  Val Leu Asp Ser Thr  Leu Asn Ser Lys Thr  Tyr Glu Thr
    1295                1300                1305

Ile Arg  Asn Arg Leu Thr Val  Glu Glu Ala Thr Ala  Ser Val Ser
    1310                1315                1320

Glu Gly  Gly Gly Leu Gln Gly  Ile Ser Met Lys Asp  Ser Asp Glu
    1325                1330                1335

Glu Asp  Glu Glu Asp Asp
    1340
```

<210> 10275
<211> 1194
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2060; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS2; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000325581"

<400> 10275

```
Met Ala Arg Arg Gln Gln Lys Leu Asn Lys Gln Gln Leu Gln Leu Leu
1               5                  10                  15

Lys Glu Arg Phe Gln Ala Phe Leu Asn Gly Glu Thr Gln Ile Val Ala
            20                  25                  30
```

```
Asp Glu Ala Phe Cys Asn Ala Val Arg Ser Tyr Tyr Glu Val Phe Leu
        35                  40                  45

Lys Ser Asp Arg Val Ala Arg Met Val Gln Ser Gly Gly Cys Ser Ala
    50                  55                  60

Asn Asp Phe Arg Glu Val Phe Lys Lys Asn Ile Glu Lys Arg Val Arg
65                  70                  75                  80

Ser Leu Pro Glu Ile Asp Gly Leu Ser Lys Glu Thr Val Leu Ser Ser
                85                  90                  95

Trp Ile Ala Lys Tyr Asp Ala Ile Tyr Arg Gly Glu Glu Asp Leu Cys
            100                 105                 110

Lys Gln Pro Asn Arg Met Ala Leu Ser Ala Val Ser Glu Leu Ile Leu
        115                 120                 125

Ser Lys Glu Gln Leu Tyr Glu Met Phe Gln Gln Ile Leu Gly Ile Lys
    130                 135                 140

Lys Leu Glu His Gln Leu Leu Tyr Asn Ala Cys Gln Leu Asp Asn Ala
145                 150                 155                 160

Asp Glu Gln Ala Ala Gln Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln
                165                 170                 175

Leu Ala Asp Lys Met Ala Lys Glu Arg Lys Phe Pro Lys Phe Ile Ala
            180                 185                 190

Lys Asp Met Glu Asn Met Tyr Ile Glu Glu Leu Arg Ser Ser Val Asn
        195                 200                 205

Leu Leu Met Ala Asn Leu Glu Ser Leu Pro Val Ser Lys Gly Gly Pro
    210                 215                 220

Glu Phe Lys Leu Gln Lys Leu Lys Arg Ser Gln Asn Ser Ala Phe Leu
225                 230                 235                 240

Asp Ile Gly Asp Glu Asn Glu Ile Gln Leu Ser Lys Ser Asp Val Val
                245                 250                 255
```

```
Leu Ser Phe Thr Leu Glu Ile Val Ile Met Glu Val Gln Gly Leu Lys
            260                 265                 270

Ser Val Ala Pro Asn Arg Ile Val Tyr Cys Thr Met Glu Val Glu Gly
        275                 280                 285

Glu Lys Leu Gln Thr Asp Gln Ala Glu Ala Ser Arg Pro Gln Trp Gly
    290                 295                 300

Thr Gln Gly Asp Phe Thr Thr Thr His Pro Arg Pro Val Val Lys Val
305                 310                 315                 320

Lys Leu Phe Thr Glu Ser Thr Gly Val Leu Ala Leu Glu Asp Lys Glu
                325                 330                 335

Leu Gly Arg Val Ile Leu Tyr Pro Thr Ser Asn Ser Ser Lys Ser Ala
            340                 345                 350

Glu Leu His Arg Met Val Val Pro Lys Asn Ser Gln Asp Ser Asp Leu
        355                 360                 365

Lys Ile Lys Leu Ala Val Arg Met Asp Lys Pro Ala His Met Lys His
    370                 375                 380

Ser Gly Tyr Leu Tyr Ala Leu Gly Gln Lys Val Trp Lys Arg Trp Lys
385                 390                 395                 400

Lys Arg Tyr Phe Val Leu Val Gln Val Ser Gln Tyr Thr Phe Ala Met
                405                 410                 415

Cys Ser Tyr Arg Glu Lys Lys Ser Glu Pro Gln Glu Leu Met Gln Leu
            420                 425                 430

Glu Gly Tyr Thr Val Asp Tyr Thr Asp Pro His Pro Gly Leu Gln Gly
        435                 440                 445

Gly Cys Met Phe Phe Asn Ala Val Lys Glu Gly Asp Thr Val Ile Phe
    450                 455                 460

Ala Ser Asp Asp Glu Gln Asp Arg Ile Leu Trp Val Gln Ala Met Tyr
465                 470                 475                 480

Arg Ala Thr Gly Gln Ser Tyr Lys Pro Val Pro Ala Ile Gln Thr Gln
```

```
                485                 490                 495

Lys Leu Asn Pro Lys Gly Gly Thr Leu His Ala Asp Ala Gln Leu Ser
            500                 505                 510

Gly Lys Asp Ala Asp Arg Phe Gln Lys His Gly Met Asp Glu Phe Ile
        515                 520                 525

Ser Ala Asn Pro Cys Lys Leu Asp His Ala Phe Leu Phe Arg Ile Leu
    530                 535                 540

Gln Arg Gln Thr Leu Asp His Arg Leu Asn Asp Ser Tyr Ser Cys Leu
545                 550                 555                 560

Gly Trp Phe Ser Pro Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala
                565                 570                 575

Arg Tyr Gly Val Arg Gly Cys His Arg His Leu Cys Tyr Leu Ala Glu
            580                 585                 590

Leu Met Glu His Ser Glu Asn Gly Ala Val Ile Asp Pro Thr Leu Leu
        595                 600                 605

His Tyr Ser Phe Ala Phe Cys Ala Ser His Val His Gly Asn Arg Pro
    610                 615                 620

Asp Gly Ile Gly Thr Val Ser Val Glu Glu Lys Glu Arg Phe Glu Glu
625                 630                 635                 640

Ile Lys Glu Arg Leu Ser Ser Leu Leu Glu Asn Gln Ile Ser His Phe
                645                 650                 655

Arg Tyr Cys Phe Pro Phe Gly Arg Pro Glu Gly Ala Leu Lys Ala Thr
            660                 665                 670

Leu Ser Leu Leu Glu Arg Val Leu Met Lys Asp Ile Ala Thr Pro Ile
        675                 680                 685

Pro Ala Glu Glu Val Lys Lys Val Val Arg Lys Cys Leu Glu Lys Ala
    690                 695                 700

Ala Leu Ile Asn Tyr Thr Arg Leu Thr Glu Tyr Ala Lys Ile Glu Gly
705                 710                 715                 720
```

```
Pro Ala Glu Lys Glu Thr Glu Thr Met Asn Gln Ala Ser Pro Ala Arg
                725                 730                 735

Lys Leu Glu Glu Ile Leu His Leu Ala Glu Leu Cys Ile Glu Val Leu
            740                 745                 750

Gln Gln Asn Glu Glu His His Ala Glu Ala Phe Ala Trp Trp Pro Asp
        755                 760                 765

Leu Leu Ala Glu His Ala Glu Lys Phe Trp Ala Leu Phe Thr Val Asp
    770                 775                 780

Met Asp Thr Ala Leu Glu Ala Gln Pro Gln Asp Ser Trp Asp Ser Phe
785                 790                 795                 800

Pro Leu Phe Gln Leu Leu Asn Asn Phe Leu Arg Asn Asp Thr Leu Leu
                805                 810                 815

Cys Asn Gly Lys Phe His Lys His Leu Gln Glu Ile Phe Val Pro Leu
            820                 825                 830

Val Val Arg Tyr Val Asp Leu Met Glu Ser Ser Ile Ala Gln Ser Ile
        835                 840                 845

His Arg Gly Phe Glu Gln Glu Thr Trp Gln Pro Val Lys Asn Ile Ala
    850                 855                 860

Asn Ser Leu Pro Asn Val Ala Leu Pro Lys Val Pro Ser Leu Pro Leu
865                 870                 875                 880

Asn Leu Pro Gln Ile Pro Asn Ile Ser Thr Ala Ser Trp Met Pro Ser
                885                 890                 895

Leu Tyr Glu Ser Thr Asn Gly Ser Ala Thr Ser Glu Asp Leu Phe Trp
            900                 905                 910

Lys Leu Asp Ala Leu Gln Met Phe Val Phe Asp Leu His Trp Pro Glu
        915                 920                 925

Gln Glu Phe Ala His His Leu Glu Gln Arg Leu Lys Leu Met Ala Ser
    930                 935                 940
```

```
Asp Met Leu Glu Ala Cys Val Lys Arg Thr Arg Thr Ala Phe Glu Leu
945                 950                 955                 960

Lys Leu Gln Lys Ala Ser Lys Thr Thr Asp Leu Arg Ile Pro Ala Ser
                965                 970                 975

Val Cys Thr Met Phe Asn Val Leu Val Asp Ala Lys Lys Gln Ser Thr
            980                 985                 990

Lys Leu Cys Ala Leu Asp Gly Gly  Gln Glu Gln Gln Tyr  His Ser
Lys
        995                 1000                1005

Ile Asp  Asp Leu Ile Asp Asn  Ser Val Lys Glu Ile  Ile Ser Leu
    1010                1015                1020

Leu Val  Ser Lys Phe Val Ser  Val Leu Glu Gly Val  Leu Ser Lys
    1025                1030                1035

Leu Ser  Arg Tyr Asp Glu Gly  Thr Phe Phe Ser Ser  Ile Leu Ser
    1040                1045                1050

Phe Thr  Val Lys Ala Ala Ala  Lys Tyr Val Asp Val  Pro Lys Pro
    1055                1060                1065

Gly Met  Asp Leu Ala Asp Thr  Tyr Ile Met Phe Val  Arg Gln Asn
    1070                1075                1080

Gln Asp  Ile Leu Arg Glu Lys  Val Asn Glu Glu Met  Tyr Ile Glu
    1085                1090                1095

Lys Leu  Phe Asp Gln Trp Tyr  Ser Ser Ser Met Lys  Val Ile Cys
    1100                1105                1110

Val Trp  Leu Thr Asp Arg Leu  Asp Leu Gln Leu His  Ile Tyr Gln
    1115                1120                1125

Leu Lys  Thr Leu Ile Lys Ile  Val Lys Lys Thr Tyr  Arg Asp Phe
    1130                1135                1140

Arg Leu  Gln Gly Val Leu Glu  Gly Thr Leu Asn Ser  Lys Thr Tyr
    1145                1150                1155
```

```
Asp Thr  Val His Arg Arg Leu  Thr Val Glu Glu Ala  Thr Ala Ser
    1160                1165                1170

Val Ser  Glu Gly Gly Gly Leu  Gln Gly Ile Thr Met  Lys Asp Ser
    1175                1180                1185

Asp Glu  Glu Glu Glu Gly
    1190
```

<210> 10276
<211> 1294
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2060; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS2; "

<220>
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<223> /note="Gene Name: Ca++-dependent secretion activator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000333940"

<400> 10276

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Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Gly Leu Glu
1               5                  10                  15

Glu Glu Ser Arg Asp Val Leu Val Ala Ala Gly Ser Ser Gln Arg Ala
            20                  25                  30

Pro Pro Ala Pro Thr Arg Glu Gly Arg Arg Asp Ala Pro Gly Arg Ala
        35                  40                  45

Gly Gly Gly Gly Ala Ala Arg Ser Val Ser Pro Ser Pro Ser Val Leu
    50                  55                  60

Ser Glu Gly Arg Asp Glu Pro Gln Arg Gln Leu Asp Asp Glu Gln Glu
65                  70                  75                  80

Arg Arg Ile Arg Leu Gln Leu Tyr Val Phe Val Val Arg Cys Ile Ala
                85                  90                  95
```

```
Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg Gln Gln
            100                 105                 110

Lys Leu Asn Lys Gln Gln Leu Gln Leu Leu Lys Glu Arg Phe Gln Ala
        115                 120                 125

Phe Leu Asn Gly Glu Thr Gln Ile Val Ala Asp Glu Ala Phe Cys Asn
    130                 135                 140

Ala Val Arg Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg Val Ala
145                 150                 155                 160

Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Phe Arg Glu Val
                165                 170                 175

Phe Lys Lys Asn Ile Glu Lys Arg Val Arg Ser Leu Pro Glu Ile Asp
            180                 185                 190

Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Ile Ala Lys Tyr Asp
        195                 200                 205

Ala Ile Tyr Arg Gly Glu Glu Asp Leu Cys Lys Gln Pro Asn Arg Met
    210                 215                 220

Ala Leu Ser Ala Val Ser Glu Leu Ile Leu Ser Lys Glu Gln Leu Tyr
225                 230                 235                 240

Glu Met Phe Gln Gln Ile Leu Gly Ile Lys Lys Leu Glu His Gln Leu
                245                 250                 255

Leu Tyr Asn Ala Cys Gln Leu Asp Asn Ala Asp Glu Gln Ala Ala Gln
            260                 265                 270

Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Leu Ala Asp Lys Met Ala
        275                 280                 285

Lys Glu Arg Lys Phe Pro Lys Phe Ile Ala Lys Asp Met Glu Asn Met
    290                 295                 300

Tyr Ile Glu Glu Leu Arg Ser Ser Val Asn Leu Leu Met Ala Asn Leu
305                 310                 315                 320
```

Glu Ser Leu Pro Val Ser Lys Gly Gly Pro Glu Phe Lys Leu Gln Lys
325 330 335

Leu Lys Arg Ser Gln Asn Ser Ala Phe Leu Asp Ile Gly Asp Glu Asn
340 345 350

Glu Ile Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Thr Leu Glu
355 360 365

Ile Val Ile Met Glu Val Gln Gly Leu Lys Ser Val Ala Pro Asn Arg
370 375 380

Ile Val Tyr Cys Thr Met Glu Val Glu Gly Glu Lys Leu Gln Thr Asp
385 390 395 400

Gln Ala Glu Ala Ser Arg Pro Gln Trp Gly Thr Gln Gly Asp Phe Thr
405 410 415

Thr Thr His Pro Arg Pro Val Val Lys Val Lys Leu Phe Thr Glu Ser
420 425 430

Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val Ile Leu
435 440 445

Tyr Pro Thr Ser Asn Ser Ser Lys Ser Ala Glu Leu His Arg Met Val
450 455 460

Val Pro Lys Asn Ser Gln Asp Ser Asp Leu Lys Ile Lys Leu Ala Val
465 470 475 480

Arg Met Asp Lys Pro Ala His Met Lys His Ser Gly Tyr Leu Tyr Ala
485 490 495

Leu Gly Gln Lys Val Trp Lys Arg Trp Lys Lys Arg Tyr Phe Val Leu
500 505 510

Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg Glu Lys
515 520 525

Lys Ser Glu Pro Gln Glu Leu Met Gln Leu Glu Gly Tyr Thr Val Asp
530 535 540

```
Tyr Thr Asp Pro His Pro Gly Leu Gln Gly Gly Cys Met Phe Phe Asn
545                 550                 555                 560

Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp Glu Gln
                565                 570                 575

Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly Gln Ser
            580                 585                 590

Tyr Lys Pro Val Pro Ala Ile Gln Thr Gln Lys Leu Asn Pro Lys Gly
        595                 600                 605

Gly Thr Leu His Ala Asp Ala Gln Leu Ser Glu Phe Thr Asp Ala Asp
    610                 615                 620

Arg Phe Gln Lys His Gly Met Asp Glu Phe Ile Ser Ala Asn Pro Cys
625                 630                 635                 640

Lys Leu Asp His Ala Phe Leu Phe Arg Ile Leu Gln Arg Gln Thr Leu
                645                 650                 655

Asp His Arg Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe Ser Pro
            660                 665                 670

Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Tyr Gly Val Arg
        675                 680                 685

Gly Cys His Arg His Leu Cys Tyr Leu Ala Glu Leu Met Glu His Ser
    690                 695                 700

Glu Asn Gly Ala Val Ile Asp Pro Thr Leu Leu His Tyr Ser Phe Ala
705                 710                 715                 720

Phe Cys Ala Ser His Val His Gly Asn Arg Pro Asp Gly Ile Gly Thr
                725                 730                 735

Val Ser Val Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu Arg Leu
            740                 745                 750

Ser Ser Leu Leu Glu Asn Gln Ile Ser His Phe Arg Tyr Cys Phe Pro
        755                 760                 765

Phe Gly Arg Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu Leu Glu
```

770 775 780

Arg Val Leu Met Lys Asp Ile Ala Thr Pro Ile Pro Ala Glu Glu Val
785 790 795 800

Lys Lys Val Val Arg Lys Cys Leu Glu Lys Ala Ala Leu Ile Asn Tyr
805 810 815

Thr Arg Leu Thr Glu Tyr Ala Lys Ile Glu Glu Thr Met Asn Gln Ala
820 825 830

Ser Pro Ala Arg Lys Leu Glu Glu Ile Leu His Leu Ala Glu Leu Cys
835 840 845

Ile Glu Val Leu Gln Gln Asn Glu Glu His His Ala Glu Ala Phe Ala
850 855 860

Trp Trp Pro Asp Leu Leu Ala Glu His Ala Glu Lys Phe Trp Ala Leu
865 870 875 880

Phe Thr Val Asp Met Asp Thr Ala Leu Glu Ala Gln Pro Gln Asp Ser
885 890 895

Trp Asp Ser Phe Pro Leu Phe Gln Leu Leu Asn Asn Phe Leu Arg Asn
900 905 910

Asp Thr Leu Leu Cys Asn Gly Lys Phe His Lys His Leu Gln Glu Ile
915 920 925

Phe Val Pro Leu Val Val Arg Tyr Val Asp Leu Met Glu Ser Ser Ile
930 935 940

Ala Gln Ser Ile His Arg Gly Phe Glu Gln Glu Thr Trp Gln Pro Val
945 950 955 960

Lys Asn Ile Ala Asn Ser Leu Pro Asn Val Ala Leu Pro Lys Val Pro
965 970 975

Ser Leu Pro Leu Asn Leu Pro Gln Ile Pro Asn Ile Ser Thr Ala Ser
980 985 990

Trp Met Pro Ser Leu Tyr Glu Ser Thr Asn Gly Ser Ala Thr Ser
Glu

995 1000 1005

Asp Leu Phe Trp Lys Leu Asp Ala Leu Gln Met Phe Val Phe Asp
1010 1015 1020

Leu His Trp Pro Glu Gln Glu Phe Ala His His Leu Glu Gln Arg
1025 1030 1035

Leu Lys Leu Met Ala Ser Asp Met Leu Glu Ala Cys Val Lys Arg
1040 1045 1050

Thr Arg Thr Ala Phe Glu Leu Lys Leu Gln Lys Ala Ser Lys Thr
1055 1060 1065

Thr Asp Leu Arg Ile Pro Ala Ser Val Cys Thr Met Phe Asn Val
1070 1075 1080

Leu Val Asp Ala Lys Lys Gln Ser Thr Lys Leu Cys Ala Leu Asp
1085 1090 1095

Gly Gly Gln Glu Gln Gln Tyr His Ser Lys Ile Asp Asp Leu Ile
1100 1105 1110

Asp Asn Ser Val Lys Glu Ile Ile Ser Leu Leu Val Ser Lys Phe
1115 1120 1125

Val Ser Val Leu Glu Gly Val Leu Ser Lys Leu Ser Arg Tyr Asp
1130 1135 1140

Glu Gly Thr Phe Phe Ser Ser Ile Leu Ser Phe Thr Val Lys Ala
1145 1150 1155

Ala Ala Lys Tyr Val Asp Val Pro Lys Pro Gly Met Asp Leu Ala
1160 1165 1170

Asp Thr Tyr Ile Met Phe Val Arg Gln Asn Gln Asp Ile Leu Arg
1175 1180 1185

Glu Lys Val Asn Glu Glu Met Tyr Ile Glu Lys Leu Phe Asp Gln
1190 1195 1200

Trp Tyr Ser Ser Ser Met Lys Val Ile Cys Val Trp Leu Thr Asp
1205 1210 1215

```
Arg Leu  Asp Leu Gln Leu His  Ile Tyr Gln Leu Lys  Thr Leu Ile
    1220                1225                1230

Lys Ile  Val Lys Lys Thr Tyr  Arg Asp Phe Arg Leu  Gln Gly Val
    1235                1240                1245

Leu Glu  Gly Thr Leu Asn Ser  Lys Thr Tyr Asp Thr  Val His Arg
    1250                1255                1260

Arg Leu  Thr Val Glu Glu Ala  Thr Ala Ser Val Ser  Glu Gly Gly
    1265                1270                1275

Gly Leu  Gln Gly Ile Thr Met  Lys Asp Ser Asp Glu  Glu Glu Glu
    1280                1285                1290

Gly
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<210> 10277
<211> 899
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2060; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS2; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380833"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10277
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Xaa Glu Ile Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Thr Leu
1               5                  10                  15
```

```
Glu Ile Val Ile Met Glu Val Gln Gly Leu Lys Ser Val Ala Pro Asn
            20                  25                  30

Arg Ile Val Tyr Cys Thr Met Glu Val Glu Gly Glu Lys Leu Gln Thr
        35                  40                  45

Asp Gln Ala Glu Ala Ser Arg Pro Gln Trp Gly Thr Gln Gly Asp Phe
    50                  55                  60

Thr Thr Thr His Pro Arg Pro Val Val Lys Val Lys Leu Phe Thr Glu
65                  70                  75                  80

Ser Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val Ile
                85                  90                  95

Leu Tyr Pro Thr Ser Asn Ser Ser Lys Ser Ala Glu Leu His Arg Met
            100                 105                 110

Val Val Pro Lys Asn Ser Gln Asp Ser Asp Leu Lys Ile Lys Leu Ala
        115                 120                 125

Val Arg Met Asp Lys Pro Ala His Met Lys His Ser Gly Tyr Leu Tyr
    130                 135                 140

Ala Leu Gly Gln Lys Val Trp Lys Arg Trp Lys Lys Arg Tyr Phe Val
145                 150                 155                 160

Leu Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg Glu
                165                 170                 175

Lys Lys Ser Glu Pro Gln Glu Leu Met Gln Leu Glu Gly Tyr Thr Val
            180                 185                 190

Asp Tyr Thr Asp Pro His Pro Gly Leu Gln Gly Gly Cys Met Phe Phe
        195                 200                 205

Asn Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp Glu
    210                 215                 220

Gln Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly Gln
225                 230                 235                 240
```

Ser Tyr Lys Pro Val Pro Ala Ile Gln Thr Gln Lys Leu Asn Pro Lys
245 250 255

Gly Gly Thr Leu His Ala Asp Ala Gln Leu Tyr Ala Asp Arg Phe Gln
260 265 270

Lys His Gly Met Asp Glu Phe Ile Ser Ala Asn Pro Cys Lys Leu Asp
275 280 285

His Ala Phe Leu Phe Arg Ile Leu Gln Arg Gln Thr Leu Asp His Arg
290 295 300

Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe Ser Pro Gly Gln Val
305 310 315 320

Phe Val Leu Asp Glu Tyr Cys Ala Arg Tyr Gly Val Arg Gly Cys His
325 330 335

Arg His Leu Cys Tyr Leu Ala Glu Leu Met Glu His Ser Glu Asn Gly
340 345 350

Ala Val Ile Asp Pro Thr Leu Leu His Tyr Ser Phe Ala Phe Cys Ala
355 360 365

Ser His Val His Gly Asn Arg Pro Asp Gly Ile Gly Thr Val Ser Val
370 375 380

Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu Arg Leu Ser Ser Leu
385 390 395 400

Leu Glu Asn Gln Ile Ser His Phe Arg Tyr Cys Phe Pro Phe Gly Arg
405 410 415

Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu Leu Glu Arg Val Leu
420 425 430

Met Lys Asp Ile Ala Thr Pro Ile Pro Ala Glu Glu Val Lys Lys Val
435 440 445

Val Arg Lys Cys Leu Glu Lys Ala Ala Leu Ile Asn Tyr Thr Arg Leu
450 455 460

Thr Glu Tyr Ala Lys Ile Glu Glu Thr Met Asn Gln Ala Ser Pro Ala

```
465                 470                 475                 480

Arg Lys Leu Glu Glu Ile Leu His Leu Ala Glu Leu Cys Ile Glu Val
                485                 490                 495

Leu Gln Gln Asn Glu Glu His His Ala Glu Ala Phe Ala Trp Trp Pro
            500                 505                 510

Asp Leu Leu Ala Glu His Ala Glu Lys Phe Trp Ala Leu Phe Thr Val
        515                 520                 525

Asp Met Asp Thr Ala Leu Glu Ala Gln Pro Gln Asp Ser Trp Asp Ser
    530                 535                 540

Phe Pro Leu Phe Gln Leu Leu Asn Asn Phe Leu Arg Asn Asp Thr Leu
545                 550                 555                 560

Leu Cys Asn Gly Lys Phe His Lys His Leu Gln Glu Ile Phe Val Pro
                565                 570                 575

Leu Val Val Arg Tyr Val Asp Leu Met Glu Ser Ser Ile Ala Gln Ser
            580                 585                 590

Ile His Arg Gly Phe Glu Gln Glu Thr Trp Gln Pro Val Asn Asn Gly
        595                 600                 605

Ser Ala Thr Ser Glu Asp Leu Phe Trp Lys Leu Asp Ala Leu Gln Met
    610                 615                 620

Phe Val Phe Asp Leu His Trp Pro Glu Gln Glu Phe Ala His His Leu
625                 630                 635                 640

Glu Gln Arg Leu Lys Leu Met Ala Ser Asp Met Leu Glu Ala Cys Val
                645                 650                 655

Lys Arg Thr Arg Thr Ala Phe Glu Leu Lys Leu Gln Lys Ala Ser Lys
            660                 665                 670

Thr Thr Asp Leu Arg Ile Pro Ala Ser Val Cys Thr Met Phe Asn Val
        675                 680                 685

Leu Val Asp Ala Lys Lys Gln Ser Thr Lys Leu Cys Ala Leu Asp Gly
    690                 695                 700
```

Gly Gln Glu Gln Gln Tyr His Ser Lys Ile Asp Asp Leu Ile Asp Asn
705 710 715 720

Ser Val Lys Glu Ile Ile Ser Leu Leu Val Ser Lys Phe Val Ser Val
725 730 735

Leu Glu Gly Val Leu Ser Lys Leu Ser Arg Tyr Asp Glu Gly Thr Phe
740 745 750

Phe Ser Ser Ile Leu Ser Phe Thr Val Lys Ala Ala Ala Lys Tyr Val
755 760 765

Asp Val Pro Lys Pro Gly Met Asp Leu Ala Asp Thr Tyr Ile Met Phe
770 775 780

Val Arg Gln Asn Gln Asp Ile Leu Arg Glu Lys Val Asn Glu Glu Met
785 790 795 800

Tyr Ile Glu Lys Leu Phe Asp Gln Trp Tyr Ser Ser Ser Met Lys Val
805 810 815

Ile Cys Val Trp Leu Thr Asp Arg Leu Asp Leu Gln Leu His Ile Tyr
820 825 830

Gln Leu Lys Thr Leu Ile Lys Ile Val Lys Lys Thr Tyr Arg Asp Phe
835 840 845

Arg Leu Gln Gly Val Leu Glu Gly Thr Leu Asn Ser Lys Thr Tyr Asp
850 855 860

Thr Val His Arg Arg Leu Thr Val Glu Glu Ala Thr Ala Ser Val Ser
865 870 875 880

Glu Gly Gly Gly Leu Gln Gly Ile Thr Met Lys Asp Ser Asp Glu Glu
885 890 895

Glu Glu Gly

<210> 10278
<211> 1296
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2060; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS2; "

<220>
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<223> /note="Gene Name: Ca++-dependent secretion activator 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86UW7; "

<220>
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<223> /note="ENSP ID: ENSP00000398481"

<400> 10278
Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Gly Leu Glu
1   5   10   15

Glu Glu Ser Arg Asp Val Leu Val Ala Ala Gly Ser Ser Gln Arg Ala
            20   25   30

Pro Pro Ala Pro Thr Arg Glu Gly Arg Arg Asp Ala Pro Gly Arg Ala
        35   40   45

Gly Gly Gly Gly Ala Ala Arg Ser Val Ser Pro Ser Pro Ser Val Leu
    50   55   60

Ser Glu Gly Arg Asp Glu Pro Gln Arg Gln Leu Asp Asp Glu Gln Glu
65   70   75   80

Arg Arg Ile Arg Leu Gln Leu Tyr Val Phe Val Val Arg Cys Ile Ala
                85   90   95

Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg Gln Gln
            100   105   110

Lys Leu Asn Lys Gln Gln Leu Gln Leu Leu Lys Glu Arg Phe Gln Ala
        115   120   125

Phe Leu Asn Gly Glu Thr Gln Ile Val Ala Asp Glu Ala Phe Cys Asn
    130   135   140

```
Ala Val Arg Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg Val Ala
145                 150                 155                 160

Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Phe Arg Glu Val
                165                 170                 175

Phe Lys Lys Asn Ile Glu Lys Arg Val Arg Ser Leu Pro Glu Ile Asp
            180                 185                 190

Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Ile Ala Lys Tyr Asp
        195                 200                 205

Ala Ile Tyr Arg Gly Glu Glu Asp Leu Cys Lys Gln Pro Asn Arg Met
    210                 215                 220

Ala Leu Ser Ala Val Ser Glu Leu Ile Leu Ser Lys Glu Gln Leu Tyr
225                 230                 235                 240

Glu Met Phe Gln Gln Ile Leu Gly Ile Lys Lys Leu Glu His Gln Leu
                245                 250                 255

Leu Tyr Asn Ala Cys Gln Leu Asp Asn Ala Asp Glu Gln Ala Ala Gln
            260                 265                 270

Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Leu Ala Asp Lys Met Ala
        275                 280                 285

Lys Glu Arg Lys Phe Pro Lys Phe Ile Ala Lys Asp Met Glu Asn Met
    290                 295                 300

Tyr Ile Glu Glu Leu Arg Ser Ser Val Asn Leu Leu Met Ala Asn Leu
305                 310                 315                 320

Glu Ser Leu Pro Val Ser Lys Gly Gly Pro Glu Phe Lys Leu Gln Lys
                325                 330                 335

Leu Lys Arg Ser Gln Asn Ser Ala Phe Leu Asp Ile Gly Asp Glu Asn
            340                 345                 350

Glu Ile Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Thr Leu Glu
        355                 360                 365
```

```
Ile Val Ile Met Glu Val Gln Gly Leu Lys Ser Val Ala Pro Asn Arg
    370                 375                 380

Ile Val Tyr Cys Thr Met Glu Val Glu Gly Glu Lys Leu Gln Thr Asp
385                 390                 395                 400

Gln Ala Glu Ala Ser Arg Pro Gln Trp Gly Thr Gln Gly Asp Phe Thr
                405                 410                 415

Thr Thr His Pro Arg Pro Val Val Lys Val Lys Leu Phe Thr Glu Ser
            420                 425                 430

Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val Ile Leu
        435                 440                 445

Tyr Pro Thr Ser Asn Ser Ser Lys Ser Ala Glu Leu His Arg Met Val
    450                 455                 460

Val Pro Lys Asn Ser Gln Asp Ser Asp Leu Lys Ile Lys Leu Ala Val
465                 470                 475                 480

Arg Met Asp Lys Pro Ala His Met Lys His Ser Gly Tyr Leu Tyr Ala
                485                 490                 495

Leu Gly Gln Lys Val Trp Lys Arg Trp Lys Lys Arg Tyr Phe Val Leu
            500                 505                 510

Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg Glu Lys
        515                 520                 525

Lys Ser Glu Pro Gln Glu Leu Met Gln Leu Glu Gly Tyr Thr Val Asp
    530                 535                 540

Tyr Thr Asp Pro His Pro Gly Leu Gln Gly Gly Cys Met Phe Phe Asn
545                 550                 555                 560

Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp Glu Gln
                565                 570                 575

Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly Gln Ser
            580                 585                 590
```

```
Tyr Lys Pro Val Pro Ala Ile Gln Thr Gln Lys Leu Asn Pro Lys Gly
        595                 600                 605

Gly Thr Leu His Ala Asp Ala Gln Leu Ser Gly Lys Asp Ala Asp Arg
    610                 615                 620

Phe Gln Lys His Gly Met Asp Glu Phe Ile Ser Ala Asn Pro Cys Lys
625                 630                 635                 640

Leu Asp His Ala Phe Leu Phe Arg Ile Leu Gln Arg Gln Thr Leu Asp
                645                 650                 655

His Arg Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe Ser Pro Gly
            660                 665                 670

Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Tyr Gly Val Arg Gly
        675                 680                 685

Cys His Arg His Leu Cys Tyr Leu Ala Glu Leu Met Glu His Ser Glu
    690                 695                 700

Asn Gly Ala Val Ile Asp Pro Thr Leu Leu His Tyr Ser Phe Ala Phe
705                 710                 715                 720

Cys Ala Ser His Val His Gly Asn Arg Pro Asp Gly Ile Gly Thr Val
                725                 730                 735

Ser Val Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu Arg Leu Ser
            740                 745                 750

Ser Leu Leu Glu Asn Gln Ile Ser His Phe Arg Tyr Cys Phe Pro Phe
        755                 760                 765

Gly Arg Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu Leu Glu Arg
    770                 775                 780

Val Leu Met Lys Asp Ile Ala Thr Pro Ile Pro Ala Glu Glu Val Lys
785                 790                 795                 800

Lys Val Val Arg Lys Cys Leu Glu Lys Ala Ala Leu Ile Asn Tyr Thr
                805                 810                 815

Arg Leu Thr Glu Tyr Ala Lys Ile Glu Glu Thr Met Asn Gln Ala Ser
```

```
            820                 825                 830

Pro Ala Arg Lys Leu Glu Glu Ile Leu His Leu Ala Glu Leu Cys Ile
        835                 840                 845

Glu Val Leu Gln Gln Asn Glu Glu His His Ala Glu Gly Arg Glu Ala
    850                 855                 860

Phe Ala Trp Trp Pro Asp Leu Leu Ala Glu His Ala Glu Lys Phe Trp
865                 870                 875                 880

Ala Leu Phe Thr Val Asp Met Asp Thr Ala Leu Glu Ala Gln Pro Gln
                885                 890                 895

Asp Ser Trp Asp Ser Phe Pro Leu Phe Gln Leu Leu Asn Asn Phe Leu
            900                 905                 910

Arg Asn Asp Thr Leu Leu Cys Asn Gly Lys Phe His Lys His Leu Gln
        915                 920                 925

Glu Ile Phe Val Pro Leu Val Val Arg Tyr Val Asp Leu Met Glu Ser
    930                 935                 940

Ser Ile Ala Gln Ser Ile His Arg Gly Phe Glu Gln Glu Thr Trp Gln
945                 950                 955                 960

Pro Val Lys Asn Ile Ala Asn Ser Leu Pro Asn Val Ala Leu Pro Lys
                965                 970                 975

Val Pro Ser Leu Pro Leu Asn Leu Pro Gln Ile Pro Asn Ile Ser Thr
            980                 985                 990

Ala Ser Trp Met Pro Ser Leu Tyr  Glu Ser Thr Asn Gly  Ser Ala
Thr
        995                 1000                1005

Ser Glu  Asp Leu Phe Trp Lys  Leu Asp Ala Leu Gln  Met Phe Val
    1010                1015                1020

Phe Asp  Leu His Trp Pro Glu  Gln Glu Phe Ala His  His Leu Glu
    1025                1030                1035

Gln Arg  Leu Lys Leu Met Ala  Ser Asp Met Leu Glu  Ala Cys Val
```

1040 1045 1050

Lys Arg Thr Arg Thr Ala Phe Glu Leu Lys Leu Gln Lys Ala Ser
1055 1060 1065

Lys Thr Thr Asp Leu Arg Ile Pro Ala Ser Val Cys Thr Met Phe
1070 1075 1080

Asn Val Leu Val Asp Ala Lys Lys Gln Ser Thr Lys Leu Cys Ala
1085 1090 1095

Leu Asp Gly Gly Gln Glu Gln Gln Tyr His Ser Lys Ile Asp Asp
1100 1105 1110

Leu Ile Asp Asn Ser Val Lys Glu Ile Ile Ser Leu Leu Val Ser
1115 1120 1125

Lys Phe Val Ser Val Leu Glu Gly Val Leu Ser Lys Leu Ser Arg
1130 1135 1140

Tyr Asp Glu Gly Thr Phe Phe Ser Ser Ile Leu Ser Phe Thr Val
1145 1150 1155

Lys Ala Ala Ala Lys Tyr Val Asp Val Pro Lys Pro Gly Met Asp
1160 1165 1170

Leu Ala Asp Thr Tyr Ile Met Phe Val Arg Gln Asn Gln Asp Ile
1175 1180 1185

Leu Arg Glu Lys Val Asn Glu Glu Met Tyr Ile Glu Lys Leu Phe
1190 1195 1200

Asp Gln Trp Tyr Ser Ser Ser Met Lys Val Ile Cys Val Trp Leu
1205 1210 1215

Thr Asp Arg Leu Asp Leu Gln Leu His Ile Tyr Gln Leu Lys Thr
1220 1225 1230

Leu Ile Lys Ile Val Lys Lys Thr Tyr Arg Asp Phe Arg Leu Gln
1235 1240 1245

Gly Val Leu Glu Gly Thr Leu Asn Ser Lys Thr Tyr Asp Thr Val
1250 1255 1260

His Arg Arg Leu Thr Val Glu Glu Ala Thr Ala Ser Val Ser Glu
    1265   1270   1275

Gly Gly Gly Leu Gln Gly Ile Thr Met Lys Asp Ser Asp Glu Glu
    1280   1285   1290

Glu Glu Gly
    1295

<210> 10279
<211> 1255
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2060; "

<220>
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<223> /note="Gene Symbol: CADPS2; "

<220>
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<223> /note="Gene Name: Ca++-dependent secretion activator 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86UW7; "

<220>
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<223> /note="ENSP ID: ENSP00000400401"

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Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Gly Leu Glu
1   5   10   15

Glu Glu Ser Arg Asp Val Leu Val Ala Ala Gly Ser Ser Gln Arg Ala
            20   25   30

Pro Pro Ala Pro Thr Arg Glu Gly Arg Arg Asp Ala Pro Gly Arg Ala
        35   40   45

Gly Gly Gly Gly Ala Ala Arg Ser Val Ser Pro Ser Pro Ser Val Leu
    50   55   60

Ser Glu Gly Arg Asp Glu Pro Gln Arg Gln Leu Asp Asp Glu Gln Glu

65 70 75 80

Arg Arg Ile Arg Leu Gln Leu Tyr Val Phe Val Val Arg Cys Ile Ala
85 90 95

Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg Gln Gln
100 105 110

Lys Leu Asn Lys Gln Gln Leu Gln Leu Leu Lys Glu Arg Phe Gln Ala
115 120 125

Phe Leu Asn Gly Glu Thr Gln Ile Val Ala Asp Glu Ala Phe Cys Asn
130 135 140

Ala Val Arg Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg Val Ala
145 150 155 160

Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Phe Arg Glu Val
165 170 175

Phe Lys Lys Asn Ile Glu Lys Arg Val Arg Ser Leu Pro Glu Ile Asp
180 185 190

Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Ile Ala Lys Tyr Asp
195 200 205

Ala Ile Tyr Arg Gly Glu Glu Asp Leu Cys Lys Gln Pro Asn Arg Met
210 215 220

Ala Leu Ser Ala Val Ser Glu Leu Ile Leu Ser Lys Glu Gln Leu Tyr
225 230 235 240

Glu Met Phe Gln Gln Ile Leu Gly Ile Lys Lys Leu Glu His Gln Leu
245 250 255

Leu Tyr Asn Ala Cys Gln Leu Asp Asn Ala Asp Glu Gln Ala Ala Gln
260 265 270

Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Leu Ala Asp Lys Met Ala
275 280 285

Lys Glu Arg Lys Phe Pro Lys Phe Ile Ala Lys Asp Met Glu Asn Met
290 295 300

Tyr Ile Glu Glu Leu Arg Ser Ser Val Asn Leu Leu Met Ala Asn Leu
305 310 315 320

Glu Ser Leu Pro Val Ser Lys Gly Gly Pro Glu Phe Lys Leu Gln Lys
325 330 335

Leu Lys Arg Ser Gln Asn Ser Ala Phe Leu Asp Ile Gly Asp Glu Asn
340 345 350

Glu Ile Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Thr Leu Glu
355 360 365

Ile Val Ile Met Glu Val Gln Gly Leu Lys Ser Val Ala Pro Asn Arg
370 375 380

Ile Val Tyr Cys Thr Met Glu Val Glu Gly Glu Lys Leu Gln Thr Asp
385 390 395 400

Gln Ala Glu Ala Ser Arg Pro Gln Trp Gly Thr Gln Gly Asp Phe Thr
405 410 415

Thr Thr His Pro Arg Pro Val Val Lys Val Lys Leu Phe Thr Glu Ser
420 425 430

Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val Ile Leu
435 440 445

Tyr Pro Thr Ser Asn Ser Ser Lys Ser Ala Glu Leu His Arg Met Val
450 455 460

Val Pro Lys Asn Ser Gln Asp Ser Asp Leu Lys Ile Lys Leu Ala Val
465 470 475 480

Arg Met Asp Lys Pro Ala His Met Lys His Ser Gly Tyr Leu Tyr Ala
485 490 495

Leu Gly Gln Lys Val Trp Lys Arg Trp Lys Lys Arg Tyr Phe Val Leu
500 505 510

Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg Glu Lys
515 520 525

Lys Ser Glu Pro Gln Glu Leu Met Gln Leu Glu Gly Tyr Thr Val Asp
530 535 540

Tyr Thr Asp Pro His Pro Gly Leu Gln Gly Gly Cys Met Phe Phe Asn
545 550 555 560

Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp Glu Gln
565 570 575

Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly Gln Ser
580 585 590

Tyr Lys Pro Val Pro Ala Ile Gln Thr Gln Lys Leu Asn Pro Lys Gly
595 600 605

Gly Thr Leu His Ala Asp Ala Gln Leu Tyr Ala Asp Arg Phe Gln Lys
610 615 620

His Gly Met Asp Glu Phe Ile Ser Ala Asn Pro Cys Lys Leu Asp His
625 630 635 640

Ala Phe Leu Phe Arg Ile Leu Gln Arg Gln Thr Leu Asp His Arg Leu
645 650 655

Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe Ser Pro Gly Gln Val Phe
660 665 670

Val Leu Asp Glu Tyr Cys Ala Arg Tyr Gly Val Arg Gly Cys His Arg
675 680 685

His Leu Cys Tyr Leu Ala Glu Leu Met Glu His Ser Glu Asn Gly Ala
690 695 700

Val Ile Asp Pro Thr Leu Leu His Tyr Ser Phe Ala Phe Cys Ala Ser
705 710 715 720

His Val His Gly Asn Arg Pro Asp Gly Ile Gly Thr Val Ser Val Glu
725 730 735

Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu Arg Leu Ser Ser Leu Leu
740 745 750

```
Glu Asn Gln Ile Ser His Phe Arg Tyr Cys Phe Pro Phe Gly Arg Pro
        755                 760                 765

Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu Leu Glu Arg Val Leu Met
    770                 775                 780

Lys Asp Ile Ala Thr Pro Ile Pro Ala Glu Glu Val Lys Lys Val Val
785                 790                 795                 800

Arg Lys Cys Leu Glu Lys Ala Ala Leu Ile Asn Tyr Thr Arg Leu Thr
                805                 810                 815

Glu Tyr Ala Lys Ile Glu Glu Thr Met Asn Gln Ala Ser Pro Ala Arg
            820                 825                 830

Lys Leu Glu Glu Ile Leu His Leu Ala Glu Leu Cys Ile Glu Val Leu
        835                 840                 845

Gln Gln Asn Glu Glu His His Ala Glu Ala Phe Ala Trp Trp Pro Asp
    850                 855                 860

Leu Leu Ala Glu His Ala Glu Lys Phe Trp Ala Leu Phe Thr Val Asp
865                 870                 875                 880

Met Asp Thr Ala Leu Glu Ala Gln Pro Gln Asp Ser Trp Asp Ser Phe
                885                 890                 895

Pro Leu Phe Gln Leu Leu Asn Asn Phe Leu Arg Asn Asp Thr Leu Leu
            900                 905                 910

Cys Asn Gly Lys Phe His Lys His Leu Gln Glu Ile Phe Val Pro Leu
        915                 920                 925

Val Val Arg Tyr Val Asp Leu Met Glu Ser Ser Ile Ala Gln Ser Ile
    930                 935                 940

His Arg Gly Phe Glu Gln Glu Thr Trp Gln Pro Val Asn Asn Gly Ser
945                 950                 955                 960

Ala Thr Ser Glu Asp Leu Phe Trp Lys Leu Asp Ala Leu Gln Met Phe
                965                 970                 975

Val Phe Asp Leu His Trp Pro Glu Gln Glu Phe Ala His His Leu Glu
```

980 985 990

Gln Arg Leu Lys Leu Met Ala Ser Asp Met Leu Glu Ala Cys Val Lys
995 1000 1005

Arg Thr Arg Thr Ala Phe Glu Leu Lys Leu Gln Lys Ala Ser Lys
1010 1015 1020

Thr Thr Asp Leu Arg Ile Pro Ala Ser Val Cys Thr Met Phe Asn
1025 1030 1035

Val Leu Val Asp Ala Lys Lys Gln Ser Thr Lys Leu Cys Ala Leu
1040 1045 1050

Asp Gly Gly Gln Glu Phe Gly Ser Gln Trp Gln Gln Tyr His Ser
1055 1060 1065

Lys Ile Asp Asp Leu Ile Asp Asn Ser Val Lys Glu Ile Ile Ser
1070 1075 1080

Leu Leu Val Ser Lys Phe Val Ser Val Leu Glu Gly Val Leu Ser
1085 1090 1095

Lys Leu Ser Arg Tyr Asp Glu Gly Thr Phe Phe Ser Ser Ile Leu
1100 1105 1110

Ser Phe Thr Val Lys Ala Ala Ala Lys Tyr Val Asp Val Pro Lys
1115 1120 1125

Pro Gly Met Asp Leu Ala Asp Thr Tyr Ile Met Phe Val Arg Gln
1130 1135 1140

Asn Gln Asp Ile Leu Arg Glu Lys Val Asn Glu Glu Met Tyr Ile
1145 1150 1155

Glu Lys Leu Phe Asp Gln Trp Tyr Ser Ser Ser Met Lys Val Ile
1160 1165 1170

Cys Val Trp Leu Thr Asp Arg Leu Asp Leu Gln Leu His Ile Tyr
1175 1180 1185

Gln Leu Lys Thr Leu Ile Lys Ile Val Lys Lys Thr Tyr Arg Asp

```
    1190                1195                1200

Phe Arg  Leu Gln Gly Val Leu  Glu Gly Thr Leu Asn  Ser Lys Thr
    1205                1210                1215

Tyr Asp  Thr Val His Arg Arg  Leu Thr Val Glu Glu  Ala Thr Ala
    1220                1225                1230

Ser Val  Ser Glu Gly Gly Gly  Leu Gln Gly Ile Thr  Met Lys Asp
    1235                1240                1245

Ser Asp  Glu Glu Glu Glu Gly
    1250                1255


<210> 10280
<211> 490
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2060; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS2; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419418"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10280
Xaa Tyr Thr Arg Leu Thr Glu Tyr Ala Lys Ile Glu Gly Pro Ala Glu
1               5                   10                  15

Lys Glu Thr Glu Thr Met Asn Gln Ala Ser Pro Ala Arg Lys Leu Glu
            20                  25                  30

Glu Ile Leu His Leu Ala Glu Leu Cys Ile Glu Val Leu Gln Gln Asn
        35                  40                  45
```

```
Glu Glu His His Ala Glu Gly Arg Glu Ala Phe Ala Trp Trp Pro Asp
    50                  55                  60

Leu Leu Ala Glu His Ala Glu Lys Phe Trp Ala Leu Phe Thr Val Asp
65                  70                  75                  80

Met Asp Thr Ala Leu Glu Ala Gln Pro Gln Asp Ser Trp Asp Ser Phe
                85                  90                  95

Pro Leu Phe Gln Leu Leu Asn Asn Phe Leu Arg Asn Asp Thr Leu Leu
            100                 105                 110

Cys Asn Gly Lys Phe His Lys His Leu Gln Glu Ile Phe Val Pro Leu
        115                 120                 125

Val Val Arg Tyr Val Asp Leu Met Glu Ser Ser Ile Ala Gln Ser Ile
    130                 135                 140

His Arg Gly Phe Glu Gln Glu Thr Trp Gln Pro Val Lys Asn Ile Ala
145                 150                 155                 160

Asn Ser Leu Pro Asn Val Ala Leu Pro Lys Val Pro Ser Leu Pro Leu
                165                 170                 175

Asn Leu Pro Gln Ile Pro Asn Ile Ser Thr Ala Ser Trp Met Pro Ser
            180                 185                 190

Leu Tyr Glu Ser Thr Asn Gly Ser Ala Thr Ser Glu Asp Leu Phe Trp
        195                 200                 205

Lys Leu Asp Ala Leu Gln Met Phe Val Phe Asp Leu His Trp Pro Glu
    210                 215                 220

Gln Glu Phe Ala His His Leu Glu Gln Arg Leu Lys Leu Met Ala Ser
225                 230                 235                 240

Asp Met Leu Glu Ala Cys Val Lys Arg Thr Arg Thr Ala Phe Glu Leu
                245                 250                 255

Lys Leu Gln Lys Ala Ser Lys Thr Thr Asp Leu Arg Ile Pro Ala Ser
            260                 265                 270
```

```
Val Cys Thr Met Phe Asn Val Leu Val Asp Ala Lys Lys Gln Ser Thr
        275                 280                 285

Lys Leu Cys Ala Leu Asp Gly Gly Gln Glu Gln Gln Tyr His Ser Lys
    290                 295                 300

Ile Asp Asp Leu Ile Asp Asn Ser Val Lys Glu Ile Ile Ser Leu Leu
305                 310                 315                 320

Val Ser Lys Phe Val Ser Val Leu Glu Gly Val Leu Ser Lys Leu Ser
                325                 330                 335

Arg Tyr Asp Glu Gly Thr Phe Phe Ser Ser Ile Leu Ser Phe Thr Val
            340                 345                 350

Lys Ala Ala Ala Lys Tyr Val Asp Val Pro Lys Pro Gly Met Asp Leu
        355                 360                 365

Ala Asp Thr Tyr Ile Met Phe Val Arg Gln Asn Gln Asp Ile Leu Arg
    370                 375                 380

Glu Lys Val Asn Glu Glu Met Tyr Ile Glu Lys Leu Phe Asp Gln Trp
385                 390                 395                 400

Tyr Ser Ser Ser Met Lys Val Ile Cys Val Trp Leu Thr Asp Arg Leu
                405                 410                 415

Asp Leu Gln Leu His Ile Tyr Gln Leu Lys Thr Leu Ile Lys Ile Val
            420                 425                 430

Lys Lys Thr Tyr Arg Asp Phe Arg Leu Gln Gly Val Leu Glu Gly Thr
        435                 440                 445

Leu Asn Ser Lys Thr Tyr Asp Thr Val His Arg Arg Leu Thr Val Glu
    450                 455                 460

Glu Ala Thr Ala Ser Val Ser Glu Gly Gly Gly Leu Gln Gly Ile Thr
465                 470                 475                 480

Met Lys Asp Ser Asp Glu Glu Glu Glu Gly
                485                 490
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<210> 10281
<211> 1301
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2060; "

<220>
<221> source
<223> /note="Gene Symbol: CADPS2; "

<220>
<221> source
<223> /note="Gene Name: Ca++-dependent secretion activator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484355"

<400> 10281
Met Leu Asp Pro Ser Ser Ser Glu Glu Glu Ser Asp Glu Gly Leu Glu
1   5   10   15

Glu Glu Ser Arg Asp Val Leu Val Ala Ala Gly Ser Ser Gln Arg Ala
            20   25   30

Pro Pro Ala Pro Thr Arg Glu Gly Arg Arg Asp Ala Pro Gly Arg Ala
        35   40   45

Gly Gly Gly Gly Ala Ala Arg Ser Val Ser Pro Ser Pro Ser Val Leu
    50   55   60

Ser Glu Gly Arg Asp Glu Pro Gln Arg Gln Leu Asp Asp Glu Gln Glu
65   70   75   80

Arg Arg Ile Arg Leu Gln Leu Tyr Val Phe Val Val Arg Cys Ile Ala
                85   90   95

Tyr Pro Phe Asn Ala Lys Gln Pro Thr Asp Met Ala Arg Arg Gln Gln
            100   105   110

Lys Leu Asn Lys Gln Gln Leu Gln Leu Leu Lys Glu Arg Phe Gln Ala
        115   120   125

Phe Leu Asn Gly Glu Thr Gln Ile Val Ala Asp Glu Ala Phe Cys Asn
    130   135   140

```
Ala Val Arg Ser Tyr Tyr Glu Val Phe Leu Lys Ser Asp Arg Val Ala
145                 150                 155                 160

Arg Met Val Gln Ser Gly Gly Cys Ser Ala Asn Asp Phe Arg Glu Val
                165                 170                 175

Phe Lys Lys Asn Ile Glu Lys Arg Val Arg Ser Leu Pro Glu Ile Asp
            180                 185                 190

Gly Leu Ser Lys Glu Thr Val Leu Ser Ser Trp Ile Ala Lys Tyr Asp
        195                 200                 205

Ala Ile Tyr Arg Gly Glu Glu Asp Leu Cys Lys Gln Pro Asn Arg Met
    210                 215                 220

Ala Leu Ser Ala Val Ser Glu Leu Ile Leu Ser Lys Glu Gln Leu Tyr
225                 230                 235                 240

Glu Met Phe Gln Gln Ile Leu Gly Ile Lys Lys Leu Glu His Gln Leu
                245                 250                 255

Leu Tyr Asn Ala Cys Gln Leu Asp Asn Ala Asp Glu Gln Ala Ala Gln
            260                 265                 270

Ile Arg Arg Glu Leu Asp Gly Arg Leu Gln Leu Ala Asp Lys Met Ala
        275                 280                 285

Lys Glu Arg Lys Phe Pro Lys Phe Ile Ala Lys Asp Met Glu Asn Met
    290                 295                 300

Tyr Ile Glu Glu Leu Arg Ser Ser Val Asn Leu Leu Met Ala Asn Leu
305                 310                 315                 320

Glu Ser Leu Pro Val Ser Lys Gly Gly Pro Glu Phe Lys Leu Gln Lys
                325                 330                 335

Leu Lys Arg Ser Gln Asn Ser Ala Phe Leu Asp Ile Gly Asp Glu Asn
            340                 345                 350

Glu Ile Gln Leu Ser Lys Ser Asp Val Val Leu Ser Phe Thr Leu Glu
        355                 360                 365
```

```
Ile Val Ile Met Glu Val Gln Gly Leu Lys Ser Val Ala Pro Asn Arg
    370                 375                 380

Ile Val Tyr Cys Thr Met Glu Val Glu Gly Glu Lys Leu Gln Thr Asp
385                 390                 395                 400

Gln Ala Glu Ala Ser Arg Pro Gln Trp Gly Thr Gln Gly Asp Phe Thr
                405                 410                 415

Thr Thr His Pro Arg Pro Val Val Lys Val Lys Leu Phe Thr Glu Ser
            420                 425                 430

Thr Gly Val Leu Ala Leu Glu Asp Lys Glu Leu Gly Arg Val Ile Leu
        435                 440                 445

Tyr Pro Thr Ser Asn Ser Ser Lys Ser Ala Glu Leu His Arg Met Val
    450                 455                 460

Val Pro Lys Asn Ser Gln Asp Ser Asp Leu Lys Ile Lys Leu Ala Val
465                 470                 475                 480

Arg Met Asp Lys Pro Ala His Met Lys His Ser Gly Tyr Leu Tyr Ala
                485                 490                 495

Leu Gly Gln Lys Val Trp Lys Arg Trp Lys Lys Arg Tyr Phe Val Leu
            500                 505                 510

Val Gln Val Ser Gln Tyr Thr Phe Ala Met Cys Ser Tyr Arg Glu Lys
        515                 520                 525

Lys Ser Glu Pro Gln Glu Leu Met Gln Leu Glu Gly Tyr Thr Val Asp
    530                 535                 540

Tyr Thr Asp Pro His Pro Gly Leu Gln Gly Gly Cys Met Phe Phe Asn
545                 550                 555                 560

Ala Val Lys Glu Gly Asp Thr Val Ile Phe Ala Ser Asp Asp Glu Gln
                565                 570                 575

Asp Arg Ile Leu Trp Val Gln Ala Met Tyr Arg Ala Thr Gly Gln Ser
            580                 585                 590

Tyr Lys Pro Val Pro Ala Ile Gln Thr Gln Lys Leu Asn Pro Lys Gly
```

595 600 605

Gly Thr Leu His Ala Asp Ala Gln Leu Ser Glu Phe Thr Asp Ala Asp
610 615 620

Arg Phe Gln Lys His Gly Met Asp Glu Phe Ile Ser Ala Asn Pro Cys
625 630 635 640

Lys Leu Asp His Ala Phe Leu Phe Arg Ile Leu Gln Arg Gln Thr Leu
645 650 655

Asp His Arg Leu Asn Asp Ser Tyr Ser Cys Leu Gly Trp Phe Ser Pro
660 665 670

Gly Gln Val Phe Val Leu Asp Glu Tyr Cys Ala Arg Tyr Gly Val Arg
675 680 685

Gly Cys His Arg His Leu Cys Tyr Leu Ala Glu Leu Met Glu His Ser
690 695 700

Glu Asn Gly Ala Val Ile Asp Pro Thr Leu Leu His Tyr Ser Phe Ala
705 710 715 720

Phe Cys Ala Ser His Val His Gly Asn Arg Pro Asp Gly Ile Gly Thr
725 730 735

Val Ser Val Glu Glu Lys Glu Arg Phe Glu Glu Ile Lys Glu Arg Leu
740 745 750

Ser Ser Leu Leu Glu Asn Gln Ile Ser His Phe Arg Tyr Cys Phe Pro
755 760 765

Phe Gly Arg Pro Glu Gly Ala Leu Lys Ala Thr Leu Ser Leu Leu Glu
770 775 780

Arg Val Leu Met Lys Asp Ile Ala Thr Pro Ile Pro Ala Glu Glu Val
785 790 795 800

Lys Lys Val Val Arg Lys Cys Leu Glu Lys Ala Ala Leu Ile Asn Tyr
805 810 815

Thr Arg Leu Thr Glu Tyr Ala Lys Ile Glu Gly Pro Ala Glu Lys Glu
820 825 830

```
Thr Glu Thr Met Asn Gln Ala Ser Pro Ala Arg Lys Leu Glu Glu Ile
        835                 840                 845

Leu His Leu Ala Glu Leu Cys Ile Glu Val Leu Gln Gln Asn Glu Glu
    850                 855                 860

His His Ala Glu Ala Phe Ala Trp Trp Pro Asp Leu Leu Ala Glu His
865                 870                 875                 880

Ala Glu Lys Phe Trp Ala Leu Phe Thr Val Asp Met Asp Thr Ala Leu
                885                 890                 895

Glu Ala Gln Pro Gln Asp Ser Trp Asp Ser Phe Pro Leu Phe Gln Leu
            900                 905                 910

Leu Asn Asn Phe Leu Arg Asn Asp Thr Leu Leu Cys Asn Gly Lys Phe
        915                 920                 925

His Lys His Leu Gln Glu Ile Phe Val Pro Leu Val Val Arg Tyr Val
    930                 935                 940

Asp Leu Met Glu Ser Ser Ile Ala Gln Ser Ile His Arg Gly Phe Glu
945                 950                 955                 960

Gln Glu Thr Trp Gln Pro Val Lys Asn Ile Ala Asn Ser Leu Pro Asn
                965                 970                 975

Val Ala Leu Pro Lys Val Pro Ser Leu Pro Leu Asn Leu Pro Gln Ile
            980                 985                 990

Pro Asn Ile Ser Thr Ala Ser Trp  Met Pro Ser Leu Tyr  Glu Ser
Thr
        995                 1000                1005

Asn Gly  Ser Ala Thr Ser Glu  Asp Leu Phe Trp Lys  Leu Asp Ala
    1010                1015                1020

Leu Gln  Met Phe Val Phe Asp  Leu His Trp Pro Glu  Gln Glu Phe
    1025                1030                1035

Ala His  His Leu Glu Gln Arg  Leu Lys Leu Met Ala  Ser Asp Met
    1040                1045                1050
```

```
Leu Glu  Ala Cys Val Lys Arg  Thr Arg Thr Ala Phe  Glu Leu Lys
    1055                1060                1065

Leu Gln  Lys Ala Ser Lys Thr  Thr Asp Leu Arg Ile  Pro Ala Ser
    1070                1075                1080

Val Cys  Thr Met Phe Asn Val  Leu Val Asp Ala Lys  Lys Gln Ser
    1085                1090                1095

Thr Lys  Leu Cys Ala Leu Asp  Gly Gly Gln Glu Gln  Gln Tyr His
    1100                1105                1110

Ser Lys  Ile Asp Asp Leu Ile  Asp Asn Ser Val Lys  Glu Ile Ile
    1115                1120                1125

Ser Leu  Leu Val Ser Lys Phe  Val Ser Val Leu Glu  Gly Val Leu
    1130                1135                1140

Ser Lys  Leu Ser Arg Tyr Asp  Glu Gly Thr Phe Phe  Ser Ser Ile
    1145                1150                1155

Leu Ser  Phe Thr Val Lys Ala  Ala Ala Lys Tyr Val  Asp Val Pro
    1160                1165                1170

Lys Pro  Gly Met Asp Leu Ala  Asp Thr Tyr Ile Met  Phe Val Arg
    1175                1180                1185

Gln Asn  Gln Asp Ile Leu Arg  Glu Lys Val Asn Glu  Glu Met Tyr
    1190                1195                1200

Ile Glu  Lys Leu Phe Asp Gln  Trp Tyr Ser Ser Ser  Met Lys Val
    1205                1210                1215

Ile Cys  Val Trp Leu Thr Asp  Arg Leu Asp Leu Gln  Leu His Ile
    1220                1225                1230

Tyr Gln  Leu Lys Thr Leu Ile  Lys Ile Val Lys Lys  Thr Tyr Arg
    1235                1240                1245

Asp Phe  Arg Leu Gln Gly Val  Leu Glu Gly Thr Leu  Asn Ser Lys
    1250                1255                1260
```

Thr Tyr Asp Thr Val His Arg Arg Leu Thr Val Glu Glu Ala Thr
1265 1270 1275

Ala Ser Val Ser Glu Gly Gly Gly Leu Gln Gly Ile Thr Met Lys
1280 1285 1290

Asp Ser Asp Glu Glu Glu Glu Gly
1295 1300

<210> 10282
<211> 1223
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2061; "

<220>
<221> source
<223> /note="Gene Symbol: CACHD1; "

<220>
<221> source
<223> /note="Gene Name: cache
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000290039"

<400> 10282
Met Arg Arg Leu Ala Ala Glu Glu Leu Gly Val Val Thr Met Gln Arg
1 5 10 15

Ile Phe Asn Ser Phe Val Tyr Thr Glu Lys Ile Ser Asn Gly Glu Ser
20 25 30

Glu Val Gln Gln Leu Ala Lys Lys Ile Arg Glu Lys Phe Asn Arg Tyr
35 40 45

Leu Asp Val Val Asn Arg Asn Lys Gln Val Val Glu Ala Ser Tyr Thr
50 55 60

Ala His Leu Thr Ser Pro Leu Thr Ala Ile Gln Asp Cys Cys Thr Ile
65 70 75 80

Pro Pro Ser Met Met Glu Phe Asp Gly Asn Phe Asn Thr Asn Val Ser

```
                85                  90                  95

Arg Thr Ile Ser Cys Asp Arg Leu Ser Thr Thr Val Asn Ser Arg Ala
            100                 105                 110

Phe Asn Pro Gly Arg Asp Leu Asn Ser Val Leu Ala Asp Asn Leu Lys
        115                 120                 125

Ser Asn Pro Gly Ile Lys Trp Gln Tyr Phe Ser Ser Glu Glu Gly Ile
    130                 135                 140

Phe Thr Val Phe Pro Ala His Lys Phe Arg Cys Lys Gly Ser Tyr Glu
145                 150                 155                 160

His Arg Ser Arg Pro Ile Tyr Val Ser Thr Val Arg Pro Gln Ser Lys
                165                 170                 175

His Ile Val Val Ile Leu Asp His Gly Ala Ser Val Thr Asp Thr Gln
            180                 185                 190

Leu Gln Ile Ala Lys Asp Ala Ala Gln Val Ile Leu Ser Ala Ile Asp
        195                 200                 205

Glu His Asp Lys Ile Ser Val Leu Thr Val Ala Asp Thr Val Arg Thr
    210                 215                 220

Cys Ser Leu Asp Gln Cys Tyr Lys Thr Phe Leu Ser Pro Ala Thr Ser
225                 230                 235                 240

Glu Thr Lys Arg Lys Met Ser Thr Phe Val Ser Ser Val Lys Ser Ser
                245                 250                 255

Asp Ser Pro Thr Gln His Ala Val Gly Phe Gln Lys Ala Phe Gln Leu
            260                 265                 270

Ile Arg Ser Thr Asn Asn Asn Thr Lys Phe Gln Ala Asn Thr Asp Met
        275                 280                 285

Val Ile Ile Tyr Leu Ser Ala Gly Ile Thr Ser Lys Asp Ser Ser Glu
    290                 295                 300

Glu Asp Lys Lys Ala Thr Leu Gln Val Ile Asn Glu Glu Asn Ser Phe
305                 310                 315                 320
```

```
Leu Asn Asn Ser Val Met Ile Leu Thr Tyr Ala Leu Met Asn Asp Gly
                325                 330                 335

Val Thr Gly Leu Lys Glu Leu Ala Phe Leu Arg Asp Leu Ala Glu Gln
            340                 345                 350

Asn Ser Gly Lys Tyr Gly Val Pro Asp Arg Met Ala Leu Pro Val Ile
        355                 360                 365

Lys Gly Ser Met Met Val Leu Asn Gln Leu Ser Asn Leu Glu Thr Thr
    370                 375                 380

Val Gly Arg Phe Tyr Thr Asn Leu Pro Asn Arg Met Ile Asp Glu Ala
385                 390                 395                 400

Val Phe Ser Leu Pro Phe Ser Asp Glu Met Gly Asp Gly Leu Ile Met
                405                 410                 415

Thr Val Ser Lys Pro Cys Tyr Phe Gly Asn Leu Leu Leu Gly Ile Val
            420                 425                 430

Gly Val Asp Val Asn Leu Ala Tyr Ile Leu Glu Asp Val Thr Tyr Tyr
        435                 440                 445

Gln Asp Ser Leu Ala Ser Tyr Thr Phe Leu Ile Asp Asp Lys Gly Tyr
    450                 455                 460

Thr Leu Met His Pro Ser Leu Thr Arg Pro Tyr Leu Leu Ser Glu Pro
465                 470                 475                 480

Pro Leu His Thr Asp Ile Ile His Tyr Glu Asn Ile Pro Lys Phe Glu
                485                 490                 495

Leu Val Arg Gln Asn Ile Leu Ser Leu Pro Leu Gly Ser Gln Ile Ile
            500                 505                 510

Ala Val Pro Val Asn Ser Ser Leu Ser Trp His Ile Asn Lys Leu Arg
        515                 520                 525

Glu Thr Gly Lys Glu Ala Tyr Asn Val Ser Tyr Ala Trp Lys Met Val
    530                 535                 540
```

```
Gln Asp Thr Ser Phe Ile Leu Cys Ile Val Val Ile Gln Pro Glu Ile
545                 550                 555                 560

Pro Val Lys Gln Leu Lys Asn Leu Asn Thr Val Pro Ser Ser Lys Leu
                565                 570                 575

Leu Tyr His Arg Leu Asp Leu Leu Gly Gln Pro Ser Ala Cys Leu His
            580                 585                 590

Phe Lys Gln Leu Ala Thr Leu Glu Ser Pro Thr Ile Met Leu Ser Ala
        595                 600                 605

Gly Ser Phe Ser Ser Pro Tyr Glu His Leu Ser Gln Pro Glu Thr Lys
    610                 615                 620

Arg Met Val Glu His Tyr Thr Ala Tyr Leu Ser Asp Asn Thr Arg Leu
625                 630                 635                 640

Ile Ala Asn Pro Gly Leu Lys Phe Ser Val Arg Asn Glu Val Met Ala
                645                 650                 655

Thr Ser His Val Thr Asp Glu Trp Met Thr Gln Met Glu Met Ser Ser
            660                 665                 670

Leu Asn Thr Tyr Ile Val Arg Arg Tyr Ile Ala Thr Pro Asn Gly Val
        675                 680                 685

Leu Arg Ile Tyr Pro Gly Ser Leu Met Asp Lys Ala Phe Asp Pro Thr
    690                 695                 700

Arg Arg Gln Trp Tyr Leu His Ala Val Ala Asn Pro Gly Leu Ile Ser
705                 710                 715                 720

Leu Thr Gly Pro Tyr Leu Asp Val Gly Gly Ala Gly Tyr Val Val Thr
                725                 730                 735

Ile Ser His Thr Ile His Ser Ser Ser Thr Gln Leu Ser Ser Gly His
            740                 745                 750

Thr Val Ala Val Met Gly Ile Asp Phe Thr Leu Arg Tyr Phe Tyr Lys
        755                 760                 765
```

```
Val Leu Met Asp Leu Leu Pro Val Cys Asn Gln Asp Gly Gly Asn Lys
    770                 775                 780

Ile Arg Cys Phe Ile Met Glu Asp Arg Gly Tyr Leu Val Ala His Pro
785                 790                 795                 800

Thr Leu Ile Asp Pro Lys Gly His Ala Pro Val Glu Gln Gln His Ile
                805                 810                 815

Thr His Lys Glu Pro Leu Val Ala Asn Asp Ile Leu Asn His Pro Asn
            820                 825                 830

Phe Val Lys Lys Asn Leu Cys Asn Ser Phe Ser Asp Arg Thr Val Gln
        835                 840                 845

Arg Phe Tyr Lys Phe Asn Thr Ser Leu Ala Gly Asp Leu Thr Asn Leu
    850                 855                 860

Val His Gly Ser His Cys Ser Lys Tyr Arg Leu Ala Arg Ile Pro Gly
865                 870                 875                 880

Thr Asn Ala Phe Val Gly Ile Val Asn Glu Thr Cys Asp Ser Leu Ala
                885                 890                 895

Phe Cys Ala Cys Ser Met Val Asp Arg Leu Cys Leu Asn Cys His Arg
            900                 905                 910

Met Glu Gln Asn Glu Cys Glu Cys Pro Cys Glu Cys Pro Leu Glu Val
        915                 920                 925

Asn Glu Cys Thr Gly Asn Leu Thr Asn Ala Glu Asn Arg Asn Pro Ser
    930                 935                 940

Cys Glu Val His Gln Glu Pro Val Thr Tyr Thr Ala Ile Asp Pro Gly
945                 950                 955                 960

Leu Gln Asp Ala Leu His Gln Cys Val Asn Ser Arg Cys Ser Gln Arg
                965                 970                 975

Leu Glu Ser Gly Asp Cys Phe Gly Val Leu Asp Cys Glu Trp Cys Met
            980                 985                 990

Val Asp Ser Asp Gly Lys Thr His  Leu Asp Lys Pro Tyr  Cys Ala
```

Pro
995 1000 1005

Gln Lys Glu Cys Phe Gly Gly Ile Val Gly Ala Lys Ser Pro Tyr
1010 1015 1020

Val Asp Asp Met Gly Ala Ile Gly Asp Glu Val Ile Thr Leu Asn
1025 1030 1035

Met Ile Lys Ser Ala Pro Val Gly Pro Val Ala Gly Gly Ile Met
1040 1045 1050

Gly Cys Ile Met Val Leu Val Leu Ala Val Tyr Ala Tyr Arg His
1055 1060 1065

Gln Ile His Arg Arg Ser His Gln His Met Ser Pro Leu Ala Ala
1070 1075 1080

Gln Glu Met Ser Val Arg Met Ser Asn Leu Glu Asn Asp Arg Asp
1085 1090 1095

Glu Arg Asp Asp Asp Ser His Glu Asp Arg Gly Ile Ile Ser Asn
1100 1105 1110

Thr Arg Phe Ile Ala Ala Val Ile Glu Arg His Ala His Ser Pro
1115 1120 1125

Glu Arg Arg Arg Arg Tyr Trp Gly Arg Ser Gly Thr Glu Ser Asp
1130 1135 1140

His Gly Tyr Ser Thr Met Ser Pro Gln Glu Asp Ser Glu Asn Pro
1145 1150 1155

Pro Cys Asn Asn Asp Pro Leu Ser Ala Gly Val Asp Val Gly Asn
1160 1165 1170

His Asp Glu Asp Leu Asp Leu Asp Thr Pro Pro Gln Thr Ala Ala
1175 1180 1185

Leu Leu Ser His Lys Phe His His Tyr Arg Ser His His Pro Thr
1190 1195 1200

Leu His His Ser His His Leu Gln Ala Ala Val Thr Val His Thr

1205 1210 1215

Val Asp Ala Glu Cys
1220

<210> 10283
<211> 758
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: cactin, spliceosome C complex subunit; "

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<400> 10283
Met Gly Arg Asp Thr Arg Ser Arg Ser Arg Ser Ala Gly Arg Arg Gly
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Arg Arg Arg Gln Ser Gln Ser Gly Ser Arg Ser Arg Ser Arg Ser His
20 25 30

Gly Arg Arg Asn Arg Arg Arg Arg Glu Asp Glu Gly Arg Arg Arg Arg
35 40 45

Arg Arg Arg Ser Arg Glu Arg Arg Ser Asp Ser Glu Glu Glu Arg Trp
50 55 60

Gln Arg Ser Gly Met Arg Ser Arg Ser Pro Pro Arg Pro Lys Trp His
65 70 75 80

Ser Arg Asp Gly Ser Ser Gln Ser Asp Ser Gly Glu Glu Gln Ser Arg
85 90 95

```
Gly Gln Trp Ala Arg Arg Arg Arg Arg Ala Arg Ser Trp Ser Pro Ser
            100                 105                 110

Ser Ser Ala Ser Ser Ser Ala Ser Pro Gly Arg Ser Gln Ser Pro Arg
        115                 120                 125

Ala Ala Ala Ala Ala Leu Ser Gln Gln Gln Ser Leu Gln Glu Arg Leu
    130                 135                 140

Arg Leu Arg Glu Glu Arg Lys Gln Gln Glu Glu Leu Met Lys Ala Phe
145                 150                 155                 160

Glu Thr Pro Glu Glu Lys Arg Ala Arg Arg Leu Ala Lys Lys Glu Ala
                165                 170                 175

Lys Glu Arg Lys Lys Arg Glu Lys Met Gly Trp Gly Glu Glu Tyr Met
            180                 185                 190

Gly Tyr Thr Asn Thr Asp Asn Pro Phe Gly Asp Asn Asn Leu Leu Gly
        195                 200                 205

Thr Phe Ile Trp Asn Lys Ala Leu Glu Lys Lys Gly Ile Ser His Leu
    210                 215                 220

Glu Glu Lys Glu Leu Lys Glu Arg Asn Lys Arg Ile Gln Glu Asp Asn
225                 230                 235                 240

Arg Leu Glu Leu Gln Lys Val Lys Gln Leu Arg Leu Glu Arg Glu Arg
                245                 250                 255

Glu Lys Ala Met Arg Glu Gln Glu Leu Glu Met Leu Gln Arg Glu Lys
            260                 265                 270

Glu Ala Glu His Phe Lys Thr Trp Glu Glu Gln Glu Asp Asn Phe His
        275                 280                 285

Leu Gln Gln Ala Lys Leu Arg Ser Lys Ile Arg Ile Arg Asp Gly Arg
    290                 295                 300

Ala Lys Pro Ile Asp Leu Leu Ala Lys Tyr Ile Ser Ala Glu Asp Asp
305                 310                 315                 320
```

```
Asp Leu Ala Val Glu Met His Glu Pro Tyr Thr Phe Leu Asn Gly Leu
                325                 330                 335

Thr Val Ala Asp Met Glu Asp Leu Leu Glu Asp Ile Gln Val Tyr Met
            340                 345                 350

Glu Leu Glu Gln Gly Lys Asn Ala Asp Phe Trp Arg Asp Met Thr Thr
        355                 360                 365

Ile Thr Glu Asp Glu Ile Ser Lys Leu Arg Lys Leu Glu Ala Ser Gly
    370                 375                 380

Lys Gly Pro Gly Glu Arg Arg Glu Gly Val Asn Ala Ser Val Ser Ser
385                 390                 395                 400

Asp Val Gln Ser Val Phe Lys Gly Lys Thr Tyr Asn Gln Leu Gln Val
                405                 410                 415

Ile Phe Gln Gly Ile Glu Gly Lys Ile Arg Ala Gly Gly Pro Asn Leu
            420                 425                 430

Asp Met Gly Tyr Trp Glu Ser Leu Leu Gln Gln Leu Arg Ala His Met
        435                 440                 445

Ala Arg Ala Arg Leu Arg Glu Arg His Gln Asp Val Leu Arg Gln Lys
    450                 455                 460

Leu Tyr Lys Leu Lys Gln Glu Gln Gly Val Glu Ser Glu Pro Leu Phe
465                 470                 475                 480

Pro Ile Leu Lys Gln Glu Pro Gln Ser Pro Ser Arg Ser Leu Glu Pro
                485                 490                 495

Glu Asp Ala Ala Pro Thr Pro Pro Gly Pro Ser Ser Glu Gly Gly Pro
            500                 505                 510

Ala Glu Ala Glu Val Asp Gly Ala Thr Pro Thr Glu Gly Asp Gly Asp
        515                 520                 525

Gly Asp Gly Glu Gly Glu Gly Glu Gly Glu Ala Val Leu Met Glu Glu
    530                 535                 540

Asp Leu Ile Gln Gln Ser Leu Asp Asp Tyr Asp Ala Gly Arg Tyr Ser
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545 550 555 560

Pro Arg Leu Leu Thr Ala His Glu Leu Pro Leu Asp Ala His Val Leu
565 570 575

Glu Pro Asp Glu Asp Leu Gln Arg Leu Gln Leu Ser Arg Gln Gln Leu
580 585 590

Gln Val Thr Gly Asp Ala Ser Glu Ser Ala Glu Asp Ile Phe Phe Arg
595 600 605

Arg Ala Lys Glu Gly Met Gly Gln Asp Glu Ala Gln Phe Ser Val Glu
610 615 620

Met Pro Leu Thr Gly Lys Ala Tyr Leu Trp Ala Asp Lys Tyr Arg Pro
625 630 635 640

Arg Lys Pro Arg Phe Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn
645 650 655

Lys Tyr Asn Gln Thr His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile
660 665 670

Val Gln Gly Tyr Lys Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys
675 680 685

Arg Ser Thr Pro Glu Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp
690 695 700

Phe Ala Ile Leu Arg Phe His Ala Gly Pro Pro Tyr Glu Asp Ile Ala
705 710 715 720

Phe Lys Ile Val Asn Arg Glu Trp Glu Tyr Ser His Arg His Gly Phe
725 730 735

Arg Cys Gln Phe Ala Asn Gly Ile Phe Gln Leu Trp Phe His Phe Lys
740 745 750

Arg Tyr Arg Tyr Arg Arg
755

<210> 10284
<211> 758

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2062; "

<220>
<221> source
<223> /note="Gene Symbol: CACTIN; "

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<223> /note="Gene Name: cactin, spliceosome C complex
subunit; "

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<220>
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<223> /note="ENSP ID: ENSP00000248420"

<400> 10284
Met Gly Arg Asp Thr Arg Ser Arg Ser Arg Ser Ala Gly Arg Arg Gly
1   5   10   15

Arg Arg Arg Gln Ser Gln Ser Gly Ser Arg Ser Arg Ser Arg Ser His
            20   25   30

Gly Arg Arg Asn Arg Arg Arg Arg Glu Asp Glu Gly Arg Arg Arg Arg
        35   40   45

Arg Arg Arg Ser Arg Glu Arg Arg Ser Asp Ser Glu Glu Glu Arg Trp
    50   55   60

Gln Arg Ser Gly Met Arg Ser Arg Ser Pro Pro Arg Pro Lys Trp His
65   70   75   80

Ser Arg Asp Gly Ser Ser Gln Ser Asp Ser Gly Glu Glu Gln Ser Arg
                85   90   95

Gly Gln Trp Ala Arg Arg Arg Arg Arg Ala Arg Ser Trp Ser Pro Ser
            100   105   110

Ser Ser Ala Ser Ser Ser Ala Ser Pro Gly Arg Ser Gln Ser Pro Arg
        115   120   125

```
Ala Ala Ala Ala Ala Leu Ser Gln Gln Gln Ser Leu Gln Glu Arg Leu
    130                 135                 140

Arg Leu Arg Glu Glu Arg Lys Gln Gln Glu Glu Leu Met Lys Ala Phe
145                 150                 155                 160

Glu Thr Pro Glu Glu Lys Arg Ala Arg Arg Leu Ala Lys Lys Glu Ala
                165                 170                 175

Lys Glu Arg Lys Lys Arg Glu Lys Met Gly Trp Gly Glu Glu Tyr Met
            180                 185                 190

Gly Tyr Thr Asn Thr Asp Asn Pro Phe Gly Asp Asn Asn Leu Leu Gly
        195                 200                 205

Thr Phe Ile Trp Asn Lys Ala Leu Glu Lys Lys Gly Ile Ser His Leu
    210                 215                 220

Glu Glu Lys Glu Leu Lys Glu Arg Asn Lys Arg Ile Gln Glu Asp Asn
225                 230                 235                 240

Arg Leu Glu Leu Gln Lys Val Lys Gln Leu Arg Leu Glu Arg Glu Arg
                245                 250                 255

Glu Lys Ala Met Arg Glu Gln Glu Leu Glu Met Leu Gln Arg Glu Lys
            260                 265                 270

Glu Ala Glu His Phe Lys Thr Trp Glu Glu Gln Glu Asp Asn Phe His
        275                 280                 285

Leu Gln Gln Ala Lys Leu Arg Ser Lys Ile Arg Ile Arg Asp Gly Arg
    290                 295                 300

Ala Lys Pro Ile Asp Leu Leu Ala Lys Tyr Ile Ser Ala Glu Asp Asp
305                 310                 315                 320

Asp Leu Ala Val Glu Met His Glu Pro Tyr Thr Phe Leu Asn Gly Leu
                325                 330                 335

Thr Val Ala Asp Met Glu Asp Leu Leu Glu Asp Ile Gln Val Tyr Met
            340                 345                 350

Glu Leu Glu Gln Gly Lys Asn Ala Asp Phe Trp Arg Asp Met Thr Thr
```

355 360 365

Ile Thr Glu Asp Glu Ile Ser Lys Leu Arg Lys Leu Glu Ala Ser Gly
370 375 380

Lys Gly Pro Gly Glu Arg Arg Glu Gly Val Asn Ala Ser Val Ser Ser
385 390 395 400

Asp Val Gln Ser Val Phe Lys Gly Lys Thr Tyr Asn Gln Leu Gln Val
405 410 415

Ile Phe Gln Gly Ile Glu Gly Lys Ile Arg Ala Gly Gly Pro Asn Leu
420 425 430

Asp Met Gly Tyr Trp Glu Ser Leu Leu Gln Gln Leu Arg Ala His Met
435 440 445

Ala Arg Ala Arg Leu Arg Glu Arg His Gln Asp Val Leu Arg Gln Lys
450 455 460

Leu Tyr Lys Leu Lys Gln Glu Gln Gly Val Glu Ser Glu Pro Leu Phe
465 470 475 480

Pro Ile Leu Lys Gln Glu Pro Gln Ser Pro Ser Arg Ser Leu Glu Pro
485 490 495

Glu Asp Ala Ala Pro Thr Pro Pro Gly Pro Ser Ser Glu Gly Gly Pro
500 505 510

Ala Glu Ala Glu Val Asp Gly Ala Thr Pro Thr Glu Gly Asp Gly Asp
515 520 525

Gly Asp Gly Glu Gly Glu Gly Glu Gly Glu Ala Val Leu Met Glu Glu
530 535 540

Asp Leu Ile Gln Gln Ser Leu Asp Asp Tyr Asp Ala Gly Arg Tyr Ser
545 550 555 560

Pro Arg Leu Leu Thr Ala His Glu Leu Pro Leu Asp Ala His Val Leu
565 570 575

Glu Pro Asp Glu Asp Leu Gln Arg Leu Gln Leu Ser Arg Gln Gln Leu
580 585 590

```
Gln Val Thr Gly Asp Ala Ser Glu Ser Ala Glu Asp Ile Phe Phe Arg
        595                 600                 605

Arg Ala Lys Glu Gly Met Gly Gln Asp Glu Ala Gln Phe Ser Val Glu
    610                 615                 620

Met Pro Leu Thr Gly Lys Ala Tyr Leu Trp Ala Asp Lys Tyr Arg Pro
625                 630                 635                 640

Arg Lys Pro Arg Phe Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn
                645                 650                 655

Lys Tyr Asn Gln Thr His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile
            660                 665                 670

Val Gln Gly Tyr Lys Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys
        675                 680                 685

Arg Ser Thr Pro Glu Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp
    690                 695                 700

Phe Ala Ile Leu Arg Phe His Ala Gly Pro Pro Tyr Glu Asp Ile Ala
705                 710                 715                 720

Phe Lys Ile Val Asn Arg Glu Trp Glu Tyr Ser His Arg His Gly Phe
                725                 730                 735

Arg Cys Gln Phe Ala Asn Gly Ile Phe Gln Leu Trp Phe His Phe Lys
            740                 745                 750

Arg Tyr Arg Tyr Arg Arg
        755


<210> 10285
<211> 758
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2062; "

<220>
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<223> /note="Gene Symbol: CACTIN; "

<220>
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<223> /note="Gene Name: cactin, spliceosome C complex
subunit; "

<220>
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<223> /note="Uniprot ID: Q8WUQ7; "

<220>
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<223> /note="ENSP ID: ENSP00000415078"

<400> 10285

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Met Gly Arg Asp Thr Arg Ser Arg Ser Arg Ser Ala Gly Arg Arg Gly
1               5                   10                  15


Arg Arg Arg Gln Ser Gln Ser Gly Ser Arg Ser Arg Ser Arg Ser His
            20                  25                  30


Gly Arg Arg Asn Arg Arg Arg Arg Glu Asp Glu Gly Arg Arg Arg Arg
        35                  40                  45


Arg Arg Arg Ser Arg Glu Arg Arg Ser Asp Ser Glu Glu Glu Arg Trp
    50                  55                  60


Gln Arg Ser Gly Met Arg Ser Arg Ser Pro Pro Arg Pro Lys Trp His
65                  70                  75                  80


Ser Arg Asp Gly Ser Ser Gln Ser Asp Ser Gly Glu Glu Gln Ser Arg
                85                  90                  95


Gly Gln Trp Ala Arg Arg Arg Arg Arg Ala Arg Ser Trp Ser Pro Ser
            100                 105                 110


Ser Ser Ala Ser Ser Ser Ala Ser Pro Gly Arg Ser Gln Ser Pro Arg
        115                 120                 125


Ala Ala Ala Ala Ala Leu Ser Gln Gln Gln Ser Leu Gln Glu Arg Leu
    130                 135                 140


Arg Leu Arg Glu Glu Arg Lys Gln Gln Glu Glu Leu Met Lys Ala Phe
145                 150                 155                 160


Glu Thr Pro Glu Glu Lys Arg Ala Arg Arg Leu Ala Lys Lys Glu Ala
```

```
                165                 170                 175

Lys Glu Arg Lys Lys Arg Glu Lys Met Gly Trp Gly Glu Glu Tyr Met
            180                 185                 190

Gly Tyr Thr Asn Thr Asp Asn Pro Phe Gly Asp Asn Asn Leu Leu Gly
        195                 200                 205

Thr Phe Ile Trp Asn Lys Ala Leu Glu Lys Lys Gly Ile Ser His Leu
    210                 215                 220

Glu Glu Lys Glu Leu Lys Glu Arg Asn Lys Arg Ile Gln Glu Asp Asn
225                 230                 235                 240

Arg Leu Glu Leu Gln Lys Val Lys Gln Leu Arg Leu Glu Arg Glu Arg
                245                 250                 255

Glu Lys Ala Met Arg Glu Gln Glu Leu Glu Met Leu Gln Arg Glu Lys
            260                 265                 270

Glu Ala Glu His Phe Lys Thr Trp Glu Glu Gln Glu Asp Asn Phe His
        275                 280                 285

Leu Gln Gln Ala Lys Leu Arg Ser Lys Ile Arg Ile Arg Asp Gly Arg
    290                 295                 300

Ala Lys Pro Ile Asp Leu Leu Ala Lys Tyr Ile Ser Ala Glu Asp Asp
305                 310                 315                 320

Asp Leu Ala Val Glu Met His Glu Pro Tyr Thr Phe Leu Asn Gly Leu
                325                 330                 335

Thr Val Ala Asp Met Glu Asp Leu Leu Glu Asp Ile Gln Val Tyr Met
            340                 345                 350

Glu Leu Glu Gln Gly Lys Asn Ala Asp Phe Trp Arg Asp Met Thr Thr
        355                 360                 365

Ile Thr Glu Asp Glu Ile Ser Lys Leu Arg Lys Leu Glu Ala Ser Gly
    370                 375                 380

Lys Gly Pro Gly Glu Arg Arg Glu Gly Val Asn Ala Ser Val Ser Ser
385                 390                 395                 400
```

```
Asp Val Gln Ser Val Phe Lys Gly Lys Thr Tyr Asn Gln Leu Gln Val
                405                 410                 415

Ile Phe Gln Gly Ile Glu Gly Lys Ile Arg Ala Gly Gly Pro Asn Leu
            420                 425                 430

Asp Met Gly Tyr Trp Glu Ser Leu Leu Gln Gln Leu Arg Ala His Met
        435                 440                 445

Ala Arg Ala Arg Leu Arg Glu Arg His Gln Asp Val Leu Arg Gln Lys
    450                 455                 460

Leu Tyr Lys Leu Lys Gln Glu Gln Gly Val Glu Ser Glu Pro Leu Phe
465                 470                 475                 480

Pro Ile Leu Lys Gln Glu Pro Gln Ser Pro Ser Arg Ser Leu Glu Pro
                485                 490                 495

Glu Asp Ala Ala Pro Thr Pro Pro Gly Pro Ser Ser Glu Gly Gly Pro
            500                 505                 510

Ala Glu Ala Glu Val Asp Gly Ala Thr Pro Thr Glu Gly Asp Gly Asp
        515                 520                 525

Gly Asp Gly Glu Gly Glu Gly Glu Gly Glu Ala Val Leu Met Glu Glu
    530                 535                 540

Asp Leu Ile Gln Gln Ser Leu Asp Asp Tyr Asp Ala Gly Arg Tyr Ser
545                 550                 555                 560

Pro Arg Leu Leu Thr Ala His Glu Leu Pro Leu Asp Ala His Val Leu
                565                 570                 575

Glu Pro Asp Glu Asp Leu Gln Arg Leu Gln Leu Ser Arg Gln Gln Leu
            580                 585                 590

Gln Val Thr Gly Asp Ala Ser Glu Ser Ala Glu Asp Ile Phe Phe Arg
        595                 600                 605

Arg Ala Lys Glu Gly Met Gly Gln Asp Glu Ala Gln Phe Ser Val Glu
    610                 615                 620
```

```
Met Pro Leu Thr Gly Lys Ala Tyr Leu Trp Ala Asp Lys Tyr Arg Pro
625                 630                 635                 640

Arg Lys Pro Arg Phe Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn
                645                 650                 655

Lys Tyr Asn Gln Thr His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile
            660                 665                 670

Val Gln Gly Tyr Lys Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys
        675                 680                 685

Arg Ser Thr Pro Glu Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp
    690                 695                 700

Phe Ala Ile Leu Arg Phe His Ala Gly Pro Pro Tyr Glu Asp Ile Ala
705                 710                 715                 720

Phe Lys Ile Val Asn Arg Glu Trp Glu Tyr Ser His Arg His Gly Phe
                725                 730                 735

Arg Cys Gln Phe Ala Asn Gly Ile Phe Gln Leu Trp Phe His Phe Lys
            740                 745                 750

Arg Tyr Arg Tyr Arg Arg
        755
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<210> 10286
<211> 117
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2062; "

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<223> /note="Gene Symbol: CACTIN; "

<220>
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<223> /note="Gene Name: cactin, spliceosome C complex
subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000464898"

<400> 10286
Lys Pro Arg Phe Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn Lys
1   5   10   15

Tyr Asn Gln Thr His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile Val
            20   25   30

Gln Gly Tyr Lys Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys Arg
        35   40   45

Ser Thr Pro Glu Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp Phe
    50   55   60

Ala Ile Leu Arg Phe His Ala Gly Pro Pro Tyr Glu Asp Ile Ala Phe
65   70   75   80

Lys Ile Val Asn Arg Glu Trp Glu Tyr Ser His Arg His Gly Phe Arg
                85   90   95

Cys Gln Phe Ala Asn Gly Ile Phe Gln Leu Trp Phe His Phe Lys Arg
            100   105   110

Tyr Arg Tyr Arg Arg
        115

<210> 10287
<211> 758
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Uniprot ID: Q8WUQ7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465751"

<400> 10287
Met Gly Arg Asp Thr Arg Ser Arg Ser Arg Ser Ala Gly Arg Arg Gly
1   5   10   15

Arg Arg Arg Gln Ser Gln Ser Gly Ser Arg Ser Arg Ser Arg Ser His
            20   25   30

Gly Arg Arg Asn Arg Arg Arg Arg Glu Asp Glu Gly Arg Arg Arg Arg
        35   40   45

Arg Arg Arg Ser Arg Glu Arg Arg Ser Asp Ser Glu Glu Glu Arg Trp
    50   55   60

Gln Arg Ser Gly Met Arg Ser Arg Ser Pro Pro Arg Pro Lys Trp His
65   70   75   80

Ser Arg Asp Gly Ser Ser Gln Ser Asp Ser Gly Glu Glu Gln Ser Arg
                85   90   95

Gly Gln Trp Ala Arg Arg Arg Arg Arg Ala Arg Ser Trp Ser Pro Ser
            100   105   110

Ser Ser Ala Ser Ser Ser Ala Ser Pro Gly Arg Ser Gln Ser Pro Arg
        115   120   125

Ala Ala Ala Ala Ala Leu Ser Gln Gln Gln Ser Leu Gln Glu Arg Leu
    130   135   140

Arg Leu Arg Glu Glu Arg Lys Gln Gln Glu Glu Leu Met Lys Ala Phe
145   150   155   160

Glu Thr Pro Glu Glu Lys Arg Ala Arg Arg Leu Ala Lys Lys Glu Ala
                165   170   175

Lys Glu Arg Lys Lys Arg Glu Lys Met Gly Trp Gly Glu Glu Tyr Met
            180   185   190

Gly Tyr Thr Asn Thr Asp Asn Pro Phe Gly Asp Asn Asn Leu Leu Gly
        195   200   205

```
Thr Phe Ile Trp Asn Lys Ala Leu Glu Lys Lys Gly Ile Ser His Leu
    210                 215                 220

Glu Glu Lys Glu Leu Lys Glu Arg Asn Lys Arg Ile Gln Glu Asp Asn
225                 230                 235                 240

Arg Leu Glu Leu Gln Lys Val Lys Gln Leu Arg Leu Glu Arg Glu Arg
                245                 250                 255

Glu Lys Ala Met Arg Glu Gln Glu Leu Glu Met Leu Gln Arg Glu Lys
            260                 265                 270

Glu Ala Glu His Phe Lys Thr Trp Glu Glu Gln Glu Asp Asn Phe His
        275                 280                 285

Leu Gln Gln Ala Lys Leu Arg Ser Lys Ile Arg Ile Arg Asp Gly Arg
    290                 295                 300

Ala Lys Pro Ile Asp Leu Leu Ala Lys Tyr Ile Ser Ala Glu Asp Asp
305                 310                 315                 320

Asp Leu Ala Val Glu Met His Glu Pro Tyr Thr Phe Leu Asn Gly Leu
                325                 330                 335

Thr Val Ala Asp Met Glu Asp Leu Leu Glu Asp Ile Gln Val Tyr Met
            340                 345                 350

Glu Leu Glu Gln Gly Lys Asn Ala Asp Phe Trp Arg Asp Met Thr Thr
        355                 360                 365

Ile Thr Glu Asp Glu Ile Ser Lys Leu Arg Lys Leu Glu Ala Ser Gly
    370                 375                 380

Lys Gly Pro Gly Glu Arg Arg Glu Gly Val Asn Ala Ser Val Ser Ser
385                 390                 395                 400

Asp Val Gln Ser Val Phe Lys Gly Lys Thr Tyr Asn Gln Leu Gln Val
                405                 410                 415

Ile Phe Gln Gly Ile Glu Gly Lys Ile Arg Ala Gly Gly Pro Asn Leu
            420                 425                 430

Asp Met Gly Tyr Trp Glu Ser Leu Leu Gln Gln Leu Arg Ala His Met
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435 440 445

Ala Arg Ala Arg Leu Arg Glu Arg His Gln Asp Val Leu Arg Gln Lys
450 455 460

Leu Tyr Lys Leu Lys Gln Glu Gln Gly Val Glu Ser Glu Pro Leu Phe
465 470 475 480

Pro Ile Leu Lys Gln Glu Pro Gln Ser Pro Ser Arg Ser Leu Glu Pro
485 490 495

Glu Asp Ala Ala Pro Thr Pro Pro Gly Pro Ser Ser Glu Gly Gly Pro
500 505 510

Ala Glu Ala Glu Val Asp Gly Ala Thr Pro Thr Glu Gly Asp Gly Asp
515 520 525

Gly Asp Gly Glu Gly Glu Gly Glu Gly Glu Ala Val Leu Met Glu Glu
530 535 540

Asp Leu Ile Gln Gln Ser Leu Asp Asp Tyr Asp Ala Gly Arg Tyr Ser
545 550 555 560

Pro Arg Leu Leu Thr Ala His Glu Leu Pro Leu Asp Ala His Val Leu
565 570 575

Glu Pro Asp Glu Asp Leu Gln Arg Leu Gln Leu Ser Arg Gln Gln Leu
580 585 590

Gln Val Thr Gly Asp Ala Ser Glu Ser Ala Glu Asp Ile Phe Phe Arg
595 600 605

Arg Ala Lys Glu Gly Met Gly Gln Asp Glu Ala Gln Phe Ser Val Glu
610 615 620

Met Pro Leu Thr Gly Lys Ala Tyr Leu Trp Ala Asp Lys Tyr Arg Pro
625 630 635 640

Arg Lys Pro Arg Phe Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn
645 650 655

Lys Tyr Asn Gln Thr His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile
660 665 670

```
Val Gln Gly Tyr Lys Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys
        675                 680                 685

Arg Ser Thr Pro Glu Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp
    690                 695                 700

Phe Ala Ile Leu Arg Phe His Ala Gly Pro Pro Tyr Glu Asp Ile Ala
705                 710                 715                 720

Phe Lys Ile Val Asn Arg Glu Trp Glu Tyr Ser His Arg His Gly Phe
                725                 730                 735

Arg Cys Gln Phe Ala Asn Gly Ile Phe Gln Leu Trp Phe His Phe Lys
            740                 745                 750

Arg Tyr Arg Tyr Arg Arg
        755


<210> 10288
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2062; "

<220>
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<223> /note="Gene Symbol: CACTIN; "

<220>
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<223> /note="Gene Name: cactin, spliceosome C complex
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<220>
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<223> /note="ENSP ID: ENSP00000466600"


<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10288
Xaa Lys Tyr Ile Ser Ala Glu Asp Asp Asp Leu Ala Val Glu Met His
1               5                   10                  15
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```
Glu Pro Tyr Thr Phe Leu Asn Gly Leu Thr Val Ala Asp Met Glu Asp
            20                  25                  30

Leu Leu Glu Asp Ile Gln Val Tyr Met Glu Leu Glu Gln Gly Lys Asn
        35                  40                  45

Ala Asp Phe Trp Arg Asp Met Thr Thr Ile Thr Glu Asp Glu Ile Ser
    50                  55                  60

Lys Leu Arg Lys Leu Glu Ala Ser Gly Lys Gly Pro Gly Glu Arg Arg
65                  70                  75                  80

Glu Gly Val Asn Ala Ser Val Ser Ser Asp Val Gln Ser Val Phe Lys
                85                  90                  95

Gly Lys Thr Tyr Asn Gln Leu Gln Val Ile Phe Gln Gly Ile Glu Gly
            100                 105                 110

Lys Ile Arg Ala Gly Gly Pro Asn Leu Asp Met Gly Tyr Trp Glu Ser
        115                 120                 125

Leu Leu Gln Gln Leu Arg Ala His Met Ala Arg Ala Arg
    130                 135                 140


<210> 10289
<211> 291
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10289
Xaa Lys Gln Glu Gln Gly Val Glu Ser Glu Pro Leu Phe Pro Ile Leu
1 5 10 15

Lys Gln Glu Pro Gln Ser Pro Ser Arg Ser Leu Glu Pro Glu Asp Ala
20 25 30

Ala Pro Thr Pro Pro Gly Pro Ser Ser Glu Gly Gly Pro Ala Glu Ala
35 40 45

Glu Val Asp Gly Ala Thr Pro Thr Glu Gly Asp Gly Asp Gly Asp Gly
50 55 60

Glu Gly Glu Gly Glu Gly Glu Ala Val Leu Met Glu Glu Asp Leu Ile
65 70 75 80

Gln Gln Ser Leu Asp Asp Tyr Asp Ala Gly Arg Tyr Ser Pro Arg Leu
85 90 95

Leu Thr Ala His Glu Leu Pro Leu Asp Ala His Val Leu Glu Pro Asp
100 105 110

Glu Asp Leu Gln Arg Leu Gln Leu Ser Arg Gln Gln Leu Gln Val Thr
115 120 125

Gly Asp Ala Ser Glu Ser Ala Glu Asp Ile Phe Phe Arg Arg Ala Lys
130 135 140

Glu Gly Met Gly Gln Asp Glu Ala Gln Phe Ser Val Glu Met Pro Leu
145 150 155 160

Thr Gly Lys Ala Tyr Leu Trp Ala Asp Lys Tyr Arg Pro Arg Lys Pro
165 170 175

Arg Phe Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn Lys Tyr Asn
180 185 190

Gln Thr His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile Val Gln Gly
195 200 205

```
Tyr Lys Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys Arg Ser Thr
    210                 215                 220

Pro Glu Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp Phe Ala Ile
225                 230                 235                 240

Leu Arg Phe His Ala Gly Pro Pro Tyr Glu Asp Ile Ala Phe Lys Ile
                245                 250                 255

Val Asn Arg Glu Trp Glu Tyr Ser His Arg His Gly Phe Arg Cys Gln
            260                 265                 270

Phe Ala Asn Gly Ile Phe Gln Leu Trp Phe His Phe Lys Arg Tyr Arg
        275                 280                 285

Tyr Arg Arg
    290


<210> 10290
<211> 130
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2062; "

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<223> /note="Gene Symbol: CACTIN; "

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<223> /note="Gene Name: cactin, spliceosome C complex
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467788"

<400> 10290
Asp Leu Ala Val Glu Met His Glu Pro Tyr Thr Phe Leu Asn Gly Leu
1               5                   10                  15

Thr Val Ala Asp Met Glu Asp Leu Leu Glu Asp Ile Gln Val Tyr Met
            20                  25                  30

Glu Leu Glu Gln Gly Lys Asn Ala Asp Phe Trp Arg Asp Met Thr Thr
```

```
        35                  40                  45

Ile Thr Glu Asp Glu Ile Ser Lys Leu Arg Lys Leu Glu Ala Ser Gly
    50                  55                  60

Lys Gly Pro Gly His Arg Gly Gln Asn Pro Arg Trp Trp Pro Gln Pro
65                  70                  75                  80

Gly His Gly Leu Leu Gly Glu Pro Pro Ala Ala Ala Ser Cys Pro His
                85                  90                  95

Gly Thr Gly Pro Val Ser Thr Arg Leu Arg Glu Arg His Gln Asp Val
            100                 105                 110

Leu Arg Gln Lys Leu Tyr Lys Leu Lys Gln Glu Gln Gly Val Glu Ser
        115                 120                 125

Glu Pro
    130


<210> 10291
<211> 882
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
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<223> /note="Gene Name: cadherin 1, type 1; "

<220>
<221> source
<223> /note="Uniprot ID:  P12830; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000261769"

<400> 10291
Met Gly Pro Trp Ser Arg Ser Leu Ser Ala Leu Leu Leu Leu Leu Gln
1               5                   10                  15
```

```
Val Ser Ser Trp Leu Cys Gln Glu Pro Glu Pro Cys His Pro Gly Phe
            20                  25                  30

Asp Ala Glu Ser Tyr Thr Phe Thr Val Pro Arg Arg His Leu Glu Arg
        35                  40                  45

Gly Arg Val Leu Gly Arg Val Asn Phe Glu Asp Cys Thr Gly Arg Gln
    50                  55                  60

Arg Thr Ala Tyr Phe Ser Leu Asp Thr Arg Phe Lys Val Gly Thr Asp
65                  70                  75                  80

Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn Pro Gln Ile
                85                  90                  95

His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys Phe Ser Thr
            100                 105                 110

Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro Pro Pro His
        115                 120                 125

Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr Phe Pro Asn
    130                 135                 140

Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val Ile Pro Pro
145                 150                 155                 160

Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys Asn Leu Val
                165                 170                 175

Gln Ile Lys Ser Asn Lys Asp Lys Glu Gly Lys Val Phe Tyr Ser Ile
            180                 185                 190

Thr Gly Gln Gly Ala Asp Thr Pro Pro Val Gly Val Phe Ile Ile Glu
        195                 200                 205

Arg Glu Thr Gly Trp Leu Lys Val Thr Glu Pro Leu Asp Arg Glu Arg
    210                 215                 220

Ile Ala Thr Tyr Thr Leu Phe Ser His Ala Val Ser Ser Asn Gly Asn
225                 230                 235                 240

Ala Val Glu Asp Pro Met Glu Ile Leu Ile Thr Val Thr Asp Gln Asn
```

```
                245                 250                 255

Asp Asn Lys Pro Glu Phe Thr Gln Glu Val Phe Lys Gly Ser Val Met
            260                 265                 270

Glu Gly Ala Leu Pro Gly Thr Ser Val Met Glu Val Thr Ala Thr Asp
        275                 280                 285

Ala Asp Asp Asp Val Asn Thr Tyr Asn Ala Ala Ile Ala Tyr Thr Ile
    290                 295                 300

Leu Ser Gln Asp Pro Glu Leu Pro Asp Lys Asn Met Phe Thr Ile Asn
305                 310                 315                 320

Arg Asn Thr Gly Val Ile Ser Val Val Thr Thr Gly Leu Asp Arg Glu
                325                 330                 335

Ser Phe Pro Thr Tyr Thr Leu Val Val Gln Ala Ala Asp Leu Gln Gly
            340                 345                 350

Glu Gly Leu Ser Thr Thr Ala Thr Ala Val Ile Thr Val Thr Asp Thr
        355                 360                 365

Asn Asp Asn Pro Pro Ile Phe Asn Pro Thr Thr Tyr Lys Gly Gln Val
    370                 375                 380

Pro Glu Asn Glu Ala Asn Val Val Ile Thr Thr Leu Lys Val Thr Asp
385                 390                 395                 400

Ala Asp Ala Pro Asn Thr Pro Ala Trp Glu Ala Val Tyr Thr Ile Leu
                405                 410                 415

Asn Asp Asp Gly Gly Gln Phe Val Val Thr Thr Asn Pro Val Asn Asn
            420                 425                 430

Asp Gly Ile Leu Lys Thr Ala Lys Gly Leu Asp Phe Glu Ala Lys Gln
        435                 440                 445

Gln Tyr Ile Leu His Val Ala Val Thr Asn Val Val Pro Phe Glu Val
    450                 455                 460

Ser Leu Thr Thr Ser Thr Ala Thr Val Thr Val Asp Val Leu Asp Val
465                 470                 475                 480
```

```
Asn Glu Ala Pro Ile Phe Val Pro Pro Glu Lys Arg Val Glu Val Ser
                485                 490                 495

Glu Asp Phe Gly Val Gly Gln Glu Ile Thr Ser Tyr Thr Ala Gln Glu
            500                 505                 510

Pro Asp Thr Phe Met Glu Gln Lys Ile Thr Tyr Arg Ile Trp Arg Asp
        515                 520                 525

Thr Ala Asn Trp Leu Glu Ile Asn Pro Asp Thr Gly Ala Ile Ser Thr
    530                 535                 540

Arg Ala Glu Leu Asp Arg Glu Asp Phe Glu His Val Lys Asn Ser Thr
545                 550                 555                 560

Tyr Thr Ala Leu Ile Ile Ala Thr Asp Asn Gly Ser Pro Val Ala Thr
                565                 570                 575

Gly Thr Gly Thr Leu Leu Leu Ile Leu Ser Asp Val Asn Asp Asn Ala
            580                 585                 590

Pro Ile Pro Glu Pro Arg Thr Ile Phe Phe Cys Glu Arg Asn Pro Lys
        595                 600                 605

Pro Gln Val Ile Asn Ile Ile Asp Ala Asp Leu Pro Pro Asn Thr Ser
    610                 615                 620

Pro Phe Thr Ala Glu Leu Thr His Gly Ala Ser Ala Asn Trp Thr Ile
625                 630                 635                 640

Gln Tyr Asn Asp Pro Thr Gln Glu Ser Ile Ile Leu Lys Pro Lys Met
                645                 650                 655

Ala Leu Glu Val Gly Asp Tyr Lys Ile Asn Leu Lys Leu Met Asp Asn
            660                 665                 670

Gln Asn Lys Asp Gln Val Thr Thr Leu Glu Val Ser Val Cys Asp Cys
        675                 680                 685

Glu Gly Ala Ala Gly Val Cys Arg Lys Ala Gln Pro Val Glu Ala Gly
    690                 695                 700
```

```
Leu Gln Ile Pro Ala Ile Leu Gly Ile Leu Gly Gly Ile Leu Ala Leu
705                 710                 715                 720

Leu Ile Leu Ile Leu Leu Leu Leu Leu Phe Leu Arg Arg Arg Ala Val
                725                 730                 735

Val Lys Glu Pro Leu Leu Pro Pro Glu Asp Asp Thr Arg Asp Asn Val
            740                 745                 750

Tyr Tyr Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp Phe Asp
        755                 760                 765

Leu Ser Gln Leu His Arg Gly Leu Asp Ala Arg Pro Glu Val Thr Arg
    770                 775                 780

Asn Asp Val Ala Pro Thr Leu Met Ser Val Pro Arg Tyr Leu Pro Arg
785                 790                 795                 800

Pro Ala Asn Pro Asp Glu Ile Gly Asn Phe Ile Asp Glu Asn Leu Lys
                805                 810                 815

Ala Ala Asp Thr Asp Pro Thr Ala Pro Pro Tyr Asp Ser Leu Leu Val
            820                 825                 830

Phe Asp Tyr Glu Gly Ser Gly Ser Glu Ala Ala Ser Leu Ser Ser Leu
        835                 840                 845

Asn Ser Ser Glu Ser Asp Lys Asp Gln Asp Tyr Asp Tyr Leu Asn Glu
    850                 855                 860

Trp Gly Asn Arg Phe Lys Lys Leu Ala Asp Met Tyr Gly Gly Gly Glu
865                 870                 875                 880

Asp Asp
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<210> 10292
<211> 821
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
<221> source
<223> /note="Gene Name: cadherin 1, type 1; "

<220>
<221> source
<223> /note="Uniprot ID: P12830; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414946"

<400> 10292
Met Gly Pro Trp Ser Arg Ser Leu Ser Ala Leu Leu Leu Leu Leu Gln
1   5   10   15

Val Ser Ser Trp Leu Cys Gln Glu Pro Glu Pro Cys His Pro Gly Phe
            20   25   30

Asp Ala Glu Ser Tyr Thr Phe Thr Val Pro Arg Arg His Leu Glu Arg
        35   40   45

Gly Arg Val Leu Gly Arg Val Asn Phe Glu Asp Cys Thr Gly Arg Gln
    50   55   60

Arg Thr Ala Tyr Phe Ser Leu Asp Thr Arg Phe Lys Val Gly Thr Asp
65   70   75   80

Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn Pro Gln Ile
                85   90   95

His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys Phe Ser Thr
            100   105   110

Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro Pro Pro His
        115   120   125

Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr Phe Pro Asn
    130   135   140

Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val Ile Pro Pro
145   150   155   160

```
Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys Asn Leu Val
                165                 170                 175

Gln Ile Lys Ser Asn Lys Asp Lys Glu Gly Lys Val Phe Tyr Ser Ile
            180                 185                 190

Thr Gly Gln Gly Ala Asp Thr Pro Pro Val Gly Val Phe Ile Ile Glu
        195                 200                 205

Arg Glu Thr Gly Trp Leu Lys Val Thr Glu Pro Leu Asp Arg Glu Arg
    210                 215                 220

Ile Ala Thr Tyr Thr Leu Phe Ser His Ala Val Ser Ser Asn Gly Asn
225                 230                 235                 240

Ala Val Glu Asp Pro Met Glu Ile Leu Ile Thr Val Thr Asp Gln Asn
                245                 250                 255

Asp Asn Lys Pro Glu Phe Thr Gln Glu Val Phe Lys Gly Ser Val Met
            260                 265                 270

Glu Gly Ala Leu Pro Gly Thr Ser Val Met Glu Val Thr Ala Thr Asp
        275                 280                 285

Ala Asp Asp Asp Val Asn Thr Tyr Asn Ala Ala Ile Ala Tyr Thr Ile
    290                 295                 300

Leu Ser Gln Asp Pro Glu Leu Pro Asp Lys Asn Met Phe Thr Ile Asn
305                 310                 315                 320

Arg Asn Thr Gly Val Ile Ser Val Val Thr Thr Gly Leu Asp Arg Glu
                325                 330                 335

Ser Phe Pro Thr Tyr Thr Leu Val Val Gln Ala Ala Asp Leu Gln Gly
            340                 345                 350

Glu Gly Leu Ser Thr Thr Ala Thr Ala Val Ile Thr Val Thr Asp Thr
        355                 360                 365

Asn Asp Asn Pro Pro Ile Phe Asn Pro Thr Thr Gly Leu Asp Phe Glu
    370                 375                 380
```

```
Ala Lys Gln Gln Tyr Ile Leu His Val Ala Val Thr Asn Val Val Pro
385                 390                 395                 400

Phe Glu Val Ser Leu Thr Thr Ser Thr Ala Thr Val Thr Val Asp Val
                405                 410                 415

Leu Asp Val Asn Glu Ala Pro Ile Phe Val Pro Pro Glu Lys Arg Val
            420                 425                 430

Glu Val Ser Glu Asp Phe Gly Val Gly Gln Glu Ile Thr Ser Tyr Thr
        435                 440                 445

Ala Gln Glu Pro Asp Thr Phe Met Glu Gln Lys Ile Thr Tyr Arg Ile
    450                 455                 460

Trp Arg Asp Thr Ala Asn Trp Leu Glu Ile Asn Pro Asp Thr Gly Ala
465                 470                 475                 480

Ile Ser Thr Arg Ala Glu Leu Asp Arg Glu Asp Phe Glu His Val Lys
                485                 490                 495

Asn Ser Thr Tyr Thr Ala Leu Ile Ile Ala Thr Asp Asn Gly Ser Pro
            500                 505                 510

Val Ala Thr Gly Thr Gly Thr Leu Leu Leu Ile Leu Ser Asp Val Asn
        515                 520                 525

Asp Asn Ala Pro Ile Pro Glu Pro Arg Thr Ile Phe Phe Cys Glu Arg
    530                 535                 540

Asn Pro Lys Pro Gln Val Ile Asn Ile Ile Asp Ala Asp Leu Pro Pro
545                 550                 555                 560

Asn Thr Ser Pro Phe Thr Ala Glu Leu Thr His Gly Ala Ser Ala Asn
                565                 570                 575

Trp Thr Ile Gln Tyr Asn Asp Pro Thr Gln Glu Ser Ile Ile Leu Lys
            580                 585                 590

Pro Lys Met Ala Leu Glu Val Gly Asp Tyr Lys Ile Asn Leu Lys Leu
        595                 600                 605

Met Asp Asn Gln Asn Lys Asp Gln Val Thr Thr Leu Glu Val Ser Val
```

610 615 620

Cys Asp Cys Glu Gly Ala Ala Gly Val Cys Arg Lys Ala Gln Pro Val
625 630 635 640

Glu Ala Gly Leu Gln Ile Pro Ala Ile Leu Gly Ile Leu Gly Gly Ile
645 650 655

Leu Ala Leu Leu Ile Leu Ile Leu Leu Leu Leu Leu Phe Leu Arg Arg
660 665 670

Arg Ala Val Val Lys Glu Pro Leu Leu Pro Pro Glu Asp Asp Thr Arg
675 680 685

Asp Asn Val Tyr Tyr Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln
690 695 700

Asp Phe Asp Leu Ser Gln Leu His Arg Gly Leu Asp Ala Arg Pro Glu
705 710 715 720

Val Thr Arg Asn Asp Val Ala Pro Thr Leu Met Ser Val Pro Arg Tyr
725 730 735

Leu Pro Arg Pro Ala Asn Pro Asp Glu Ile Gly Asn Phe Ile Asp Glu
740 745 750

Asn Leu Lys Ala Ala Asp Thr Asp Pro Thr Ala Pro Pro Tyr Asp Ser
755 760 765

Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly Ser Glu Ala Ala Ser Leu
770 775 780

Ser Ser Leu Asn Ser Ser Glu Ser Asp Lys Asp Gln Asp Tyr Asp Tyr
785 790 795 800

Leu Asn Glu Trp Gly Asn Arg Phe Lys Lys Leu Ala Asp Met Tyr Gly
805 810 815

Gly Gly Glu Asp Asp
820

<210> 10293
<211> 537

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
<221> source
<223> /note="Gene Name: cadherin 1, type 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454782"

<400> 10293
Met Gly Pro Trp Ser Arg Ser Leu Ser Ala Leu Leu Leu Leu Leu Gln
1   5   10   15

Val Ser Ser Trp Leu Cys Gln Glu Pro Glu Pro Cys His Pro Gly Phe
            20   25   30

Asp Ala Glu Ser Tyr Thr Phe Thr Val Pro Arg Arg His Leu Glu Arg
        35   40   45

Gly Arg Val Leu Gly Arg Val Asn Phe Glu Asp Cys Thr Gly Arg Gln
    50   55   60

Arg Thr Ala Tyr Phe Ser Leu Asp Thr Arg Phe Lys Val Gly Thr Asp
65   70   75   80

Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn Pro Gln Ile
                85   90   95

His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys Phe Ser Thr
            100   105   110

Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro Pro Pro His
        115   120   125

Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr Phe Pro Asn
    130   135   140

Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val Ile Pro Pro

145 150 155 160

Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys Asn Leu Val
165 170 175

Gln Ile Lys Ser Asn Lys Asp Lys Glu Gly Lys Val Phe Tyr Ser Ile
180 185 190

Thr Gly Gln Gly Ala Asp Thr Pro Pro Val Gly Val Phe Ile Ile Glu
195 200 205

Arg Glu Thr Gly Trp Leu Lys Val Thr Glu Pro Leu Asp Arg Glu Arg
210 215 220

Ile Ala Thr Tyr Thr Leu Phe Ser His Ala Val Ser Ser Asn Gly Asn
225 230 235 240

Ala Val Glu Asp Pro Met Glu Ile Leu Ile Thr Val Thr Asp Gln Asn
245 250 255

Asp Asn Lys Pro Glu Phe Thr Gln Glu Val Phe Lys Gly Ser Val Met
260 265 270

Glu Gly Ala Leu Pro Gly Thr Ser Val Met Glu Val Thr Ala Thr Asp
275 280 285

Ala Asp Asp Asp Val Asn Thr Tyr Asn Ala Ala Ile Ala Tyr Thr Ile
290 295 300

Leu Ser Gln Asp Pro Glu Leu Pro Asp Lys Asn Met Phe Thr Ile Asn
305 310 315 320

Arg Asn Thr Gly Val Ile Ser Val Val Thr Thr Gly Leu Asp Arg Glu
325 330 335

Ser Phe Pro Thr Tyr Thr Leu Val Val Gln Ala Ala Asp Leu Gln Gly
340 345 350

Glu Gly Leu Ser Thr Thr Ala Thr Ala Val Ile Thr Val Thr Asp Thr
355 360 365

Asn Asp Asn Pro Pro Ile Phe Asn Pro Thr Thr Tyr Lys Gly Gln Val
370 375 380

```
Pro Glu Asn Glu Ala Asn Val Val Ile Thr Thr Leu Lys Val Thr Asp
385                 390                 395                 400

Ala Asp Ala Pro Asn Thr Pro Ala Trp Glu Ala Val Tyr Thr Ile Leu
                405                 410                 415

Asn Asp Asp Gly Gly Gln Phe Val Val Thr Thr Asn Pro Val Asn Asn
            420                 425                 430

Asp Gly Ile Leu Lys Thr Ala Lys Gly Leu Asp Phe Glu Ala Lys Gln
        435                 440                 445

Gln Tyr Ile Leu His Val Ala Val Thr Asn Val Val Pro Phe Glu Val
    450                 455                 460

Ser Leu Thr Thr Ser Thr Ala Thr Val Thr Val Asp Val Leu Asp Val
465                 470                 475                 480

Asn Glu Ala Pro Ile Phe Val Pro Pro Glu Lys Arg Val Glu Val Ser
                485                 490                 495

Glu Asp Phe Gly Val Gly Gln Glu Ile Thr Ser Tyr Thr Ala Gln Glu
            500                 505                 510

Pro Asp Thr Phe Met Glu Gln Lys Ile Thr Phe Ser Ser Cys Tyr Trp
        515                 520                 525

Asn Arg Asp Thr Ser Ala Asp Pro Val
    530                 535


<210> 10294
<211> 414
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
<221> source
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<223> /note="Gene Name: cadherin 1, type 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458139"

<400> 10294

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Met Gly Pro Trp Ser Arg Ser Leu Ser Ala Leu Leu Leu Leu Leu Gln
1               5                  10                  15

Val Ser Ser Trp Leu Cys Gln Glu Pro Glu Pro Cys His Pro Gly Phe
            20                  25                  30

Asp Ala Glu Ser Tyr Thr Phe Thr Val Pro Arg Arg His Leu Glu Arg
        35                  40                  45

Gly Arg Val Leu Gly Arg Val Asn Phe Glu Asp Cys Thr Gly Arg Gln
    50                  55                  60

Arg Thr Ala Tyr Phe Ser Leu Asp Thr Arg Phe Lys Val Gly Thr Asp
65                  70                  75                  80

Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn Pro Gln Ile
                85                  90                  95

His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys Phe Ser Thr
            100                 105                 110

Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro Pro Pro His
        115                 120                 125

Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr Phe Pro Asn
    130                 135                 140

Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val Ile Pro Pro
145                 150                 155                 160

Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys Asn Leu Val
                165                 170                 175

Gln Leu Phe Ser His Ala Val Ser Ser Asn Gly Asn Ala Val Glu Asp
            180                 185                 190

Pro Met Glu Ile Leu Ile Thr Val Thr Asp Gln Asn Asp Asn Lys Pro
        195                 200                 205
```

Glu Phe Thr Gln Glu Val Phe Lys Gly Ser Val Met Glu Gly Ala Leu
210 215 220

Pro Gly Thr Ser Val Met Glu Val Thr Ala Thr Asp Ala Asp Asp Asp
225 230 235 240

Val Asn Thr Tyr Asn Ala Ala Ile Ala Tyr Thr Ile Leu Ser Gln Asp
245 250 255

Pro Glu Leu Pro Asp Lys Asn Met Phe Thr Ile Asn Arg Asn Thr Gly
260 265 270

Val Ile Ser Val Val Thr Thr Gly Leu Asp Arg Glu Ser Phe Pro Thr
275 280 285

Tyr Thr Leu Val Val Gln Ala Ala Asp Leu Gln Gly Glu Gly Leu Ser
290 295 300

Thr Thr Ala Thr Ala Val Ile Thr Val Thr Asp Thr Asn Asp Asn Pro
305 310 315 320

Pro Ile Phe Asn Pro Thr Thr Tyr Lys Gly Gln Val Pro Glu Asn Glu
325 330 335

Ala Asn Val Val Ile Thr Thr Leu Lys Val Thr Asp Ala Asp Ala Pro
340 345 350

Asn Thr Pro Ala Trp Glu Ala Val Tyr Thr Ile Leu Asn Asp Asp Gly
355 360 365

Gly Gln Phe Val Val Thr Thr Asn Pro Val Asn Asn Asp Gly Ile Leu
370 375 380

Lys Thr Ala Lys Val Cys Met Val Pro Gly Lys Met Gln Lys Leu Ala
385 390 395 400

Ser Ser Gln Leu Phe Ile Pro Leu Ser Pro Gly Leu Gly Phe
405 410

<210> 10295
<211> 155
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
<221> source
<223> /note="Gene Name: cadherin 1, type 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463170"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10295

```
Xaa Thr Asp Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn
1               5                  10                  15

Pro Gln Ile His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys
            20                  25                  30

Phe Ser Thr Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro
        35                  40                  45

Pro Pro His Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr
    50                  55                  60

Phe Pro Asn Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val
65                  70                  75                  80

Ile Pro Pro Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys
                85                  90                  95

Asn Leu Val Gln Ile Lys Ser Asn Lys Asp Lys Glu Gly Lys Val Phe
            100                 105                 110

Tyr Ser Ile Thr Gly Gln Gly Ala Asp Thr Pro Pro Val Gly Val Phe
        115                 120                 125
```

Ile Ile Glu Arg Glu Thr Gly Trp Leu Lys Val Thr Glu Pro Leu Asp
130 135 140

Arg Glu Arg Ile Ala Thr Tyr Thr Glu Pro Leu
145 150 155

<210> 10296
<211> 647
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
<221> source
<223> /note="Gene Name: cadherin 1, type 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478360"

<400> 10296
Met Gly Pro Trp Ser Arg Ser Leu Ser Ala Leu Leu Leu Leu Leu Gln
1 5 10 15

Val Ser Ser Trp Leu Cys Gln Glu Pro Glu Pro Cys His Pro Gly Phe
20 25 30

Asp Ala Glu Ser Tyr Thr Phe Thr Val Pro Arg Arg His Leu Glu Arg
35 40 45

Gly Arg Val Leu Gly Arg Val Asn Phe Glu Asp Cys Thr Gly Arg Gln
50 55 60

Arg Thr Ala Tyr Phe Ser Leu Asp Thr Arg Phe Lys Val Gly Thr Asp
65 70 75 80

Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn Pro Gln Ile
85 90 95

His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys Phe Ser Thr
100 105 110

```
Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro Pro Pro His
        115                 120                 125

Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr Phe Pro Asn
    130                 135                 140

Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val Ile Pro Pro
145                 150                 155                 160

Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys Asn Leu Val
                165                 170                 175

Gln Ile Lys Ser Asn Lys Asp Lys Glu Gly Lys Val Phe Tyr Ser Ile
            180                 185                 190

Thr Gly Gln Gly Ala Asp Thr Pro Pro Val Gly Val Phe Ile Ile Glu
        195                 200                 205

Arg Glu Thr Gly Trp Leu Lys Val Thr Glu Pro Leu Asp Arg Glu Arg
    210                 215                 220

Ile Ala Thr Tyr Thr Leu Phe Ser His Ala Val Ser Ser Asn Gly Asn
225                 230                 235                 240

Ala Val Glu Asp Pro Met Glu Ile Leu Ile Thr Val Thr Asp Gln Asn
                245                 250                 255

Asp Asn Lys Pro Glu Phe Thr Gln Glu Val Phe Lys Gly Ser Val Met
            260                 265                 270

Glu Gly Ala Leu Pro Gly Thr Ser Val Met Glu Val Thr Ala Thr Asp
        275                 280                 285

Ala Asp Asp Asp Val Asn Thr Tyr Asn Ala Ala Ile Ala Tyr Thr Ile
    290                 295                 300

Leu Ser Gln Asp Pro Glu Leu Pro Asp Lys Asn Met Phe Thr Ile Asn
305                 310                 315                 320

Arg Asn Thr Gly Val Ile Ser Val Val Thr Thr Gly Leu Asp Arg Glu
                325                 330                 335
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```
Ser Phe Pro Thr Tyr Thr Leu Val Val Gln Ala Ala Asp Leu Gln Gly
            340                 345                 350

Glu Gly Leu Ser Thr Thr Ala Thr Ala Val Ile Thr Val Thr Asp Thr
        355                 360                 365

Asn Asp Asn Pro Pro Ile Phe Asn Pro Thr Thr Tyr Lys Gly Gln Val
    370                 375                 380

Pro Glu Asn Glu Ala Asn Val Val Ile Thr Thr Leu Lys Val Thr Asp
385                 390                 395                 400

Ala Asp Ala Pro Asn Thr Pro Ala Trp Glu Ala Val Tyr Thr Ile Leu
                405                 410                 415

Asn Asp Asp Gly Gly Gln Phe Val Val Thr Thr Asn Pro Val Asn Asn
            420                 425                 430

Asp Gly Ile Leu Lys Thr Ala Lys Gly Leu Asp Phe Glu Ala Lys Gln
        435                 440                 445

Gln Tyr Ile Leu His Val Ala Val Thr Asn Val Val Pro Phe Glu Val
    450                 455                 460

Ser Leu Thr Thr Ser Thr Ala Thr Val Thr Val Asp Val Leu Asp Val
465                 470                 475                 480

Asn Glu Ala Pro Ile Phe Val Pro Pro Glu Lys Arg Val Glu Val Ser
                485                 490                 495

Glu Asp Phe Gly Val Gly Gln Glu Ile Thr Ser Tyr Thr Ala Gln Glu
            500                 505                 510

Pro Asp Thr Phe Met Glu Gln Lys Ile Thr Tyr Arg Ile Trp Arg Asp
        515                 520                 525

Thr Ala Asn Trp Leu Glu Ile Asn Pro Asp Thr Gly Ala Ile Ser Thr
    530                 535                 540

Arg Ala Glu Leu Asp Arg Glu Asp Phe Glu His Val Lys Asn Ser Thr
545                 550                 555                 560

Tyr Thr Ala Leu Ile Ile Ala Thr Asp Asn Gly Ser Pro Val Ala Thr
```

565 570 575

Gly Thr Gly Thr Leu Leu Leu Ile Leu Ser Asp Val Asn Asp Asn Ala
580 585 590

Pro Ile Pro Glu Pro Arg Thr Ile Phe Phe Cys Glu Arg Asn Pro Lys
595 600 605

Pro Gln Val Ala Gly Leu Leu Glu Pro Ser Asp Pro Pro Ile Leu Ala
610 615 620

Ser Gln Ser Ile Gly Ile Thr Asp Met Ser His Cys Thr Cys Pro Ala
625 630 635 640

Pro Gln Leu Pro Ala Ile Phe
645

<210> 10297
<211> 647
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
<221> source
<223> /note="Gene Name: cadherin 1, type 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480664"

<400> 10297
Met Gly Pro Trp Ser Arg Ser Leu Ser Ala Leu Leu Leu Leu Leu Gln
1 5 10 15

Val Ser Ser Trp Leu Cys Gln Glu Pro Glu Pro Cys His Pro Gly Phe
20 25 30

Asp Ala Glu Ser Tyr Thr Phe Thr Val Pro Arg Arg His Leu Glu Arg
35 40 45

```
Gly Arg Val Leu Gly Arg Val Asn Phe Glu Asp Cys Thr Gly Arg Gln
    50                  55                  60

Arg Thr Ala Tyr Phe Ser Leu Asp Thr Arg Phe Lys Val Gly Thr Asp
65                  70                  75                  80

Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn Pro Gln Ile
                85                  90                  95

His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys Phe Ser Thr
            100                 105                 110

Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro Pro Pro His
        115                 120                 125

Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr Phe Pro Asn
    130                 135                 140

Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val Ile Pro Pro
145                 150                 155                 160

Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys Asn Leu Val
                165                 170                 175

Gln Ile Lys Ser Asn Lys Asp Lys Glu Gly Lys Val Phe Tyr Ser Ile
            180                 185                 190

Thr Gly Gln Gly Ala Asp Thr Pro Pro Val Gly Val Phe Ile Ile Glu
        195                 200                 205

Arg Glu Thr Gly Trp Leu Lys Val Thr Glu Pro Leu Asp Arg Glu Arg
    210                 215                 220

Ile Ala Thr Tyr Thr Leu Phe Ser His Ala Val Ser Ser Asn Gly Asn
225                 230                 235                 240

Ala Val Glu Asp Pro Met Glu Ile Leu Ile Thr Val Thr Asp Gln Asn
                245                 250                 255

Asp Asn Lys Pro Glu Phe Thr Gln Glu Val Phe Lys Gly Ser Val Met
            260                 265                 270

Glu Gly Ala Leu Pro Gly Thr Ser Val Met Glu Val Thr Ala Thr Asp
```

```
        275                 280                 285

Ala Asp Asp Asp Val Asn Thr Tyr Asn Ala Ala Ile Ala Tyr Thr Ile
    290                 295                 300

Leu Ser Gln Asp Pro Glu Leu Pro Asp Lys Asn Met Phe Thr Ile Asn
305                 310                 315                 320

Arg Asn Thr Gly Val Ile Ser Val Val Thr Thr Gly Leu Asp Arg Glu
                325                 330                 335

Ser Phe Pro Thr Tyr Thr Leu Val Val Gln Ala Ala Asp Leu Gln Gly
            340                 345                 350

Glu Gly Leu Ser Thr Thr Ala Thr Ala Val Ile Thr Val Thr Asp Thr
        355                 360                 365

Asn Asp Asn Pro Pro Ile Phe Asn Pro Thr Thr Tyr Lys Gly Gln Val
    370                 375                 380

Pro Glu Asn Glu Ala Asn Val Val Ile Thr Thr Leu Lys Val Thr Asp
385                 390                 395                 400

Ala Asp Ala Pro Asn Thr Pro Ala Trp Glu Ala Val Tyr Thr Ile Leu
                405                 410                 415

Asn Asp Asp Gly Gly Gln Phe Val Val Thr Thr Asn Pro Val Asn Asn
            420                 425                 430

Asp Gly Ile Leu Lys Thr Ala Lys Gly Leu Asp Phe Glu Ala Lys Gln
        435                 440                 445

Gln Tyr Ile Leu His Val Ala Val Thr Asn Val Val Pro Phe Glu Val
    450                 455                 460

Ser Leu Thr Thr Ser Thr Ala Thr Val Thr Val Asp Val Leu Asp Val
465                 470                 475                 480

Asn Glu Ala Pro Ile Phe Val Pro Pro Glu Lys Arg Val Glu Val Ser
                485                 490                 495

Glu Asp Phe Gly Val Gly Gln Glu Ile Thr Ser Tyr Thr Ala Gln Glu
            500                 505                 510
```

```
Pro Asp Thr Phe Met Glu Gln Lys Ile Thr Tyr Arg Ile Trp Arg Asp
        515                 520                 525

Thr Ala Asn Trp Leu Glu Ile Asn Pro Asp Thr Gly Ala Ile Ser Thr
    530                 535                 540

Arg Ala Glu Leu Asp Arg Glu Asp Phe Glu His Val Lys Asn Ser Thr
545                 550                 555                 560

Tyr Thr Ala Leu Ile Ile Ala Thr Asp Asn Gly Ser Pro Val Ala Thr
                565                 570                 575

Gly Thr Gly Thr Leu Leu Leu Ile Leu Ser Asp Val Asn Asp Asn Ala
            580                 585                 590

Pro Ile Pro Glu Pro Arg Thr Ile Phe Phe Cys Glu Arg Asn Pro Lys
        595                 600                 605

Pro Gln Val Ile Asn Ile Ile Asp Ala Asp Leu Pro Pro Asn Leu Ala
    610                 615                 620

Ser Gln Ser Ile Gly Ile Thr Asp Met Ser His Cys Thr Cys Pro Ala
625                 630                 635                 640

Pro Gln Leu Pro Ala Ile Phe
                645
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<210> 10298
<211> 903
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2063; "

<220>
<221> source
<223> /note="Gene Symbol: CDH1; "

<220>
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<223> /note="Gene Name: cadherin 1, type 1; "

<220>
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<223> /note="ENSP ID: ENSP00000481063"

<400> 10298

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Met Gly Pro Trp Ser Arg Ser Leu Ser Ala Leu Leu Leu Leu Leu Gln
1               5                  10                  15

Val Ser Ser Trp Leu Cys Gln Glu Pro Glu Pro Cys His Pro Gly Phe
            20                  25                  30

Asp Ala Glu Ser Tyr Thr Phe Thr Val Pro Arg Arg His Leu Glu Arg
        35                  40                  45

Gly Arg Val Leu Gly Arg Val Asn Phe Glu Asp Cys Thr Gly Arg Gln
    50                  55                  60

Arg Thr Ala Tyr Phe Ser Leu Asp Thr Arg Phe Lys Val Gly Thr Asp
65                  70                  75                  80

Gly Val Ile Thr Val Lys Arg Pro Leu Arg Phe His Asn Pro Gln Ile
                85                  90                  95

His Phe Leu Val Tyr Ala Trp Asp Ser Thr Tyr Arg Lys Phe Ser Thr
            100                 105                 110

Lys Val Thr Leu Asn Thr Val Gly His His His Arg Pro Pro Pro His
        115                 120                 125

Gln Ala Ser Val Ser Gly Ile Gln Ala Glu Leu Leu Thr Phe Pro Asn
    130                 135                 140

Ser Ser Pro Gly Leu Arg Arg Gln Lys Arg Asp Trp Val Ile Pro Pro
145                 150                 155                 160

Ile Ser Cys Pro Glu Asn Glu Lys Gly Pro Phe Pro Lys Asn Leu Val
                165                 170                 175

Gln Ile Lys Ser Asn Lys Asp Lys Glu Gly Lys Val Phe Tyr Ser Ile
            180                 185                 190

Thr Gly Gln Gly Ala Asp Thr Pro Pro Val Gly Val Phe Ile Ile Glu
        195                 200                 205

Arg Glu Thr Gly Trp Leu Lys Val Thr Glu Pro Leu Asp Arg Glu Arg
    210                 215                 220
```

```
Ile Ala Thr Tyr Thr Leu Phe Ser His Ala Val Ser Ser Asn Gly Asn
225                 230                 235                 240

Ala Val Glu Asp Pro Met Glu Ile Leu Ile Thr Val Thr Asp Gln Asn
                245                 250                 255

Asp Asn Lys Pro Glu Phe Thr Gln Glu Val Phe Lys Gly Ser Val Met
            260                 265                 270

Glu Gly Ala Leu Pro Gly Thr Ser Val Met Glu Val Thr Ala Thr Asp
        275                 280                 285

Ala Asp Asp Asp Val Asn Thr Tyr Asn Ala Ala Ile Ala Tyr Thr Ile
    290                 295                 300

Leu Ser Gln Asp Pro Glu Leu Pro Asp Lys Asn Met Phe Thr Ile Asn
305                 310                 315                 320

Arg Asn Thr Gly Val Ile Ser Val Val Thr Thr Gly Leu Asp Arg Glu
                325                 330                 335

Ser Phe Pro Thr Tyr Thr Leu Val Val Gln Ala Ala Asp Leu Gln Gly
            340                 345                 350

Glu Gly Leu Ser Thr Thr Ala Thr Ala Val Ile Thr Val Thr Asp Thr
        355                 360                 365

Asn Asp Asn Pro Pro Ile Phe Asn Pro Thr Thr Tyr Lys Gly Gln Val
    370                 375                 380

Pro Glu Asn Glu Ala Asn Val Val Ile Thr Thr Leu Lys Val Thr Asp
385                 390                 395                 400

Ala Asp Ala Pro Asn Thr Pro Ala Trp Glu Ala Val Tyr Thr Ile Leu
                405                 410                 415

Asn Asp Asp Gly Gly Gln Phe Val Val Thr Thr Asn Pro Val Asn Asn
            420                 425                 430

Asp Gly Ile Leu Lys Thr Ala Lys Val Trp Tyr Leu Ala Arg Cys Arg
        435                 440                 445
```

```
Asn Trp His Pro His Ser Cys Ser Tyr Pro Cys Pro Leu Gly Leu Asp
    450                 455                 460

Phe Glu Ala Lys Gln Gln Tyr Ile Leu His Val Ala Val Thr Asn Val
465                 470                 475                 480

Val Pro Phe Glu Val Ser Leu Thr Thr Ser Thr Ala Thr Val Thr Val
                485                 490                 495

Asp Val Leu Asp Val Asn Glu Ala Pro Ile Phe Val Pro Pro Glu Lys
            500                 505                 510

Arg Val Glu Val Ser Glu Asp Phe Gly Val Gly Gln Glu Ile Thr Ser
        515                 520                 525

Tyr Thr Ala Gln Glu Pro Asp Thr Phe Met Glu Gln Lys Ile Thr Tyr
    530                 535                 540

Arg Ile Trp Arg Asp Thr Ala Asn Trp Leu Glu Ile Asn Pro Asp Thr
545                 550                 555                 560

Gly Ala Ile Ser Thr Arg Ala Glu Leu Asp Arg Glu Asp Phe Glu His
                565                 570                 575

Val Lys Asn Ser Thr Tyr Thr Ala Leu Ile Ile Ala Thr Asp Asn Gly
            580                 585                 590

Ser Pro Val Ala Thr Gly Thr Gly Thr Leu Leu Leu Ile Leu Ser Asp
        595                 600                 605

Val Asn Asp Asn Ala Pro Ile Pro Glu Pro Arg Thr Ile Phe Phe Cys
    610                 615                 620

Glu Arg Asn Pro Lys Pro Gln Val Ile Asn Ile Ile Asp Ala Asp Leu
625                 630                 635                 640

Pro Pro Asn Thr Ser Pro Phe Thr Ala Glu Leu Thr His Gly Ala Ser
                645                 650                 655

Ala Asn Trp Thr Ile Gln Tyr Asn Asp Pro Thr Gln Glu Ser Ile Ile
            660                 665                 670
```

```
Leu Lys Pro Lys Met Ala Leu Glu Val Gly Asp Tyr Lys Ile Asn Leu
        675                 680                 685

Lys Leu Met Asp Asn Gln Asn Lys Asp Gln Val Thr Thr Leu Glu Val
    690                 695                 700

Ser Val Cys Asp Cys Glu Gly Ala Ala Gly Val Cys Arg Lys Ala Gln
705                 710                 715                 720

Pro Val Glu Ala Gly Leu Gln Ile Pro Ala Ile Leu Gly Ile Leu Gly
                725                 730                 735

Gly Ile Leu Ala Leu Leu Ile Leu Ile Leu Leu Leu Leu Leu Phe Leu
            740                 745                 750

Arg Arg Arg Ala Val Val Lys Glu Pro Leu Leu Pro Pro Glu Asp Asp
        755                 760                 765

Thr Arg Asp Asn Val Tyr Tyr Tyr Asp Glu Glu Gly Gly Gly Glu Glu
    770                 775                 780

Asp Gln Asp Phe Asp Leu Ser Gln Leu His Arg Gly Leu Asp Ala Arg
785                 790                 795                 800

Pro Glu Val Thr Arg Asn Asp Val Ala Pro Thr Leu Met Ser Val Pro
                805                 810                 815

Arg Tyr Leu Pro Arg Pro Ala Asn Pro Asp Glu Ile Gly Asn Phe Ile
            820                 825                 830

Asp Glu Asn Leu Lys Ala Ala Asp Thr Asp Pro Thr Ala Pro Pro Tyr
        835                 840                 845

Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly Ser Glu Ala Ala
    850                 855                 860

Ser Leu Ser Ser Leu Asn Ser Ser Glu Ser Asp Lys Asp Gln Asp Tyr
865                 870                 875                 880

Asp Tyr Leu Asn Glu Trp Gly Asn Arg Phe Lys Lys Leu Ala Asp Met
                885                 890                 895

Tyr Gly Gly Gly Glu Asp Asp
```

900

<210> 10299
<211> 788
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2064; "

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<221> source
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<220>
<221> source
<223> /note="Gene Name: cadherin 10, type 2 (T2-cadherin); "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y6N8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000264463"

<400> 10299
Met Thr Ile His Gln Phe Leu Leu Leu Phe Leu Phe Trp Val Cys Leu
1   5   10   15

Pro His Phe Cys Ser Pro Glu Ile Met Phe Arg Arg Thr Pro Val Pro
            20   25   30

Gln Gln Arg Ile Leu Ser Ser Arg Val Pro Arg Ser Asp Gly Lys Ile
        35   40   45

Leu His Arg Gln Lys Arg Gly Trp Met Trp Asn Gln Phe Phe Leu Leu
    50   55   60

Glu Glu Tyr Thr Gly Ser Asp Tyr Gln Tyr Val Gly Lys Leu His Ser
65   70   75   80

Asp Gln Asp Lys Gly Asp Gly Ser Leu Lys Tyr Ile Leu Ser Gly Asp
                85   90   95

Gly Ala Gly Thr Leu Phe Ile Ile Asp Glu Lys Thr Gly Asp Ile His
            100   105   110

```
Ala Thr Arg Arg Ile Asp Arg Glu Glu Lys Ala Phe Tyr Thr Leu Arg
        115                 120                 125

Ala Gln Ala Ile Asn Arg Arg Thr Leu Arg Pro Val Glu Pro Glu Ser
    130                 135                 140

Glu Phe Val Ile Lys Ile His Asp Ile Asn Asp Asn Glu Pro Thr Phe
145                 150                 155                 160

Pro Glu Glu Ile Tyr Thr Ala Ser Val Pro Glu Met Ser Val Val Gly
                165                 170                 175

Thr Ser Val Val Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Ser Tyr
            180                 185                 190

Gly Asn Ser Ala Arg Val Ile Tyr Ser Ile Leu Gln Gly Gln Pro Tyr
        195                 200                 205

Phe Ser Val Glu Pro Glu Thr Gly Ile Ile Arg Thr Ala Leu Pro Asn
    210                 215                 220

Met Asn Arg Glu Asn Arg Glu Gln Tyr Gln Val Val Ile Gln Ala Lys
225                 230                 235                 240

Asp Met Gly Gly Gln Met Gly Gly Leu Ser Gly Thr Thr Thr Val Asn
                245                 250                 255

Ile Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Asn
            260                 265                 270

Thr Ile His Leu Arg Val Leu Glu Ser Ser Pro Val Gly Thr Ala Ile
        275                 280                 285

Gly Ser Val Lys Ala Thr Asp Ala Asp Thr Gly Lys Asn Ala Glu Val
    290                 295                 300

Glu Tyr Arg Ile Ile Asp Gly Asp Gly Thr Asp Met Phe Asp Ile Val
305                 310                 315                 320

Thr Glu Lys Asp Thr Gln Glu Gly Ile Ile Thr Val Lys Lys Pro Leu
                325                 330                 335

Asp Tyr Glu Ser Arg Arg Leu Tyr Thr Leu Lys Val Glu Ala Glu Asn
```

```
            340                 345                 350

Thr His Val Asp Pro Arg Phe Tyr Tyr Leu Gly Pro Phe Lys Asp Thr
        355                 360                 365

Thr Ile Val Lys Ile Ser Ile Glu Asp Val Asp Glu Pro Pro Val Phe
    370                 375                 380

Ser Arg Ser Ser Tyr Leu Phe Glu Val His Glu Asp Ile Glu Val Gly
385                 390                 395                 400

Thr Ile Ile Gly Thr Val Met Ala Arg Asp Pro Asp Ser Ile Ser Ser
                405                 410                 415

Pro Ile Arg Phe Ser Leu Asp Arg His Thr Asp Leu Asp Arg Ile Phe
            420                 425                 430

Asn Ile His Ser Gly Asn Gly Ser Leu Tyr Thr Ser Lys Pro Leu Asp
        435                 440                 445

Arg Glu Leu Ser Gln Trp His Asn Leu Thr Val Ile Ala Ala Glu Ile
    450                 455                 460

Asn Asn Pro Lys Glu Thr Thr Arg Val Ala Val Phe Val Arg Ile Leu
465                 470                 475                 480

Asp Val Asn Asp Asn Ala Pro Gln Phe Ala Val Phe Tyr Asp Thr Phe
                485                 490                 495

Val Cys Glu Asn Ala Arg Pro Gly Gln Leu Ile Gln Thr Ile Ser Ala
            500                 505                 510

Val Asp Lys Asp Asp Pro Leu Gly Gly Gln Lys Phe Phe Phe Ser Leu
        515                 520                 525

Ala Ala Val Asn Pro Asn Phe Thr Val Gln Asp Asn Glu Asp Asn Thr
    530                 535                 540

Ala Arg Ile Leu Thr Arg Lys Asn Gly Phe Asn Arg His Glu Ile Ser
545                 550                 555                 560

Thr Tyr Leu Leu Pro Val Val Ile Ser Asp Asn Asp Tyr Pro Ile Gln
                565                 570                 575
```

```
Ser Ser Thr Gly Thr Leu Thr Ile Arg Val Cys Ala Cys Asp Ser Gln
            580                 585                 590

Gly Asn Met Gln Ser Cys Ser Ala Glu Ala Leu Leu Leu Pro Ala Gly
        595                 600                 605

Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Leu Cys Ile Ile Ile Leu
    610                 615                 620

Leu Val Ile Val Val Leu Phe Ala Ala Leu Lys Arg Gln Arg Lys Lys
625                 630                 635                 640

Glu Pro Leu Ile Leu Ser Lys Glu Asp Ile Arg Asp Asn Ile Val Ser
                645                 650                 655

Tyr Asn Asp Glu Gly Gly Gly Glu Glu Asp Thr Gln Ala Phe Asp Ile
            660                 665                 670

Gly Thr Leu Arg Asn Pro Ala Ala Ile Glu Glu Lys Lys Leu Arg Arg
        675                 680                 685

Asp Ile Ile Pro Glu Thr Leu Phe Ile Pro Arg Arg Thr Pro Thr Ala
    690                 695                 700

Pro Asp Asn Thr Asp Val Arg Asp Phe Ile Asn Glu Arg Leu Lys Glu
705                 710                 715                 720

His Asp Leu Asp Pro Thr Ala Pro Pro Tyr Asp Ser Leu Ala Thr Tyr
                725                 730                 735

Ala Tyr Glu Gly Asn Asp Ser Ile Ala Glu Ser Leu Ser Ser Leu Glu
            740                 745                 750

Ser Gly Thr Thr Glu Gly Asp Gln Asn Tyr Asp Tyr Leu Arg Glu Trp
        755                 760                 765

Gly Pro Arg Phe Asn Lys Leu Ala Glu Met Tyr Gly Gly Gly Glu Ser
    770                 775                 780

Asp Lys Asp Ser
785
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<210> 10300
<211> 436
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2064; "

<220>
<221> source
<223> /note="Gene Symbol: CDH10; "

<220>
<221> source
<223> /note="Gene Name: cadherin 10, type 2 (T2-cadherin); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425653"

<400> 10300
Met Thr Ile His Gln Phe Leu Leu Leu Phe Leu Phe Trp Val Cys Leu
1   5   10   15

Pro His Phe Cys Ser Pro Glu Ile Met Phe Arg Arg Thr Pro Val Pro
            20   25   30

Gln Gln Arg Ile Leu Ser Ser Arg Val Pro Arg Ser Asp Gly Lys Ile
        35   40   45

Leu His Arg Gln Lys Arg Gly Trp Met Trp Asn Gln Phe Phe Leu Leu
    50   55   60

Glu Glu Tyr Thr Gly Ser Asp Tyr Gln Tyr Val Gly Lys Leu His Ser
65   70   75   80

Asp Gln Asp Lys Gly Asp Gly Ser Leu Lys Tyr Ile Leu Ser Gly Asp
                85   90   95

Gly Ala Gly Thr Leu Phe Ile Ile Asp Glu Lys Thr Gly Asp Ile His
            100   105   110

Ala Thr Arg Arg Ile Asp Arg Glu Glu Lys Ala Phe Tyr Thr Leu Arg
        115   120   125

Ala Gln Ala Ile Asn Arg Arg Thr Leu Arg Pro Val Glu Pro Glu Ser
    130   135   140

```
Glu Phe Val Ile Lys Ile His Asp Ile Asn Asp Asn Glu Pro Thr Phe
145                 150                 155                 160

Pro Glu Glu Ile Tyr Thr Ala Ser Val Pro Glu Met Ser Val Val Gly
                165                 170                 175

Thr Ser Val Val Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Ser Tyr
            180                 185                 190

Gly Asn Ser Ala Arg Val Ile Tyr Ser Ile Leu Gln Gly Gln Pro Tyr
        195                 200                 205

Phe Ser Val Glu Pro Glu Thr Gly Ile Ile Arg Thr Ala Leu Pro Asn
    210                 215                 220

Met Asn Arg Glu Asn Arg Glu Gln Tyr Gln Val Val Ile Gln Ala Lys
225                 230                 235                 240

Asp Met Gly Gly Gln Met Gly Gly Leu Ser Gly Thr Thr Thr Val Asn
                245                 250                 255

Ile Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Asn
            260                 265                 270

Thr Ile His Leu Arg Val Leu Glu Ser Ser Pro Val Gly Thr Ala Ile
        275                 280                 285

Gly Ser Val Lys Ala Thr Asp Ala Asp Thr Gly Lys Asn Ala Glu Val
    290                 295                 300

Glu Tyr Arg Ile Ile Asp Gly Asp Gly Thr Asp Met Phe Asp Ile Val
305                 310                 315                 320

Thr Glu Lys Asp Thr Gln Glu Gly Ile Ile Thr Val Lys Lys Pro Leu
                325                 330                 335

Asp Tyr Glu Ser Arg Arg Leu Tyr Thr Leu Lys Val Glu Ala Glu Asn
            340                 345                 350

Thr His Val Asp Pro Arg Phe Tyr Tyr Leu Gly Pro Phe Lys Asp Thr
        355                 360                 365
```

```
Thr Ile Val Lys Ile Ser Ile Glu Asp Val Asp Glu Pro Pro Val Phe
    370                 375                 380

Ser Arg Ser Ser Tyr Leu Phe Glu Val His Glu Asp Ile Glu Val Gly
385                 390                 395                 400

Thr Ile Ile Gly Thr Val Met Ala Arg Asp Pro Asp Ser Ile Ser Ser
                405                 410                 415

Pro Ile Arg Gln Ser Gln Arg Asp Asn Thr Arg Gly Cys Phe Cys Glu
            420                 425                 430

Asn Phe Gly Cys
        435


<210> 10301
<211> 796
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2065; "

<220>
<221> source
<223> /note="Gene Symbol: CDH11; "

<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
      (osteoblast); "

<220>
<221> source
<223> /note="Uniprot ID:  P55287; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000268603"

<400> 10301
Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1               5                   10                  15

Leu Cys His Ser His Ala Phe Ala Pro Glu Arg Arg Gly His Leu Arg
            20                  25                  30

Pro Ser Phe His Gly His His Glu Lys Gly Lys Glu Gly Gln Val Leu
```

```
        35                  40                  45

Gln Arg Ser Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Ile Glu
    50                  55                  60

Glu Tyr Thr Gly Pro Asp Pro Val Leu Val Gly Arg Leu His Ser Asp
65                  70                  75                  80

Ile Asp Ser Gly Asp Gly Asn Ile Lys Tyr Ile Leu Ser Gly Glu Gly
                85                  90                  95

Ala Gly Thr Ile Phe Val Ile Asp Asp Lys Ser Gly Asn Ile His Ala
            100                 105                 110

Thr Lys Thr Leu Asp Arg Glu Glu Arg Ala Gln Tyr Thr Leu Met Ala
        115                 120                 125

Gln Ala Val Asp Arg Asp Thr Asn Arg Pro Leu Glu Pro Pro Ser Glu
    130                 135                 140

Phe Ile Val Lys Val Gln Asp Ile Asn Asp Asn Pro Pro Glu Phe Leu
145                 150                 155                 160

His Glu Thr Tyr His Ala Asn Val Pro Glu Arg Ser Asn Val Gly Thr
                165                 170                 175

Ser Val Ile Gln Val Thr Ala Ser Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Lys Leu Val Tyr Ser Ile Leu Glu Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Glu Ala Gln Thr Gly Ile Ile Arg Thr Ala Leu Pro Asn Met
    210                 215                 220

Asp Arg Glu Ala Lys Glu Glu Tyr His Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Gly Gly His Met Gly Gly Leu Ser Gly Thr Thr Lys Val Thr Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Lys Phe Pro Gln Ser Val
            260                 265                 270
```

```
Tyr Gln Met Ser Val Ser Glu Ala Ala Val Pro Gly Glu Glu Val Gly
        275                 280                 285

Arg Val Lys Ala Lys Asp Pro Asp Ile Gly Glu Asn Gly Leu Val Thr
    290                 295                 300

Tyr Asn Ile Val Asp Gly Asp Gly Met Glu Ser Phe Glu Ile Thr Thr
305                 310                 315                 320

Asp Tyr Glu Thr Gln Glu Gly Val Ile Lys Leu Lys Lys Pro Val Asp
                325                 330                 335

Phe Glu Thr Lys Arg Ala Tyr Ser Leu Lys Val Glu Ala Ala Asn Val
            340                 345                 350

His Ile Asp Pro Lys Phe Ile Ser Asn Gly Pro Phe Lys Asp Thr Val
        355                 360                 365

Thr Val Lys Ile Ser Val Glu Asp Ala Asp Glu Pro Pro Met Phe Leu
    370                 375                 380

Ala Pro Ser Tyr Ile His Glu Val Gln Glu Asn Ala Ala Ala Gly Thr
385                 390                 395                 400

Val Val Gly Arg Val His Ala Lys Asp Pro Asp Ala Ala Asn Ser Pro
                405                 410                 415

Ile Arg Tyr Ser Ile Asp Arg His Thr Asp Leu Asp Arg Phe Phe Thr
            420                 425                 430

Ile Asn Pro Glu Asp Gly Phe Ile Lys Thr Thr Lys Pro Leu Asp Arg
        435                 440                 445

Glu Glu Thr Ala Trp Leu Asn Ile Thr Val Phe Ala Ala Glu Ile His
    450                 455                 460

Asn Arg His Gln Glu Ala Lys Val Pro Val Ala Ile Arg Val Leu Asp
465                 470                 475                 480

Val Asn Asp Asn Ala Pro Lys Phe Ala Ala Pro Tyr Glu Gly Phe Ile
                485                 490                 495
```

```
Cys Glu Ser Asp Gln Thr Lys Pro Leu Ser Asn Gln Pro Ile Val Thr
            500                 505                 510

Ile Ser Ala Asp Asp Lys Asp Asp Thr Ala Asn Gly Pro Arg Phe Ile
        515                 520                 525

Phe Ser Leu Pro Pro Glu Ile Ile His Asn Pro Asn Phe Thr Val Arg
    530                 535                 540

Asp Asn Arg Asp Asn Thr Ala Gly Val Tyr Ala Arg Arg Gly Gly Phe
545                 550                 555                 560

Ser Arg Gln Lys Gln Asp Leu Tyr Leu Leu Pro Ile Val Ile Ser Asp
                565                 570                 575

Gly Gly Ile Pro Pro Met Ser Ser Thr Asn Thr Leu Thr Ile Lys Val
            580                 585                 590

Cys Gly Cys Asp Val Asn Gly Ala Leu Leu Ser Cys Asn Ala Glu Ala
        595                 600                 605

Tyr Ile Leu Asn Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu
    610                 615                 620

Ala Cys Ile Val Ile Leu Leu Val Ile Val Val Leu Phe Val Thr Leu
625                 630                 635                 640

Arg Arg Gln Lys Lys Glu Pro Leu Ile Val Phe Glu Glu Glu Asp Val
                645                 650                 655

Arg Glu Asn Ile Ile Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp
            660                 665                 670

Thr Glu Ala Phe Asp Ile Ala Thr Leu Gln Asn Pro Asp Gly Ile Asn
        675                 680                 685

Gly Phe Ile Pro Arg Lys Asp Ile Lys Pro Glu Tyr Gln Tyr Met Pro
    690                 695                 700

Arg Pro Gly Leu Arg Pro Ala Pro Asn Ser Val Asp Val Asp Asp Phe
705                 710                 715                 720
```

```
Ile Asn Thr Arg Ile Gln Glu Ala Asp Asn Asp Pro Thr Ala Pro Pro
                725                 730                 735

Tyr Asp Ser Ile Gln Ile Tyr Gly Tyr Glu Gly Arg Gly Ser Val Ala
            740                 745                 750

Gly Ser Leu Ser Ser Leu Glu Ser Ala Thr Thr Asp Ser Asp Leu Asp
        755                 760                 765

Tyr Asp Tyr Leu Gln Asn Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp
    770                 775                 780

Leu Tyr Gly Ser Lys Asp Thr Phe Asp Asp Asp Ser
785                 790                 795


<210> 10302
<211> 693
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CDH11; "

<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
      (osteoblast); "

<220>
<221> source
<223> /note="Uniprot ID:  P55287; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377711"

<400> 10302
Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1               5                   10                  15

Leu Cys His Ser His Ala Phe Ala Pro Glu Arg Arg Gly His Leu Arg
            20                  25                  30

Pro Ser Phe His Gly His His Glu Lys Gly Lys Glu Gly Gln Val Leu
        35                  40                  45
```

```
Gln Arg Ser Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Ile Glu
    50                  55                  60

Glu Tyr Thr Gly Pro Asp Pro Val Leu Val Gly Arg Leu His Ser Asp
65                  70                  75                  80

Ile Asp Ser Gly Asp Gly Asn Ile Lys Tyr Ile Leu Ser Gly Glu Gly
                85                  90                  95

Ala Gly Thr Ile Phe Val Ile Asp Asp Lys Ser Gly Asn Ile His Ala
            100                 105                 110

Thr Lys Thr Leu Asp Arg Glu Glu Arg Ala Gln Tyr Thr Leu Met Ala
        115                 120                 125

Gln Ala Val Asp Arg Asp Thr Asn Arg Pro Leu Glu Pro Pro Ser Glu
    130                 135                 140

Phe Ile Val Lys Val Gln Asp Ile Asn Asp Asn Pro Pro Glu Phe Leu
145                 150                 155                 160

His Glu Thr Tyr His Ala Asn Val Pro Glu Arg Ser Asn Val Gly Thr
                165                 170                 175

Ser Val Ile Gln Val Thr Ala Ser Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Lys Leu Val Tyr Ser Ile Leu Glu Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Glu Ala Gln Thr Gly Ile Ile Arg Thr Ala Leu Pro Asn Met
    210                 215                 220

Asp Arg Glu Ala Lys Glu Glu Tyr His Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Gly Gly His Met Gly Gly Leu Ser Gly Thr Thr Lys Val Thr Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Lys Phe Pro Gln Ser Val
            260                 265                 270
```

Tyr Gln Met Ser Val Ser Glu Ala Ala Val Pro Gly Glu Glu Val Gly
275 280 285

Arg Val Lys Ala Lys Asp Pro Asp Ile Gly Glu Asn Gly Leu Val Thr
290 295 300

Tyr Asn Ile Val Asp Gly Asp Gly Met Glu Ser Phe Glu Ile Thr Thr
305 310 315 320

Asp Tyr Glu Thr Gln Glu Gly Val Ile Lys Leu Lys Lys Pro Val Asp
325 330 335

Phe Glu Thr Lys Arg Ala Tyr Ser Leu Lys Val Glu Ala Ala Asn Val
340 345 350

His Ile Asp Pro Lys Phe Ile Ser Asn Gly Pro Phe Lys Asp Thr Val
355 360 365

Thr Val Lys Ile Ser Val Glu Asp Ala Asp Glu Pro Pro Met Phe Leu
370 375 380

Ala Pro Ser Tyr Ile His Glu Val Gln Glu Asn Ala Ala Ala Gly Thr
385 390 395 400

Val Val Gly Arg Val His Ala Lys Asp Pro Asp Ala Ala Asn Ser Pro
405 410 415

Ile Arg Tyr Ser Ile Asp Arg His Thr Asp Leu Asp Arg Phe Phe Thr
420 425 430

Ile Asn Pro Glu Asp Gly Phe Ile Lys Thr Thr Lys Pro Leu Asp Arg
435 440 445

Glu Glu Thr Ala Trp Leu Asn Ile Thr Val Phe Ala Ala Glu Ile His
450 455 460

Asn Arg His Gln Glu Ala Lys Val Pro Val Ala Ile Arg Val Leu Asp
465 470 475 480

Val Asn Asp Asn Ala Pro Lys Phe Ala Ala Pro Tyr Glu Gly Phe Ile
485 490 495

```
Cys Glu Ser Asp Gln Thr Lys Pro Leu Ser Asn Gln Pro Ile Val Thr
            500                 505                 510

Ile Ser Ala Asp Asp Lys Asp Asp Thr Ala Asn Gly Pro Arg Phe Ile
        515                 520                 525

Phe Ser Leu Pro Pro Glu Ile Ile His Asn Pro Asn Phe Thr Val Arg
    530                 535                 540

Asp Asn Arg Asp Asn Thr Ala Gly Val Tyr Ala Arg Arg Gly Gly Phe
545                 550                 555                 560

Ser Arg Gln Lys Gln Asp Leu Tyr Leu Leu Pro Ile Val Ile Ser Asp
                565                 570                 575

Gly Gly Ile Pro Pro Met Ser Ser Thr Asn Thr Leu Thr Ile Lys Val
            580                 585                 590

Cys Gly Cys Asp Val Asn Gly Ala Leu Leu Ser Cys Asn Ala Glu Ala
        595                 600                 605

Tyr Ile Leu Asn Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu
    610                 615                 620

Ala Cys Ile Val Ile Leu Leu Gly Cys Pro Ser Leu Met Glu Pro Pro
625                 630                 635                 640

Ser Pro Arg Glu Asp Met Arg Leu Leu Tyr Leu Gly Phe Gln Leu Met
                645                 650                 655

Leu Phe Ser Tyr Val Lys Val Asn Arg Arg Phe Cys Leu Leu Gly Val
            660                 665                 670

Phe Ile Lys Leu Pro Phe Leu Tyr Val Val Ala Thr Glu Ser Pro Thr
        675                 680                 685

Thr Leu Thr Ser Leu
    690
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<210> 10303
<211> 53
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2065; "

<220>
<221> source
<223> /note="Gene Symbol: CDH11; "

<220>
<221> source
<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
(osteoblast); "

<220>
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<223> /note="ENSP ID: ENSP00000455120"

<400> 10303
Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1 5 10 15

Leu Cys His Ser His Ala Phe Ala Pro Glu Arg Arg Gly His Leu Arg
20 25 30

Pro Ser Phe His Gly His His Glu Lys Gly Lys Glu Gly Gln Val Leu
35 40 45

Gln Arg Ser Lys Arg
50

<210> 10304
<211> 70
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
(osteoblast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455420"

<400> 10304

Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1 5 10 15

Leu Cys His Ser His Ala Phe Ala Pro Glu Arg Arg Gly His Leu Arg
20 25 30

Pro Ser Phe His Gly His His Glu Lys Gly Lys Glu Gly Gln Val Leu
35 40 45

Gln Arg Ser Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Ile Glu
50 55 60

Glu Tyr Thr Gly Pro Asp
65 70

<210> 10305
<211> 34
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
(osteoblast); "

<220>
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<223> /note="ENSP ID: ENSP00000455697"

<400> 10305
Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1 5 10 15

Leu Cys His Ser His Ala Phe Ala Pro Glu Arg Arg Gly His Leu Arg
20 25 30

Pro Ser

<210> 10306
<211> 222

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
(osteoblast); "

<220>
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<223> /note="ENSP ID: ENSP00000455779"

<400> 10306
Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1 5 10 15

Leu Cys His Ser His Ala Phe Ala Pro Glu Arg Arg Gly His Leu Arg
20 25 30

Pro Ser Phe His Gly His His Glu Lys Gly Lys Glu Gly Gln Val Leu
35 40 45

Gln Arg Ser Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Ile Glu
50 55 60

Glu Tyr Thr Gly Pro Asp Pro Val Leu Val Gly Arg Leu His Ser Asp
65 70 75 80

Ile Asp Ser Gly Asp Gly Asn Ile Lys Tyr Ile Leu Ser Gly Glu Gly
85 90 95

Ala Gly Thr Ile Phe Val Ile Asp Asp Lys Ser Gly Asn Ile His Ala
100 105 110

Thr Lys Thr Leu Asp Arg Glu Glu Arg Ala Gln Tyr Thr Leu Met Ala
115 120 125

Gln Ala Val Asp Arg Asp Thr Asn Arg Pro Leu Glu Pro Pro Ser Glu
130 135 140

```
Phe Ile Val Lys Val Gln Asp Ile Asn Asp Asn Pro Pro Glu Phe Leu
145                 150                 155                 160


His Glu Thr Tyr His Ala Asn Val Pro Glu Arg Ser Asn Val Gly Thr
                165                 170                 175


Ser Val Ile Gln Val Thr Ala Ser Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190


Asn Ser Ala Lys Leu Val Tyr Ser Ile Leu Glu Gly Gln Pro Tyr Phe
        195                 200                 205


Ser Val Glu Ala Gln Thr Gly Ile Ile Arg Thr Ala Leu Pro
    210                 215                 220


<210> 10307
<211> 22
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CDH11; "

<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000456110"

<400> 10307
Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1               5                   10                  15


Leu Cys His Ser His Ala
            20


<210> 10308
<211> 65
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
(osteoblast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456772"

<400> 10308
Met Lys Glu Asn Tyr Cys Leu Gln Ala Ala Leu Val Cys Leu Gly Met
1 5 10 15

Leu Cys His Ser His Ala Phe Ala Pro Glu Arg Arg Gly His Leu Arg
20 25 30

Pro Ser Phe His Gly His His Glu Lys Gly Lys Glu Gly Gln Val Leu
35 40 45

Gln Arg Ser Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Ile Glu
50 55 60

Glu
65

<210> 10309
<211> 670
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
(osteoblast); "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000457812"

<400> 10309

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Met Ala Gln Ala Val Asp Arg Asp Thr Asn Arg Pro Leu Glu Pro Pro
1               5                  10                  15

Ser Glu Phe Ile Val Lys Val Gln Asp Ile Asn Asp Asn Pro Pro Glu
            20                  25                  30

Phe Leu His Glu Thr Tyr His Ala Asn Val Pro Glu Arg Ser Asn Val
        35                  40                  45

Gly Thr Ser Val Ile Gln Val Thr Ala Ser Asp Ala Asp Asp Pro Thr
    50                  55                  60

Tyr Gly Asn Ser Ala Lys Leu Val Tyr Ser Ile Leu Glu Gly Gln Pro
65                  70                  75                  80

Tyr Phe Ser Val Glu Ala Gln Thr Gly Ile Ile Arg Thr Ala Leu Pro
                85                  90                  95

Asn Met Asp Arg Glu Ala Lys Glu Glu Tyr His Val Val Ile Gln Ala
            100                 105                 110

Lys Asp Met Gly Gly His Met Gly Gly Leu Ser Gly Thr Thr Lys Val
        115                 120                 125

Thr Ile Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Lys Phe Pro Gln
    130                 135                 140

Ser Val Tyr Gln Met Ser Val Ser Glu Ala Ala Val Pro Gly Glu Glu
145                 150                 155                 160

Val Gly Arg Val Lys Ala Lys Asp Pro Asp Ile Gly Glu Asn Gly Leu
                165                 170                 175

Val Thr Tyr Asn Ile Val Asp Gly Asp Gly Met Glu Ser Phe Glu Ile
            180                 185                 190

Thr Thr Asp Tyr Glu Thr Gln Glu Gly Val Ile Lys Leu Lys Lys Pro
        195                 200                 205

Val Asp Phe Glu Thr Lys Arg Ala Tyr Ser Leu Lys Val Glu Ala Ala
    210                 215                 220
```

```
Asn Val His Ile Asp Pro Lys Phe Ile Ser Asn Gly Pro Phe Lys Asp
225                 230                 235                 240

Thr Val Thr Val Lys Ile Ser Val Glu Asp Ala Asp Glu Pro Pro Met
                245                 250                 255

Phe Leu Ala Pro Ser Tyr Ile His Glu Val Gln Glu Asn Ala Ala Ala
            260                 265                 270

Gly Thr Val Val Gly Arg Val His Ala Lys Asp Pro Asp Ala Ala Asn
        275                 280                 285

Ser Pro Ile Arg Tyr Ser Ile Asp Arg His Thr Asp Leu Asp Arg Phe
    290                 295                 300

Phe Thr Ile Asn Pro Glu Asp Gly Phe Ile Lys Thr Thr Lys Pro Leu
305                 310                 315                 320

Asp Arg Glu Glu Thr Ala Trp Leu Asn Ile Thr Val Phe Ala Ala Glu
                325                 330                 335

Ile His Asn Arg His Gln Glu Ala Lys Val Pro Val Ala Ile Arg Val
            340                 345                 350

Leu Asp Val Asn Asp Asn Ala Pro Lys Phe Ala Ala Pro Tyr Glu Gly
        355                 360                 365

Phe Ile Cys Glu Ser Asp Gln Thr Lys Pro Leu Ser Asn Gln Pro Ile
    370                 375                 380

Val Thr Ile Ser Ala Asp Asp Lys Asp Asp Thr Ala Asn Gly Pro Arg
385                 390                 395                 400

Phe Ile Phe Ser Leu Pro Pro Glu Ile Ile His Asn Pro Asn Phe Thr
                405                 410                 415

Val Arg Asp Asn Arg Asp Asn Thr Ala Gly Val Tyr Ala Arg Arg Gly
            420                 425                 430

Gly Phe Ser Arg Gln Lys Gln Asp Leu Tyr Leu Leu Pro Ile Val Ile
        435                 440                 445
```

```
Ser Asp Gly Gly Ile Pro Pro Met Ser Ser Thr Asn Thr Leu Thr Ile
    450                 455                 460

Lys Val Cys Gly Cys Asp Val Asn Gly Ala Leu Leu Ser Cys Asn Ala
465                 470                 475                 480

Glu Ala Tyr Ile Leu Asn Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala
                485                 490                 495

Ile Leu Ala Cys Ile Val Ile Leu Leu Val Ile Val Val Leu Phe Val
            500                 505                 510

Thr Leu Arg Arg Gln Lys Lys Glu Pro Leu Ile Val Phe Glu Glu Glu
        515                 520                 525

Asp Val Arg Glu Asn Ile Ile Thr Tyr Asp Asp Glu Gly Gly Gly Glu
    530                 535                 540

Glu Asp Thr Glu Ala Phe Asp Ile Ala Thr Leu Gln Asn Pro Asp Gly
545                 550                 555                 560

Ile Asn Gly Phe Ile Pro Arg Lys Asp Ile Lys Pro Glu Tyr Gln Tyr
                565                 570                 575

Met Pro Arg Pro Gly Leu Arg Pro Ala Pro Asn Ser Val Asp Val Asp
            580                 585                 590

Asp Phe Ile Asn Thr Arg Ile Gln Glu Ala Asp Asn Asp Pro Thr Ala
        595                 600                 605

Pro Pro Tyr Asp Ser Ile Gln Ile Tyr Gly Tyr Glu Gly Arg Gly Ser
    610                 615                 620

Val Ala Gly Ser Leu Ser Ser Leu Glu Ser Ala Thr Thr Asp Ser Asp
625                 630                 635                 640

Leu Asp Tyr Asp Tyr Leu Gln Asn Trp Gly Pro Arg Phe Lys Lys Leu
                645                 650                 655

Ala Asp Leu Tyr Gly Ser Lys Asp Thr Phe Asp Asp Asp Ser
            660                 665                 670
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<210> 10310
<211> 62
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2065; "

<220>
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<223> /note="Gene Symbol: CDH11; "

<220>
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<223> /note="Gene Name: cadherin 11, type 2, OB-cadherin
(osteoblast); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484650"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10310
Xaa Met Ser Val Ser Glu Ala Ala Val Pro Gly Glu Glu Val Gly Arg
1 5 10 15

Val Lys Ala Lys Asp Pro Asp Ile Gly Glu Asn Gly Leu Val Thr Tyr
20 25 30

Asn Ile Val Asp Gly Asp Gly Met Glu Ser Phe Glu Ile Thr Thr Asp
35 40 45

Tyr Glu Thr Gln Glu Gly Val Ile Lys Leu Lys Lys Val Ser
50 55 60

<210> 10311
<211> 794
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2066; "

<220>
<221> source
<223> /note="Gene Symbol: CDH12; "

<220>
<221> source
<223> /note="Gene Name: cadherin 12, type 2 (N-cadherin 2); "

<220>
<221> source
<223> /note="Uniprot ID: P55289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371689"

<400> 10311
Met Leu Thr Arg Asn Cys Leu Ser Leu Leu Leu Trp Val Leu Phe Asp
1   5   10   15

Gly Gly Leu Leu Thr Pro Leu Gln Pro Gln Pro Gln Gln Thr Leu Ala
            20   25   30

Thr Glu Pro Arg Glu Asn Val Ile His Leu Pro Gly Gln Arg Ser His
        35   40   45

Phe Gln Arg Val Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu
    50   55   60

Glu Glu Tyr Val Gly Ser Glu Pro Gln Tyr Val Gly Lys Leu His Ser
65   70   75   80

Asp Leu Asp Lys Gly Glu Gly Thr Val Lys Tyr Thr Leu Ser Gly Asp
                85   90   95

Gly Ala Gly Thr Val Phe Thr Ile Asp Glu Thr Thr Gly Asp Ile His
            100   105   110

Ala Ile Arg Ser Leu Asp Arg Glu Glu Lys Pro Phe Tyr Thr Leu Arg
        115   120   125

Ala Gln Ala Val Asp Ile Glu Thr Arg Lys Pro Leu Glu Pro Glu Ser
    130   135   140

Glu Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Glu Pro Lys Phe
145   150   155   160

Leu Asp Gly Pro Tyr Val Ala Thr Val Pro Glu Met Ser Pro Val Gly
                165   170   175

```
Ala Tyr Val Leu Gln Val Lys Ala Thr Asp Ala Asp Asp Pro Thr Tyr
            180                 185                 190

Gly Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr
        195                 200                 205

Phe Ser Ile Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu Pro Asn
    210                 215                 220

Met Asp Arg Glu Val Lys Glu Gln Tyr Gln Val Leu Ile Gln Ala Lys
225                 230                 235                 240

Asp Met Gly Gly Gln Leu Gly Gly Leu Ala Gly Thr Thr Ile Val Asn
                245                 250                 255

Ile Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Lys Ser
            260                 265                 270

Ile Phe His Leu Lys Val Pro Glu Ser Ser Pro Ile Gly Ser Ala Ile
        275                 280                 285

Gly Arg Ile Arg Ala Val Asp Pro Asp Phe Gly Gln Asn Ala Glu Ile
    290                 295                 300

Glu Tyr Asn Ile Val Pro Gly Asp Gly Gly Asn Leu Phe Asp Ile Val
305                 310                 315                 320

Thr Asp Glu Asp Thr Gln Glu Gly Val Ile Lys Leu Lys Lys Pro Leu
                325                 330                 335

Asp Phe Glu Thr Lys Lys Ala Tyr Thr Phe Lys Val Glu Ala Ser Asn
            340                 345                 350

Leu His Leu Asp His Arg Phe His Ser Ala Gly Pro Phe Lys Asp Thr
        355                 360                 365

Ala Thr Val Lys Ile Ser Val Leu Asp Val Asp Glu Pro Pro Val Phe
    370                 375                 380

Ser Lys Pro Leu Tyr Thr Met Glu Val Tyr Glu Asp Thr Pro Val Gly
385                 390                 395                 400
```

```
Thr Ile Ile Gly Ala Val Thr Ala Gln Asp Leu Asp Val Gly Ser Ser
                405                 410                 415

Ala Val Arg Tyr Phe Ile Asp Trp Lys Ser Asp Gly Asp Ser Tyr Phe
            420                 425                 430

Thr Ile Asp Gly Asn Glu Gly Thr Ile Ala Thr Asn Glu Leu Leu Asp
        435                 440                 445

Arg Glu Ser Thr Ala Gln Tyr Asn Phe Ser Ile Ile Ala Ser Lys Val
    450                 455                 460

Ser Asn Pro Leu Leu Thr Ser Lys Val Asn Ile Leu Ile Asn Val Leu
465                 470                 475                 480

Asp Val Asn Glu Phe Pro Pro Glu Ile Ser Val Pro Tyr Glu Thr Ala
                485                 490                 495

Val Cys Glu Asn Ala Lys Pro Gly Gln Ile Ile Gln Ile Val Ser Ala
            500                 505                 510

Ala Asp Arg Asp Leu Ser Pro Ala Gly Gln Gln Phe Ser Phe Arg Leu
        515                 520                 525

Ser Pro Glu Ala Ala Ile Lys Pro Asn Phe Thr Val Arg Asp Phe Arg
    530                 535                 540

Asn Asn Thr Ala Gly Ile Glu Thr Arg Arg Asn Gly Tyr Ser Arg Arg
545                 550                 555                 560

Gln Gln Glu Leu Tyr Phe Leu Pro Val Val Ile Glu Asp Ser Ser Tyr
                565                 570                 575

Pro Val Gln Ser Ser Thr Asn Thr Met Thr Ile Arg Val Cys Arg Cys
            580                 585                 590

Asp Ser Asp Gly Thr Ile Leu Ser Cys Asn Val Glu Ala Ile Phe Leu
        595                 600                 605

Pro Val Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Leu Cys Ile
    610                 615                 620

Val Ile Leu Leu Ala Ile Val Val Leu Tyr Val Ala Leu Arg Arg Gln
```

625 630 635 640

Lys Lys Lys Asp Thr Leu Met Thr Ser Lys Glu Asp Ile Arg Asp Asn
645 650 655

Val Ile His Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Gln Ala
660 665 670

Phe Asp Ile Gly Ala Leu Arg Asn Pro Lys Val Ile Glu Glu Asn Lys
675 680 685

Ile Arg Arg Asp Ile Lys Pro Asp Ser Leu Cys Leu Pro Arg Gln Arg
690 695 700

Pro Pro Met Glu Asp Asn Thr Asp Ile Arg Asp Phe Ile His Gln Arg
705 710 715 720

Leu Gln Glu Asn Asp Val Asp Pro Thr Ala Pro Pro Tyr Asp Ser Leu
725 730 735

Ala Thr Tyr Ala Tyr Glu Gly Ser Gly Ser Val Ala Glu Ser Leu Ser
740 745 750

Ser Ile Asp Ser Leu Thr Thr Glu Ala Asp Gln Asp Tyr Asp Tyr Leu
755 760 765

Thr Asp Trp Gly Pro Arg Phe Lys Val Leu Ala Asp Met Phe Gly Glu
770 775 780

Glu Glu Ser Tyr Asn Pro Asp Lys Val Thr
785 790

<210> 10312
<211> 794
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2066; "

<220>
<221> source
<223> /note="Gene Symbol: CDH12; "

<220>

<221> source
<223> /note="Gene Name: cadherin 12, type 2 (N-cadherin 2); "

<220>
<221> source
<223> /note="Uniprot ID: P55289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423577"

<400> 10312
Met Leu Thr Arg Asn Cys Leu Ser Leu Leu Leu Trp Val Leu Phe Asp
1   5   10   15

Gly Gly Leu Leu Thr Pro Leu Gln Pro Gln Pro Gln Gln Thr Leu Ala
            20   25   30

Thr Glu Pro Arg Glu Asn Val Ile His Leu Pro Gly Gln Arg Ser His
        35   40   45

Phe Gln Arg Val Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu
    50   55   60

Glu Glu Tyr Val Gly Ser Glu Pro Gln Tyr Val Gly Lys Leu His Ser
65   70   75   80

Asp Leu Asp Lys Gly Glu Gly Thr Val Lys Tyr Thr Leu Ser Gly Asp
                85   90   95

Gly Ala Gly Thr Val Phe Thr Ile Asp Glu Thr Thr Gly Asp Ile His
            100   105   110

Ala Ile Arg Ser Leu Asp Arg Glu Glu Lys Pro Phe Tyr Thr Leu Arg
        115   120   125

Ala Gln Ala Val Asp Ile Glu Thr Arg Lys Pro Leu Glu Pro Glu Ser
    130   135   140

Glu Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Glu Pro Lys Phe
145   150   155   160

Leu Asp Gly Pro Tyr Val Ala Thr Val Pro Glu Met Ser Pro Val Gly
                165   170   175

Ala Tyr Val Leu Gln Val Lys Ala Thr Asp Ala Asp Asp Pro Thr Tyr

```
            180                 185                 190

Gly Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr
        195                 200                 205

Phe Ser Ile Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu Pro Asn
    210                 215                 220

Met Asp Arg Glu Val Lys Glu Gln Tyr Gln Val Leu Ile Gln Ala Lys
225                 230                 235                 240

Asp Met Gly Gly Gln Leu Gly Gly Leu Ala Gly Thr Thr Ile Val Asn
                245                 250                 255

Ile Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Lys Ser
            260                 265                 270

Ile Phe His Leu Lys Val Pro Glu Ser Ser Pro Ile Gly Ser Ala Ile
        275                 280                 285

Gly Arg Ile Arg Ala Val Asp Pro Asp Phe Gly Gln Asn Ala Glu Ile
    290                 295                 300

Glu Tyr Asn Ile Val Pro Gly Asp Gly Gly Asn Leu Phe Asp Ile Val
305                 310                 315                 320

Thr Asp Glu Asp Thr Gln Glu Gly Val Ile Lys Leu Lys Lys Pro Leu
                325                 330                 335

Asp Phe Glu Thr Lys Lys Ala Tyr Thr Phe Lys Val Glu Ala Ser Asn
            340                 345                 350

Leu His Leu Asp His Arg Phe His Ser Ala Gly Pro Phe Lys Asp Thr
        355                 360                 365

Ala Thr Val Lys Ile Ser Val Leu Asp Val Asp Glu Pro Pro Val Phe
    370                 375                 380

Ser Lys Pro Leu Tyr Thr Met Glu Val Tyr Glu Asp Thr Pro Val Gly
385                 390                 395                 400

Thr Ile Ile Gly Ala Val Thr Ala Gln Asp Leu Asp Val Gly Ser Ser
                405                 410                 415
```

```
Ala Val Arg Tyr Phe Ile Asp Trp Lys Ser Asp Gly Asp Ser Tyr Phe
            420                 425                 430

Thr Ile Asp Gly Asn Glu Gly Thr Ile Ala Thr Asn Glu Leu Leu Asp
        435                 440                 445

Arg Glu Ser Thr Ala Gln Tyr Asn Phe Ser Ile Ile Ala Ser Lys Val
    450                 455                 460

Ser Asn Pro Leu Leu Thr Ser Lys Val Asn Ile Leu Ile Asn Val Leu
465                 470                 475                 480

Asp Val Asn Glu Phe Pro Pro Glu Ile Ser Val Pro Tyr Glu Thr Ala
                485                 490                 495

Val Cys Glu Asn Ala Lys Pro Gly Gln Ile Ile Gln Ile Val Ser Ala
            500                 505                 510

Ala Asp Arg Asp Leu Ser Pro Ala Gly Gln Gln Phe Ser Phe Arg Leu
        515                 520                 525

Ser Pro Glu Ala Ala Ile Lys Pro Asn Phe Thr Val Arg Asp Phe Arg
    530                 535                 540

Asn Asn Thr Ala Gly Ile Glu Thr Arg Arg Asn Gly Tyr Ser Arg Arg
545                 550                 555                 560

Gln Gln Glu Leu Tyr Phe Leu Pro Val Val Ile Glu Asp Ser Ser Tyr
                565                 570                 575

Pro Val Gln Ser Ser Thr Asn Thr Met Thr Ile Arg Val Cys Arg Cys
            580                 585                 590

Asp Ser Asp Gly Thr Ile Leu Ser Cys Asn Val Glu Ala Ile Phe Leu
        595                 600                 605

Pro Val Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Leu Cys Ile
    610                 615                 620

Val Ile Leu Leu Ala Ile Val Val Leu Tyr Val Ala Leu Arg Arg Gln
625                 630                 635                 640
```

```
Lys Lys Lys Asp Thr Leu Met Thr Ser Lys Glu Asp Ile Arg Asp Asn
                645                 650                 655

Val Ile His Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Gln Ala
            660                 665                 670

Phe Asp Ile Gly Ala Leu Arg Asn Pro Lys Val Ile Glu Glu Asn Lys
        675                 680                 685

Ile Arg Arg Asp Ile Lys Pro Asp Ser Leu Cys Leu Pro Arg Gln Arg
    690                 695                 700

Pro Pro Met Glu Asp Asn Thr Asp Ile Arg Asp Phe Ile His Gln Arg
705                 710                 715                 720

Leu Gln Glu Asn Asp Val Asp Pro Thr Ala Pro Pro Tyr Asp Ser Leu
                725                 730                 735

Ala Thr Tyr Ala Tyr Glu Gly Ser Gly Ser Val Ala Glu Ser Leu Ser
            740                 745                 750

Ser Ile Asp Ser Leu Thr Thr Glu Ala Asp Gln Asp Tyr Asp Tyr Leu
        755                 760                 765

Thr Asp Trp Gly Pro Arg Phe Lys Val Leu Ala Asp Met Phe Gly Glu
    770                 775                 780

Glu Glu Ser Tyr Asn Pro Asp Lys Val Thr
785                 790


<210> 10313
<211> 754
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2066; "

<220>
<221> source
<223> /note="Gene Symbol: CDH12; "

<220>
<221> source
<223> /note="Gene Name: cadherin 12, type 2 (N-cadherin 2); "
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<220>
<221> source
<223> /note="Uniprot ID: P55289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428786"

<400> 10313
Met Leu Thr Arg Asn Cys Leu Ser Leu Leu Leu Trp Val Leu Phe Asp
1   5   10   15

Gly Gly Leu Leu Thr Pro Leu Gln Pro Gln Pro Gln Gln Thr Leu Ala
            20   25   30

Thr Glu Pro Arg Glu Asn Val Ile His Leu Pro Gly Gln Arg Ser His
        35   40   45

Phe Gln Arg Val Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu
    50   55   60

Glu Glu Tyr Val Gly Ser Glu Pro Gln Tyr Val Gly Lys Leu His Ser
65   70   75   80

Asp Leu Asp Lys Gly Glu Gly Thr Val Lys Tyr Thr Leu Ser Gly Asp
                85   90   95

Gly Ala Gly Thr Val Phe Thr Ile Asp Glu Thr Thr Gly Asp Ile His
            100   105   110

Ala Ile Arg Ser Leu Asp Arg Glu Glu Lys Pro Phe Tyr Thr Leu Arg
        115   120   125

Ala Gln Ala Val Asp Ile Glu Thr Arg Lys Pro Leu Glu Pro Glu Ser
    130   135   140

Glu Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Glu Pro Lys Phe
145   150   155   160

Leu Asp Gly Pro Tyr Val Ala Thr Val Pro Glu Met Ser Pro Val Gly
                165   170   175

Val Ile Arg Thr Ala Leu Pro Asn Met Asp Arg Glu Val Lys Glu Gln
            180   185   190

```
Tyr Gln Val Leu Ile Gln Ala Lys Asp Met Gly Gly Gln Leu Gly Gly
        195                 200                 205

Leu Ala Gly Thr Thr Ile Val Asn Ile Thr Leu Thr Asp Val Asn Asp
    210                 215                 220

Asn Pro Pro Arg Phe Pro Lys Ser Ile Phe His Leu Lys Val Pro Glu
225                 230                 235                 240

Ser Ser Pro Ile Gly Ser Ala Ile Gly Arg Ile Arg Ala Val Asp Pro
                245                 250                 255

Asp Phe Gly Gln Asn Ala Glu Ile Glu Tyr Asn Ile Val Pro Gly Asp
            260                 265                 270

Gly Gly Asn Leu Phe Asp Ile Val Thr Asp Glu Asp Thr Gln Glu Gly
        275                 280                 285

Val Ile Lys Leu Lys Lys Pro Leu Asp Phe Glu Thr Lys Lys Ala Tyr
    290                 295                 300

Thr Phe Lys Val Glu Ala Ser Asn Leu His Leu Asp His Arg Phe His
305                 310                 315                 320

Ser Ala Gly Pro Phe Lys Asp Thr Ala Thr Val Lys Ile Ser Val Leu
                325                 330                 335

Asp Val Asp Glu Pro Pro Val Phe Ser Lys Pro Leu Tyr Thr Met Glu
            340                 345                 350

Val Tyr Glu Asp Thr Pro Val Gly Thr Ile Ile Gly Ala Val Thr Ala
        355                 360                 365

Gln Asp Leu Asp Val Gly Ser Ser Ala Val Arg Tyr Phe Ile Asp Trp
    370                 375                 380

Lys Ser Asp Gly Asp Ser Tyr Phe Thr Ile Asp Gly Asn Glu Gly Thr
385                 390                 395                 400

Ile Ala Thr Asn Glu Leu Leu Asp Arg Glu Ser Thr Ala Gln Tyr Asn
                405                 410                 415
```

```
Phe Ser Ile Ile Ala Ser Lys Val Ser Asn Pro Leu Leu Thr Ser Lys
            420                 425                 430

Val Asn Ile Leu Ile Asn Val Leu Asp Val Asn Glu Phe Pro Pro Glu
        435                 440                 445

Ile Ser Val Pro Tyr Glu Thr Ala Val Cys Glu Asn Ala Lys Pro Gly
    450                 455                 460

Gln Ile Ile Gln Ile Val Ser Ala Ala Asp Arg Asp Leu Ser Pro Ala
465                 470                 475                 480

Gly Gln Gln Phe Ser Phe Arg Leu Ser Pro Glu Ala Ala Ile Lys Pro
                485                 490                 495

Asn Phe Thr Val Arg Asp Phe Arg Asn Asn Thr Ala Gly Ile Glu Thr
            500                 505                 510

Arg Arg Asn Gly Tyr Ser Arg Arg Gln Gln Glu Leu Tyr Phe Leu Pro
        515                 520                 525

Val Val Ile Glu Asp Ser Ser Tyr Pro Val Gln Ser Ser Thr Asn Thr
    530                 535                 540

Met Thr Ile Arg Val Cys Arg Cys Asp Ser Asp Gly Thr Ile Leu Ser
545                 550                 555                 560

Cys Asn Val Glu Ala Ile Phe Leu Pro Val Gly Leu Ser Thr Gly Ala
                565                 570                 575

Leu Ile Ala Ile Leu Leu Cys Ile Val Ile Leu Leu Ala Ile Val Val
            580                 585                 590

Leu Tyr Val Ala Leu Arg Arg Gln Lys Lys Lys Asp Thr Leu Met Thr
        595                 600                 605

Ser Lys Glu Asp Ile Arg Asp Asn Val Ile His Tyr Asp Asp Glu Gly
    610                 615                 620

Gly Gly Glu Glu Asp Thr Gln Ala Phe Asp Ile Gly Ala Leu Arg Asn
625                 630                 635                 640

Pro Lys Val Ile Glu Glu Asn Lys Ile Arg Arg Asp Ile Lys Pro Asp
```

645 650 655

Ser Leu Cys Leu Pro Arg Gln Arg Pro Pro Met Glu Asp Asn Thr Asp
660 665 670

Ile Arg Asp Phe Ile His Gln Arg Leu Gln Glu Asn Asp Val Asp Pro
675 680 685

Thr Ala Pro Pro Tyr Asp Ser Leu Ala Thr Tyr Ala Tyr Glu Gly Ser
690 695 700

Gly Ser Val Ala Glu Ser Leu Ser Ser Ile Asp Ser Leu Thr Thr Glu
705 710 715 720

Ala Asp Gln Asp Tyr Asp Tyr Leu Thr Asp Trp Gly Pro Arg Phe Lys
725 730 735

Val Leu Ala Asp Met Phe Gly Glu Glu Glu Ser Tyr Asn Pro Asp Lys
740 745 750

Val Thr

<210> 10314
<211> 794
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2066; "

<220>
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<223> /note="Gene Symbol: CDH12; "

<220>
<221> source
<223> /note="Gene Name: cadherin 12, type 2 (N-cadherin 2); "

<220>
<221> source
<223> /note="Uniprot ID: P55289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480493"

<400> 10314

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Met Leu Thr Arg Asn Cys Leu Ser Leu Leu Leu Trp Val Leu Phe Asp
1               5                  10                  15

Gly Gly Leu Leu Thr Pro Leu Gln Pro Gln Pro Gln Gln Thr Leu Ala
            20                  25                  30

Thr Glu Pro Arg Glu Asn Val Ile His Leu Pro Gly Gln Arg Ser His
        35                  40                  45

Phe Gln Arg Val Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu
    50                  55                  60

Glu Glu Tyr Val Gly Ser Glu Pro Gln Tyr Val Gly Lys Leu His Ser
65                  70                  75                  80

Asp Leu Asp Lys Gly Glu Gly Thr Val Lys Tyr Thr Leu Ser Gly Asp
                85                  90                  95

Gly Ala Gly Thr Val Phe Thr Ile Asp Glu Thr Thr Gly Asp Ile His
            100                 105                 110

Ala Ile Arg Ser Leu Asp Arg Glu Glu Lys Pro Phe Tyr Thr Leu Arg
        115                 120                 125

Ala Gln Ala Val Asp Ile Glu Thr Arg Lys Pro Leu Glu Pro Glu Ser
    130                 135                 140

Glu Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Glu Pro Lys Phe
145                 150                 155                 160

Leu Asp Gly Pro Tyr Val Ala Thr Val Pro Glu Met Ser Pro Val Gly
                165                 170                 175

Ala Tyr Val Leu Gln Val Lys Ala Thr Asp Ala Asp Asp Pro Thr Tyr
            180                 185                 190

Gly Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr
        195                 200                 205

Phe Ser Ile Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu Pro Asn
    210                 215                 220

Met Asp Arg Glu Val Lys Glu Gln Tyr Gln Val Leu Ile Gln Ala Lys
```

225 230 235 240

Asp Met Gly Gly Gln Leu Gly Gly Leu Ala Gly Thr Thr Ile Val Asn
245 250 255

Ile Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Lys Ser
260 265 270

Ile Phe His Leu Lys Val Pro Glu Ser Ser Pro Ile Gly Ser Ala Ile
275 280 285

Gly Arg Ile Arg Ala Val Asp Pro Asp Phe Gly Gln Asn Ala Glu Ile
290 295 300

Glu Tyr Asn Ile Val Pro Gly Asp Gly Gly Asn Leu Phe Asp Ile Val
305 310 315 320

Thr Asp Glu Asp Thr Gln Glu Gly Val Ile Lys Leu Lys Lys Pro Leu
325 330 335

Asp Phe Glu Thr Lys Lys Ala Tyr Thr Phe Lys Val Glu Ala Ser Asn
340 345 350

Leu His Leu Asp His Arg Phe His Ser Ala Gly Pro Phe Lys Asp Thr
355 360 365

Ala Thr Val Lys Ile Ser Val Leu Asp Val Asp Glu Pro Pro Val Phe
370 375 380

Ser Lys Pro Leu Tyr Thr Met Glu Val Tyr Glu Asp Thr Pro Val Gly
385 390 395 400

Thr Ile Ile Gly Ala Val Thr Ala Gln Asp Leu Asp Val Gly Ser Ser
405 410 415

Ala Val Arg Tyr Phe Ile Asp Trp Lys Ser Asp Gly Asp Ser Tyr Phe
420 425 430

Thr Ile Asp Gly Asn Glu Gly Thr Ile Ala Thr Asn Glu Leu Leu Asp
435 440 445

Arg Glu Ser Thr Ala Gln Tyr Asn Phe Ser Ile Ile Ala Ser Lys Val
450 455 460

```
Ser Asn Pro Leu Leu Thr Ser Lys Val Asn Ile Leu Ile Asn Val Leu
465                 470                 475                 480

Asp Val Asn Glu Phe Pro Pro Glu Ile Ser Val Pro Tyr Glu Thr Ala
                485                 490                 495

Val Cys Glu Asn Ala Lys Pro Gly Gln Ile Ile Gln Ile Val Ser Ala
            500                 505                 510

Ala Asp Arg Asp Leu Ser Pro Ala Gly Gln Gln Phe Ser Phe Arg Leu
        515                 520                 525

Ser Pro Glu Ala Ala Ile Lys Pro Asn Phe Thr Val Arg Asp Phe Arg
    530                 535                 540

Asn Asn Thr Ala Gly Ile Glu Thr Arg Arg Asn Gly Tyr Ser Arg Arg
545                 550                 555                 560

Gln Gln Glu Leu Tyr Phe Leu Pro Val Val Ile Glu Asp Ser Ser Tyr
                565                 570                 575

Pro Val Gln Ser Ser Thr Asn Thr Met Thr Ile Arg Val Cys Arg Cys
            580                 585                 590

Asp Ser Asp Gly Thr Ile Leu Ser Cys Asn Val Glu Ala Ile Phe Leu
        595                 600                 605

Pro Val Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Leu Cys Ile
    610                 615                 620

Val Ile Leu Leu Ala Ile Val Val Leu Tyr Val Ala Leu Arg Arg Gln
625                 630                 635                 640

Lys Lys Lys Asp Thr Leu Met Thr Ser Lys Glu Asp Ile Arg Asp Asn
                645                 650                 655

Val Ile His Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Gln Ala
            660                 665                 670

Phe Asp Ile Gly Ala Leu Arg Asn Pro Lys Val Ile Glu Glu Asn Lys
        675                 680                 685
```

```
Ile Arg Arg Asp Ile Lys Pro Asp Ser Leu Cys Leu Pro Arg Gln Arg
    690                 695                 700

Pro Pro Met Glu Asp Asn Thr Asp Ile Arg Asp Phe Ile His Gln Arg
705                 710                 715                 720

Leu Gln Glu Asn Asp Val Asp Pro Thr Ala Pro Pro Tyr Asp Ser Leu
                725                 730                 735

Ala Thr Tyr Ala Tyr Glu Gly Ser Gly Ser Val Ala Glu Ser Leu Ser
            740                 745                 750

Ser Ile Asp Ser Leu Thr Thr Glu Ala Asp Gln Asp Tyr Asp Tyr Leu
        755                 760                 765

Thr Asp Trp Gly Pro Arg Phe Lys Val Leu Ala Asp Met Phe Gly Glu
    770                 775                 780

Glu Glu Ser Tyr Asn Pro Asp Lys Val Thr
785                 790


<210> 10315
<211> 760
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="Uniprot ID:  P55290; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000268613"

<400> 10315
Met Lys Thr Pro Pro Gly Ala Ser Ser Arg Thr Lys Cys Ser Arg Glu
1               5                   10                  15
```

```
Leu Arg Ser Phe Cys Ala Phe Ser Cys Pro Arg Ala Lys Gln Pro Thr
            20                  25                  30

Cys Thr Ala Trp Phe Pro Gln Gln Glu His Pro Ser Glu Asn Gly Pro
        35                  40                  45

Gln Met Pro Gly Arg Asp Pro Pro Ala Ala Ser Thr Met Gln Val Leu
    50                  55                  60

Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln Gln
65                  70                  75                  80

Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln Ser
                85                  90                  95

Ile Leu Asn Leu Thr Phe Ser Asp Cys Lys Gly Asn Asp Lys Leu Arg
            100                 105                 110

Tyr Glu Val Ser Ser Pro Tyr Phe Lys Val Asn Ser Asp Gly Gly Leu
        115                 120                 125

Val Ala Leu Arg Asn Ile Thr Ala Val Gly Lys Thr Leu Phe Val His
    130                 135                 140

Ala Arg Thr Pro His Ala Glu Asp Met Ala Glu Leu Val Ile Val Gly
145                 150                 155                 160

Gly Lys Asp Ile Gln Gly Ser Leu Gln Asp Ile Phe Lys Phe Ala Arg
                165                 170                 175

Thr Ser Pro Val Pro Arg Gln Lys Arg Ser Ile Val Val Ser Pro Ile
            180                 185                 190

Leu Ile Pro Glu Asn Gln Arg Gln Pro Phe Pro Arg Asp Val Gly Lys
        195                 200                 205

Val Val Asp Ser Asp Arg Pro Glu Arg Ser Lys Phe Arg Leu Thr Gly
    210                 215                 220

Lys Gly Val Asp Gln Glu Pro Lys Gly Ile Phe Arg Ile Asn Glu Asn
225                 230                 235                 240
```

```
Thr Gly Ser Val Ser Val Thr Arg Thr Leu Asp Arg Glu Val Ile Ala
                245                 250                 255

Val Tyr Gln Leu Phe Val Glu Thr Thr Asp Val Asn Gly Lys Thr Leu
            260                 265                 270

Glu Gly Pro Val Pro Leu Glu Val Ile Val Ile Asp Gln Asn Asp Asn
        275                 280                 285

Arg Pro Ile Phe Arg Glu Gly Pro Tyr Ile Gly His Val Met Glu Gly
    290                 295                 300

Ser Pro Thr Gly Thr Thr Val Met Arg Met Thr Ala Phe Asp Ala Asp
305                 310                 315                 320

Asp Pro Ala Thr Asp Asn Ala Leu Leu Arg Tyr Asn Ile Arg Gln Gln
                325                 330                 335

Thr Pro Asp Lys Pro Ser Pro Asn Met Phe Tyr Ile Asp Pro Glu Lys
            340                 345                 350

Gly Asp Ile Val Thr Val Val Ser Pro Ala Leu Leu Asp Arg Glu Thr
        355                 360                 365

Leu Glu Asn Pro Lys Tyr Glu Leu Ile Ile Glu Ala Gln Asp Met Ala
    370                 375                 380

Gly Leu Asp Val Gly Leu Thr Gly Thr Ala Thr Ala Thr Ile Met Ile
385                 390                 395                 400

Asp Asp Lys Asn Asp His Ser Pro Lys Phe Thr Lys Lys Glu Phe Gln
                405                 410                 415

Ala Thr Val Glu Glu Gly Ala Val Gly Val Ile Val Asn Leu Thr Val
            420                 425                 430

Glu Asp Lys Asp Asp Pro Thr Thr Gly Ala Trp Arg Ala Ala Tyr Thr
        435                 440                 445

Ile Ile Asn Gly Asn Pro Gly Gln Ser Phe Glu Ile His Thr Asn Pro
    450                 455                 460
```

```
Gln Thr Asn Glu Gly Met Leu Ser Val Val Lys Pro Leu Asp Tyr Glu
465                 470                 475                 480

Ile Ser Ala Phe His Thr Leu Leu Ile Lys Val Glu Asn Glu Asp Pro
                485                 490                 495

Leu Val Pro Asp Val Ser Tyr Gly Pro Ser Ser Thr Ala Thr Val His
            500                 505                 510

Ile Thr Val Leu Asp Val Asn Glu Gly Pro Val Phe Tyr Pro Asp Pro
        515                 520                 525

Met Met Val Thr Arg Gln Glu Asp Leu Ser Val Gly Ser Val Leu Leu
    530                 535                 540

Thr Val Asn Ala Thr Asp Pro Asp Ser Leu Gln His Gln Thr Ile Arg
545                 550                 555                 560

Tyr Ser Val Tyr Lys Asp Pro Ala Gly Trp Leu Asn Ile Asn Pro Ile
                565                 570                 575

Asn Gly Thr Val Asp Thr Thr Ala Val Leu Asp Arg Glu Ser Pro Phe
            580                 585                 590

Val Asp Asn Ser Val Tyr Thr Ala Leu Phe Leu Ala Ile Asp Ser Gly
        595                 600                 605

Asn Pro Pro Ala Thr Gly Thr Gly Thr Leu Leu Ile Thr Leu Glu Asp
    610                 615                 620

Val Asn Asp Asn Ala Pro Phe Ile Tyr Pro Thr Val Ala Glu Val Cys
625                 630                 635                 640

Asp Asp Ala Lys Asn Leu Ser Val Val Ile Leu Gly Ala Ser Asp Lys
                645                 650                 655

Asp Leu His Pro Asn Thr Asp Pro Phe Lys Phe Glu Ile His Lys Gln
            660                 665                 670

Ala Val Pro Asp Lys Val Trp Lys Ile Ser Lys Ile Asn Asn Thr His
        675                 680                 685

Ala Leu Val Ser Leu Leu Gln Asn Leu Asn Lys Ala Asn Tyr Asn Leu
```

690 695 700

Pro Ile Met Val Thr Asp Ser Gly Lys Pro Pro Met Thr Asn Ile Thr
705 710 715 720

Asp Leu Arg Val Gln Val Cys Ser Cys Arg Asn Ser Lys Val Asp Cys
725 730 735

Asn Ala Ala Gly Ala Leu Arg Phe Ser Leu Pro Ser Val Leu Leu Leu
740 745 750

Ser Leu Phe Ser Leu Ala Cys Leu
755 760

<210> 10316
<211> 674
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2067; "

<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="Uniprot ID: P55290; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394557"

<400> 10316
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Val
1 5 10 15

Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln
20 25 30

Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln
35 40 45

```
Ser Ile Leu Asn Leu Thr Phe Ser Asp Cys Lys Gly Asn Asp Lys Leu
    50                  55                  60

Arg Tyr Glu Val Ser Ser Pro Tyr Phe Lys Val Asn Ser Asp Gly Gly
65                  70                  75                  80

Leu Val Ala Leu Arg Asn Ile Thr Ala Val Gly Lys Thr Leu Phe Val
                85                  90                  95

His Ala Arg Thr Pro His Ala Glu Asp Met Ala Glu Leu Val Ile Val
            100                 105                 110

Gly Gly Lys Asp Ile Gln Gly Ser Leu Gln Val Val Asp Ser Asp Arg
        115                 120                 125

Pro Glu Arg Ser Lys Phe Arg Leu Thr Gly Lys Gly Val Asp Gln Glu
    130                 135                 140

Pro Lys Gly Ile Phe Arg Ile Asn Glu Asn Thr Gly Ser Val Ser Val
145                 150                 155                 160

Thr Arg Thr Leu Asp Arg Glu Val Ile Ala Val Tyr Gln Leu Phe Val
                165                 170                 175

Glu Thr Thr Asp Val Asn Gly Lys Thr Leu Glu Gly Pro Val Pro Leu
            180                 185                 190

Glu Val Ile Val Ile Asp Gln Asn Asp Asn Arg Pro Ile Phe Arg Glu
        195                 200                 205

Gly Pro Tyr Ile Gly His Val Met Glu Gly Ser Pro Thr Gly Thr Thr
    210                 215                 220

Val Met Arg Met Thr Ala Phe Asp Ala Asp Asp Pro Ala Thr Asp Asn
225                 230                 235                 240

Ala Leu Leu Arg Tyr Asn Ile Arg Gln Gln Thr Pro Asp Lys Pro Ser
                245                 250                 255

Pro Asn Met Phe Tyr Ile Asp Pro Glu Lys Gly Asp Ile Val Thr Val
            260                 265                 270

Val Ser Pro Ala Leu Leu Asp Arg Glu Thr Leu Glu Asn Pro Lys Tyr
```

```
        275                 280                 285

Glu Leu Ile Ile Glu Ala Gln Asp Met Ala Gly Leu Asp Val Gly Leu
    290                 295                 300

Thr Gly Thr Ala Thr Ala Thr Ile Met Ile Asp Asp Lys Asn Asp His
305                 310                 315                 320

Ser Pro Lys Phe Thr Lys Lys Glu Phe Gln Ala Thr Val Glu Glu Gly
                325                 330                 335

Ala Val Gly Val Ile Val Asn Leu Thr Val Glu Asp Lys Asp Asp Pro
            340                 345                 350

Thr Thr Gly Ala Trp Arg Ala Ala Tyr Thr Ile Ile Asn Gly Asn Pro
        355                 360                 365

Gly Gln Ser Phe Glu Ile His Thr Asn Pro Gln Thr Asn Glu Gly Met
    370                 375                 380

Leu Ser Val Val Lys Pro Leu Asp Tyr Glu Ile Ser Ala Phe His Thr
385                 390                 395                 400

Leu Leu Ile Lys Val Glu Asn Glu Asp Pro Leu Val Pro Asp Val Ser
                405                 410                 415

Tyr Gly Pro Ser Ser Thr Ala Thr Val His Ile Thr Val Leu Asp Val
            420                 425                 430

Asn Glu Gly Pro Val Phe Tyr Pro Asp Pro Met Met Val Thr Arg Gln
        435                 440                 445

Glu Asp Leu Ser Val Gly Ser Val Leu Leu Thr Val Asn Ala Thr Asp
    450                 455                 460

Pro Asp Ser Leu Gln His Gln Thr Ile Arg Tyr Ser Val Tyr Lys Asp
465                 470                 475                 480

Pro Ala Gly Trp Leu Asn Ile Asn Pro Ile Asn Gly Thr Val Asp Thr
                485                 490                 495

Thr Ala Val Leu Asp Arg Glu Ser Pro Phe Val Asp Asn Ser Val Tyr
            500                 505                 510
```

```
Thr Ala Leu Phe Leu Ala Ile Asp Ser Gly Asn Pro Pro Ala Thr Gly
        515                 520                 525

Thr Gly Thr Leu Leu Ile Thr Leu Glu Asp Val Asn Asp Asn Ala Pro
    530                 535                 540

Phe Ile Tyr Pro Thr Val Ala Glu Val Cys Asp Asp Ala Lys Asn Leu
545                 550                 555                 560

Ser Val Val Ile Leu Gly Ala Ser Asp Lys Asp Leu His Pro Asn Thr
                565                 570                 575

Asp Pro Phe Lys Phe Glu Ile His Lys Gln Ala Val Pro Asp Lys Val
            580                 585                 590

Trp Lys Ile Ser Lys Ile Asn Asn Thr His Ala Leu Val Ser Leu Leu
        595                 600                 605

Gln Asn Leu Asn Lys Ala Asn Tyr Asn Leu Pro Ile Met Val Thr Asp
    610                 615                 620

Ser Gly Lys Pro Pro Met Thr Asn Ile Thr Asp Leu Arg Val Gln Val
625                 630                 635                 640

Cys Ser Cys Arg Asn Ser Lys Val Asp Cys Asn Ala Ala Gly Ala Leu
                645                 650                 655

Arg Phe Ser Leu Pro Ser Val Leu Leu Leu Ser Leu Phe Ser Leu Ala
            660                 665                 670

Cys Leu
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<210> 10317
<211> 190
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>
<221> source

<223> /note="Gene Symbol: CDH13; "

<220>
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<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="Uniprot ID: P55290; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000408632"

<400> 10317

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Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Val
1               5                  10                  15

Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln
            20                  25                  30

Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln
        35                  40                  45

Ser Ile Leu Asn Leu Thr Phe Ser Asp Cys Lys Gly Asn Asp Lys Leu
    50                  55                  60

Arg Tyr Glu Val Ser Ser Pro Tyr Phe Lys Val Asn Ser Asp Gly Gly
65                  70                  75                  80

Leu Val Ala Leu Arg Asn Ile Thr Ala Val Gly Lys Thr Leu Phe Val
                85                  90                  95

His Ala Arg Thr Pro His Ala Glu Asp Met Ala Glu Leu Val Ile Val
            100                 105                 110

Gly Gly Lys Asp Ile Gln Gly Ser Leu Gln Asp Ile Phe Lys Phe Ala
        115                 120                 125

Arg Thr Ser Pro Val Pro Arg Gln Lys Arg Ser Ile Val Val Ser Pro
    130                 135                 140

Ile Leu Ile Pro Glu Asn Gln Arg Gln Pro Phe Pro Arg Asp Val Gly
145                 150                 155                 160

Lys Arg Thr His Asn Pro Ile Asn Ser Glu Leu Leu Leu Asn Glu Gly
                165                 170                 175
```

Ile Thr Ala Asp Leu Asn Pro Cys Ile Thr Ile Leu Ala Ile
180 185 190

<210> 10318
<211> 52
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442225"

<400> 10318
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Val
1 5 10 15

Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln
20 25 30

Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln
35 40 45

Ser Ile Leu Asn
50

<210> 10319
<211> 701
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454435"

<400> 10319
Phe Ser Gln Val Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr
1   5   10   15

Pro Gly Phe Gln Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe
            20   25   30

Ile Glu Asp Gln Ser Ile Leu Asn Leu Thr Phe Ser Asp Cys Lys Gly
        35   40   45

Asn Asp Lys Leu Arg Tyr Glu Val Ser Ser Pro Tyr Phe Lys Val Asn
    50   55   60

Ser Asp Gly Gly Leu Val Ala Leu Arg Asn Ile Thr Ala Val Gly Lys
65   70   75   80

Thr Leu Phe Val His Ala Arg Thr Pro His Ala Glu Asp Met Ala Glu
                85   90   95

Leu Val Ile Val Gly Gly Lys Asp Ile Gln Gly Ser Leu Gln Asp Ile
            100   105   110

Phe Lys Phe Ala Arg Thr Ser Pro Val Pro Arg Gln Lys Arg Ser Ile
        115   120   125

Val Val Ser Pro Ile Leu Ile Pro Glu Asn Gln Arg Gln Pro Phe Pro
    130   135   140

Arg Asp Val Gly Lys Val Val Asp Ser Asp Arg Pro Glu Arg Ser Lys
145   150   155   160

Phe Arg Leu Thr Gly Lys Gly Val Asp Gln Glu Pro Lys Gly Ile Phe
                165   170   175

Arg Ile Asn Glu Asn Thr Gly Ser Val Ser Val Thr Arg Thr Leu Asp
            180   185   190

```
Arg Glu Val Ile Ala Val Tyr Gln Leu Phe Val Glu Thr Thr Asp Val
        195                 200                 205

Asn Gly Lys Thr Leu Glu Gly Pro Val Pro Leu Glu Val Ile Val Ile
    210                 215                 220

Asp Gln Asn Asp Asn Arg Pro Ile Phe Arg Glu Gly Pro Tyr Ile Gly
225                 230                 235                 240

His Val Met Glu Gly Ser Pro Thr Gly Thr Thr Val Met Arg Met Thr
                245                 250                 255

Ala Phe Asp Ala Asp Asp Pro Ala Thr Asp Asn Ala Leu Leu Arg Tyr
            260                 265                 270

Asn Ile Arg Gln Gln Thr Pro Asp Lys Pro Ser Pro Asn Met Phe Tyr
        275                 280                 285

Ile Asp Pro Glu Lys Gly Asp Ile Val Thr Val Val Ser Pro Ala Leu
    290                 295                 300

Leu Asp Arg Glu Thr Leu Glu Asn Pro Lys Tyr Glu Leu Ile Ile Glu
305                 310                 315                 320

Ala Gln Asp Met Ala Gly Leu Asp Val Gly Leu Thr Gly Thr Ala Thr
                325                 330                 335

Ala Thr Ile Met Ile Asp Asp Lys Asn Asp His Ser Pro Lys Phe Thr
            340                 345                 350

Lys Lys Glu Phe Gln Ala Thr Val Glu Glu Gly Ala Val Gly Val Ile
        355                 360                 365

Val Asn Leu Thr Val Glu Asp Lys Asp Asp Pro Thr Thr Gly Ala Trp
    370                 375                 380

Arg Ala Ala Tyr Thr Ile Ile Asn Gly Asn Pro Gly Gln Ser Phe Glu
385                 390                 395                 400

Ile His Thr Asn Pro Gln Thr Asn Glu Gly Met Leu Ser Val Val Lys
                405                 410                 415

Pro Leu Asp Tyr Glu Ile Ser Ala Phe His Thr Leu Leu Ile Lys Val
```

```
            420                 425                 430

Glu Asn Glu Asp Pro Leu Val Pro Asp Val Ser Tyr Gly Pro Ser Ser
        435                 440                 445

Thr Ala Thr Val His Ile Thr Val Leu Asp Val Asn Glu Gly Pro Val
    450                 455                 460

Phe Tyr Pro Asp Pro Met Met Val Thr Arg Gln Glu Asp Leu Ser Val
465                 470                 475                 480

Gly Ser Val Leu Leu Thr Val Asn Ala Thr Asp Pro Asp Ser Leu Gln
                485                 490                 495

His Gln Thr Ile Arg Tyr Ser Val Tyr Lys Asp Pro Ala Gly Trp Leu
            500                 505                 510

Asn Ile Asn Pro Ile Asn Gly Thr Val Asp Thr Thr Ala Val Leu Asp
        515                 520                 525

Arg Glu Ser Pro Phe Val Asp Asn Ser Val Tyr Thr Ala Leu Phe Leu
    530                 535                 540

Ala Ile Asp Ser Gly Asn Pro Pro Ala Thr Gly Thr Gly Thr Leu Leu
545                 550                 555                 560

Ile Thr Leu Glu Asp Val Asn Asp Asn Ala Pro Phe Ile Tyr Pro Thr
                565                 570                 575

Val Ala Glu Val Cys Asp Asp Ala Lys Asn Leu Ser Val Val Ile Leu
            580                 585                 590

Gly Ala Ser Asp Lys Asp Leu His Pro Asn Thr Asp Pro Phe Lys Phe
        595                 600                 605

Glu Ile His Lys Gln Ala Val Pro Asp Lys Val Trp Lys Ile Ser Lys
    610                 615                 620

Ile Asn Asn Thr His Ala Leu Val Ser Leu Leu Gln Asn Leu Asn Lys
625                 630                 635                 640

Ala Asn Tyr Asn Leu Pro Ile Met Val Thr Asp Ser Gly Lys Pro Pro
                645                 650                 655
```

Met Thr Asn Ile Thr Asp Leu Arg Val Gln Val Cys Ser Cys Arg Asn
660 665 670

Ser Lys Val Asp Cys Asn Ala Ala Gly Ala Leu Arg Phe Ser Leu Pro
675 680 685

Ser Val Leu Leu Leu Ser Leu Phe Ser Leu Ala Cys Leu
690 695 700

<210> 10320
<211> 67
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455781"

<400> 10320
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Thr
1 5 10 15

Pro Val Arg Pro Thr Ile Tyr Leu Cys Gln Asn Leu Gln Phe Ile Lys
20 25 30

Asn Lys Ala Arg Asp Ser Asn Ser Leu Ala Asp His Lys Gly Lys Arg
35 40 45

Ile Gln Val Asn Arg Leu Leu Pro Gly Leu Leu Phe His Asp Glu Leu
50 55 60

Ser Gly Ile
65

<210> 10321

<211> 67
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2067; "

<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456297"

<400> 10321
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Val
1 5 10 15

Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln
20 25 30

Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln
35 40 45

Ser Ile Leu Asn Cys Lys Gln Cys His Ser Lys Met Leu Leu Asp Ser
50 55 60

Ser His Ile
65

<210> 10322
<211> 175
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="Uniprot ID: P55290; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456491"

<400> 10322
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Val
1   5   10   15

Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln
            20   25   30

Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln
        35   40   45

Ser Ile Leu Asn Leu Thr Phe Ser Asp Cys Lys Gly Asn Asp Lys Leu
    50   55   60

Arg Tyr Glu Val Ser Ser Pro Tyr Phe Lys Val Asn Ser Asp Gly Gly
65   70   75   80

Leu Val Ala Leu Arg Asn Ile Thr Ala Val Gly Lys Thr Leu Phe Val
                85   90   95

His Ala Arg Thr Pro His Ala Glu Asp Met Ala Glu Leu Val Ile Val
            100   105   110

Gly Gly Lys Asp Ile Gln Gly Ser Leu Gln Asp Ile Phe Lys Phe Ala
        115   120   125

Arg Thr Ser Pro Val Pro Arg Gln Lys Arg Ser Ile Val Val Ser Pro
    130   135   140

Ile Leu Ile Pro Glu Asn Gln Arg Gln Pro Phe Pro Arg Asp Val Gly
145   150   155   160

Lys Met Lys Ile Trp Gln Val Leu Cys Leu Ala Arg Trp Leu Thr
                165   170   175

<210> 10323
<211> 37
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457149"

<400> 10323
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Ser
1   5   10   15

Gly Gly Pro Val Cys Lys Ser Gln Phe Gln Ala Leu Pro Leu Ala Val
            20   25   30

Gln Trp Leu Gly Val
        35

<210> 10324
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457914"

<400> 10324
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Val
1   5   10   15

```
Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln
            20                  25                  30

Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln
        35                  40                  45

Ser Ile Leu Asn Tyr Val Phe Tyr
    50                  55


<210> 10325
<211> 713
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>
<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="Uniprot ID:  P55290; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479395"

<400> 10325
Met Gln Pro Arg Thr Pro Leu Val Leu Cys Val Leu Leu Ser Gln Val
1               5                   10                  15

Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro Gly Phe Gln
            20                  25                  30

Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile Glu Asp Gln
        35                  40                  45

Ser Ile Leu Asn Leu Thr Phe Ser Asp Cys Lys Gly Asn Asp Lys Leu
    50                  55                  60

Arg Tyr Glu Val Ser Ser Pro Tyr Phe Lys Val Asn Ser Asp Gly Gly
65                  70                  75                  80
```

```
Leu Val Ala Leu Arg Asn Ile Thr Ala Val Gly Lys Thr Leu Phe Val
                85                  90                  95

His Ala Arg Thr Pro His Ala Glu Asp Met Ala Glu Leu Val Ile Val
            100                 105                 110

Gly Gly Lys Asp Ile Gln Gly Ser Leu Gln Asp Ile Phe Lys Phe Ala
        115                 120                 125

Arg Thr Ser Pro Val Pro Arg Gln Lys Arg Ser Ile Val Val Ser Pro
    130                 135                 140

Ile Leu Ile Pro Glu Asn Gln Arg Gln Pro Phe Pro Arg Asp Val Gly
145                 150                 155                 160

Lys Val Val Asp Ser Asp Arg Pro Glu Arg Ser Lys Phe Arg Leu Thr
                165                 170                 175

Gly Lys Gly Val Asp Gln Glu Pro Lys Gly Ile Phe Arg Ile Asn Glu
            180                 185                 190

Asn Thr Gly Ser Val Ser Val Thr Arg Thr Leu Asp Arg Glu Val Ile
        195                 200                 205

Ala Val Tyr Gln Leu Phe Val Glu Thr Thr Asp Val Asn Gly Lys Thr
    210                 215                 220

Leu Glu Gly Pro Val Pro Leu Glu Val Ile Val Ile Asp Gln Asn Asp
225                 230                 235                 240

Asn Arg Pro Ile Phe Arg Glu Gly Pro Tyr Ile Gly His Val Met Glu
                245                 250                 255

Gly Ser Pro Thr Gly Thr Thr Val Met Arg Met Thr Ala Phe Asp Ala
            260                 265                 270

Asp Asp Pro Ala Thr Asp Asn Ala Leu Leu Arg Tyr Asn Ile Arg Gln
        275                 280                 285

Gln Thr Pro Asp Lys Pro Ser Pro Asn Met Phe Tyr Ile Asp Pro Glu
    290                 295                 300
```

```
Lys Gly Asp Ile Val Thr Val Val Ser Pro Ala Leu Leu Asp Arg Glu
305                 310                 315                 320

Thr Leu Glu Asn Pro Lys Tyr Glu Leu Ile Ile Glu Ala Gln Asp Met
                325                 330                 335

Ala Gly Leu Asp Val Gly Leu Thr Gly Thr Ala Thr Ala Thr Ile Met
            340                 345                 350

Ile Asp Asp Lys Asn Asp His Ser Pro Lys Phe Thr Lys Lys Glu Phe
        355                 360                 365

Gln Ala Thr Val Glu Glu Gly Ala Val Gly Val Ile Val Asn Leu Thr
    370                 375                 380

Val Glu Asp Lys Asp Asp Pro Thr Thr Gly Ala Trp Arg Ala Ala Tyr
385                 390                 395                 400

Thr Ile Ile Asn Gly Asn Pro Gly Gln Ser Phe Glu Ile His Thr Asn
                405                 410                 415

Pro Gln Thr Asn Glu Gly Met Leu Ser Val Val Lys Pro Leu Asp Tyr
            420                 425                 430

Glu Ile Ser Ala Phe His Thr Leu Leu Ile Lys Val Glu Asn Glu Asp
        435                 440                 445

Pro Leu Val Pro Asp Val Ser Tyr Gly Pro Ser Ser Thr Ala Thr Val
    450                 455                 460

His Ile Thr Val Leu Asp Val Asn Glu Gly Pro Val Phe Tyr Pro Asp
465                 470                 475                 480

Pro Met Met Val Thr Arg Gln Glu Asp Leu Ser Val Gly Ser Val Leu
                485                 490                 495

Leu Thr Val Asn Ala Thr Asp Pro Asp Ser Leu Gln His Gln Thr Ile
            500                 505                 510

Arg Tyr Ser Val Tyr Lys Asp Pro Ala Gly Trp Leu Asn Ile Asn Pro
        515                 520                 525

Ile Asn Gly Thr Val Asp Thr Thr Ala Val Leu Asp Arg Glu Ser Pro
```

```
    530                 535                 540

Phe Val Asp Asn Ser Val Tyr Thr Ala Leu Phe Leu Ala Ile Asp Ser
545                 550                 555                 560

Gly Asn Pro Pro Ala Thr Gly Thr Gly Thr Leu Leu Ile Thr Leu Glu
                565                 570                 575

Asp Val Asn Asp Asn Ala Pro Phe Ile Tyr Pro Thr Val Ala Glu Val
            580                 585                 590

Cys Asp Asp Ala Lys Asn Leu Ser Val Val Ile Leu Gly Ala Ser Asp
        595                 600                 605

Lys Asp Leu His Pro Asn Thr Asp Pro Phe Lys Phe Glu Ile His Lys
    610                 615                 620

Gln Ala Val Pro Asp Lys Val Trp Lys Ile Ser Lys Ile Asn Asn Thr
625                 630                 635                 640

His Ala Leu Val Ser Leu Leu Gln Asn Leu Asn Lys Ala Asn Tyr Asn
                645                 650                 655

Leu Pro Ile Met Val Thr Asp Ser Gly Lys Pro Pro Met Thr Asn Ile
            660                 665                 670

Thr Asp Leu Arg Val Gln Val Cys Ser Cys Arg Asn Ser Lys Val Asp
        675                 680                 685

Cys Asn Ala Ala Gly Ala Leu Arg Phe Ser Leu Pro Ser Val Leu Leu
    690                 695                 700

Leu Ser Leu Phe Ser Leu Ala Cys Leu
705                 710


<210> 10326
<211> 353
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>
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<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482651"

<400> 10326
Pro Thr Phe Cys Arg Arg Glu Phe Gln Ala Thr Val Glu Glu Gly Ala
1   5   10   15

Val Gly Val Ile Val Asn Leu Thr Val Glu Asp Lys Asp Asp Pro Thr
            20   25   30

Thr Gly Ala Trp Arg Ala Ala Tyr Thr Ile Ile Asn Gly Asn Pro Gly
        35   40   45

Gln Ser Phe Glu Ile His Thr Asn Pro Gln Thr Asn Glu Gly Met Leu
    50   55   60

Ser Val Val Lys Pro Leu Asp Tyr Glu Ile Ser Ala Phe His Thr Leu
65   70   75   80

Leu Ile Lys Val Glu Asn Glu Asp Pro Leu Val Pro Asp Val Ser Tyr
                85   90   95

Gly Pro Ser Ser Thr Ala Thr Val His Ile Thr Val Leu Asp Val Asn
            100   105   110

Glu Gly Pro Val Phe Tyr Pro Asp Pro Met Met Val Thr Arg Gln Glu
        115   120   125

Asp Leu Ser Val Gly Ser Val Leu Leu Thr Val Asn Ala Thr Asp Pro
    130   135   140

Asp Ser Leu Gln His Gln Thr Ile Arg Tyr Ser Val Tyr Lys Asp Pro
145   150   155   160

Ala Gly Trp Leu Asn Ile Asn Pro Ile Asn Gly Thr Val Asp Thr Thr
                165   170   175

Ala Val Leu Asp Arg Glu Ser Pro Phe Val Asp Asn Ser Val Tyr Thr

```
            180                 185                 190

Ala Leu Phe Leu Ala Ile Asp Ser Gly Asn Pro Pro Ala Thr Gly Thr
        195                 200                 205

Gly Thr Leu Leu Ile Thr Leu Glu Asp Val Asn Asp Asn Ala Pro Phe
    210                 215                 220

Ile Tyr Pro Thr Val Ala Glu Val Cys Asp Asp Ala Lys Asn Leu Ser
225                 230                 235                 240

Val Val Ile Leu Gly Ala Ser Asp Lys Asp Leu His Pro Asn Thr Asp
                245                 250                 255

Pro Phe Lys Phe Glu Ile His Lys Gln Ala Val Pro Asp Lys Val Trp
            260                 265                 270

Lys Ile Ser Lys Ile Asn Asn Thr His Ala Leu Val Ser Leu Leu Gln
        275                 280                 285

Asn Leu Asn Lys Ala Asn Tyr Asn Leu Pro Ile Met Val Thr Asp Ser
    290                 295                 300

Gly Lys Pro Pro Met Thr Asn Ile Thr Asp Leu Arg Val Gln Val Cys
305                 310                 315                 320

Ser Cys Arg Asn Ser Lys Val Asp Cys Asn Ala Ala Gly Ala Leu Arg
                325                 330                 335

Phe Ser Leu Pro Ser Val Leu Leu Leu Ser Leu Phe Ser Leu Ala Cys
            340                 345                 350

Leu
```

<210> 10327
<211> 661
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2067; "

<220>

<221> source
<223> /note="Gene Symbol: CDH13; "

<220>
<221> source
<223> /note="Gene Name: cadherin 13; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483719"

<400> 10327
Ser Gln Val Leu Leu Leu Thr Ser Ala Glu Asp Leu Asp Cys Thr Pro
1   5   10   15

Gly Phe Gln Gln Lys Val Phe His Ile Asn Gln Pro Ala Glu Phe Ile
            20   25   30

Glu Asp Gln Ser Ile Leu Asn Leu Thr Phe Ser Asp Cys Lys Gly Asn
        35   40   45

Asp Lys Leu Arg Tyr Glu Val Ser Ser Pro Tyr Phe Lys Val Asn Ser
    50   55   60

Asp Gly Gly Leu Val Ala Leu Arg Asn Ile Thr Ala Val Gly Lys Thr
65   70   75   80

Leu Phe Val His Ala Arg Thr Pro His Ala Glu Asp Met Ala Glu Leu
                85   90   95

Val Ile Val Gly Gly Lys Asp Ile Gln Gly Ser Leu Gln Val Val Asp
            100   105   110

Ser Asp Arg Pro Glu Arg Ser Lys Phe Arg Leu Thr Gly Lys Gly Val
        115   120   125

Asp Gln Glu Pro Lys Gly Ile Phe Arg Ile Asn Glu Asn Thr Gly Ser
    130   135   140

Val Ser Val Thr Arg Thr Leu Asp Arg Glu Val Ile Ala Val Tyr Gln
145   150   155   160

Leu Phe Val Glu Thr Thr Asp Val Asn Gly Lys Thr Leu Glu Gly Pro
                165   170   175

Val Pro Leu Glu Val Ile Val Ile Asp Gln Asn Asp Asn Arg Pro Ile

```
            180                 185                 190

Phe Arg Glu Gly Pro Tyr Ile Gly His Val Met Glu Gly Ser Pro Thr
        195                 200                 205

Gly Thr Thr Val Met Arg Met Thr Ala Phe Asp Ala Asp Asp Pro Ala
    210                 215                 220

Thr Asp Asn Ala Leu Leu Arg Tyr Asn Ile Arg Gln Gln Thr Pro Asp
225                 230                 235                 240

Lys Pro Ser Pro Asn Met Phe Tyr Ile Asp Pro Glu Lys Gly Asp Ile
                245                 250                 255

Val Thr Val Val Ser Pro Ala Leu Leu Asp Arg Glu Thr Leu Glu Asn
            260                 265                 270

Pro Lys Tyr Glu Leu Ile Ile Glu Ala Gln Asp Met Ala Gly Leu Asp
        275                 280                 285

Val Gly Leu Thr Gly Thr Ala Thr Ala Thr Ile Met Ile Asp Asp Lys
    290                 295                 300

Asn Asp His Ser Pro Lys Phe Thr Lys Lys Glu Phe Gln Ala Thr Val
305                 310                 315                 320

Glu Glu Gly Ala Val Gly Val Ile Val Asn Leu Thr Val Glu Asp Lys
                325                 330                 335

Asp Asp Pro Thr Thr Gly Ala Trp Arg Ala Ala Tyr Thr Ile Ile Asn
            340                 345                 350

Gly Asn Pro Gly Gln Ser Phe Glu Ile His Thr Asn Pro Gln Thr Asn
        355                 360                 365

Glu Gly Met Leu Ser Val Val Lys Pro Leu Asp Tyr Glu Ile Ser Ala
    370                 375                 380

Phe His Thr Leu Leu Ile Lys Val Glu Asn Glu Asp Pro Leu Val Pro
385                 390                 395                 400

Asp Val Ser Tyr Gly Pro Ser Ser Thr Ala Thr Val His Ile Thr Val
                405                 410                 415
```

```
Leu Asp Val Asn Glu Gly Pro Val Phe Tyr Pro Asp Pro Met Met Val
            420                 425                 430

Thr Arg Gln Glu Asp Leu Ser Val Gly Ser Val Leu Leu Thr Val Asn
        435                 440                 445

Ala Thr Asp Pro Asp Ser Leu Gln His Gln Thr Ile Arg Tyr Ser Val
    450                 455                 460

Tyr Lys Asp Pro Ala Gly Trp Leu Asn Ile Asn Pro Ile Asn Gly Thr
465                 470                 475                 480

Val Asp Thr Thr Ala Val Leu Asp Arg Glu Ser Pro Phe Val Asp Asn
                485                 490                 495

Ser Val Tyr Thr Ala Leu Phe Leu Ala Ile Asp Ser Gly Asn Pro Pro
            500                 505                 510

Ala Thr Gly Thr Gly Thr Leu Leu Ile Thr Leu Glu Asp Val Asn Asp
        515                 520                 525

Asn Ala Pro Phe Ile Tyr Pro Thr Val Ala Glu Val Cys Asp Asp Ala
    530                 535                 540

Lys Asn Leu Ser Val Val Ile Leu Gly Ala Ser Asp Lys Asp Leu His
545                 550                 555                 560

Pro Asn Thr Asp Pro Phe Lys Phe Glu Ile His Lys Gln Ala Val Pro
                565                 570                 575

Asp Lys Val Trp Lys Ile Ser Lys Ile Asn Asn Thr His Ala Leu Val
            580                 585                 590

Ser Leu Leu Gln Asn Leu Asn Lys Ala Asn Tyr Asn Leu Pro Ile Met
        595                 600                 605

Val Thr Asp Ser Gly Lys Pro Pro Met Thr Asn Ile Thr Asp Leu Arg
    610                 615                 620

Val Gln Val Cys Ser Cys Arg Asn Ser Lys Val Asp Cys Asn Ala Ala
625                 630                 635                 640
```

Gly Ala Leu Arg Phe Ser Leu Pro Ser Val Leu Leu Leu Ser Leu Phe
645 650 655

Ser Leu Ala Cys Leu
660

<210> 10328
<211> 814
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2068; "

<220>
<221> source
<223> /note="Gene Symbol: CDH15; "

<220>
<221> source
<223> /note="Gene Name: cadherin 15, type 1, M-cadherin (myotubule); "

<220>
<221> source
<223> /note="Uniprot ID: P55291; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000289746"

<400> 10328
Met Asp Ala Ala Phe Leu Leu Val Leu Gly Leu Leu Ala Gln Ser Leu
1 5 10 15

Cys Leu Ser Leu Gly Val Pro Gly Trp Arg Arg Pro Thr Thr Leu Tyr
20 25 30

Pro Trp Arg Arg Ala Pro Ala Leu Ser Arg Val Arg Arg Ala Trp Val
35 40 45

Ile Pro Pro Ile Ser Val Ser Glu Asn His Lys Arg Leu Pro Tyr Pro
50 55 60

Leu Val Gln Ile Lys Ser Asp Lys Gln Gln Leu Gly Ser Val Ile Tyr
65 70 75 80

Ser Ile Gln Gly Pro Gly Val Asp Glu Glu Pro Arg Gly Val Phe Ser

```
                85                  90                  95

Ile Asp Lys Phe Thr Gly Lys Val Phe Leu Asn Ala Met Leu Asp Arg
            100                 105                 110

Glu Lys Thr Asp Arg Phe Arg Leu Arg Ala Phe Ala Leu Asp Leu Gly
        115                 120                 125

Gly Ser Thr Leu Glu Asp Pro Thr Asp Leu Glu Ile Val Val Val Asp
    130                 135                 140

Gln Asn Asp Asn Arg Pro Ala Phe Leu Gln Glu Ala Phe Thr Gly Arg
145                 150                 155                 160

Val Leu Glu Gly Ala Val Pro Gly Thr Tyr Val Thr Arg Ala Glu Ala
                165                 170                 175

Thr Asp Ala Asp Asp Pro Glu Thr Asp Asn Ala Ala Leu Arg Phe Ser
            180                 185                 190

Ile Leu Gln Gln Gly Ser Pro Glu Leu Phe Ser Ile Asp Glu Leu Thr
        195                 200                 205

Gly Glu Ile Arg Thr Val Gln Val Gly Leu Asp Arg Glu Val Val Ala
    210                 215                 220

Val Tyr Asn Leu Thr Leu Gln Val Ala Asp Met Ser Gly Asp Gly Leu
225                 230                 235                 240

Thr Ala Thr Ala Ser Ala Ile Ile Thr Leu Asp Asp Ile Asn Asp Asn
                245                 250                 255

Ala Pro Glu Phe Thr Arg Asp Glu Phe Phe Met Glu Ala Ile Glu Ala
            260                 265                 270

Val Ser Gly Val Asp Val Gly Arg Leu Glu Val Glu Asp Arg Asp Leu
        275                 280                 285

Pro Gly Ser Pro Asn Trp Val Ala Arg Phe Thr Ile Leu Glu Gly Asp
    290                 295                 300

Pro Asp Gly Gln Phe Thr Ile Arg Thr Asp Pro Lys Thr Asn Glu Gly
305                 310                 315                 320
```

```
Val Leu Ser Ile Val Lys Ala Leu Asp Tyr Glu Ser Cys Glu His Tyr
                325                 330                 335

Glu Leu Lys Val Ser Val Gln Asn Glu Ala Pro Leu Gln Ala Ala Ala
            340                 345                 350

Leu Arg Ala Glu Arg Gly Gln Ala Lys Val Arg Val His Val Gln Asp
        355                 360                 365

Thr Asn Glu Pro Pro Val Phe Gln Glu Asn Pro Leu Arg Thr Ser Leu
    370                 375                 380

Ala Glu Gly Ala Pro Pro Gly Thr Leu Val Ala Thr Phe Ser Ala Arg
385                 390                 395                 400

Asp Pro Asp Thr Glu Gln Leu Gln Arg Leu Ser Tyr Ser Lys Asp Tyr
                405                 410                 415

Asp Pro Glu Asp Trp Leu Gln Val Asp Ala Ala Thr Gly Arg Ile Gln
            420                 425                 430

Thr Gln His Val Leu Ser Pro Ala Ser Pro Phe Leu Lys Gly Gly Trp
        435                 440                 445

Tyr Arg Ala Ile Val Leu Ala Gln Asp Asp Ala Ser Gln Pro Arg Thr
    450                 455                 460

Ala Thr Gly Thr Leu Ser Ile Glu Ile Leu Glu Val Asn Asp His Ala
465                 470                 475                 480

Pro Val Leu Ala Pro Pro Pro Pro Gly Ser Leu Cys Ser Glu Pro His
                485                 490                 495

Gln Gly Pro Gly Leu Leu Leu Gly Ala Thr Asp Glu Asp Leu Pro Pro
            500                 505                 510

His Gly Ala Pro Phe His Phe Gln Leu Ser Pro Arg Leu Pro Glu Leu
        515                 520                 525

Gly Arg Asn Trp Ser Leu Ser Gln Val Asn Val Ser His Ala Arg Leu
    530                 535                 540
```

```
Arg Pro Arg His Gln Val Pro Glu Gly Leu His Arg Leu Ser Leu Leu
545                 550                 555                 560

Leu Arg Asp Ser Gly Gln Pro Pro Gln Gln Arg Glu Gln Pro Leu Asn
                565                 570                 575

Val Thr Val Cys Arg Cys Gly Lys Asp Gly Val Cys Leu Pro Gly Ala
            580                 585                 590

Ala Ala Leu Leu Ala Gly Gly Thr Gly Leu Ser Leu Gly Ala Leu Val
        595                 600                 605

Ile Val Leu Ala Ser Ala Leu Leu Leu Leu Val Leu Val Leu Leu Val
    610                 615                 620

Ala Leu Arg Ala Arg Phe Trp Lys Gln Ser Arg Gly Lys Gly Leu Leu
625                 630                 635                 640

His Gly Pro Gln Asp Asp Leu Arg Asp Asn Val Leu Asn Tyr Asp Glu
                645                 650                 655

Gln Gly Gly Gly Glu Glu Asp Gln Asp Ala Tyr Asp Ile Ser Gln Leu
            660                 665                 670

Arg His Pro Thr Ala Leu Ser Leu Pro Leu Gly Pro Pro Pro Leu Arg
        675                 680                 685

Arg Asp Ala Pro Gln Gly Arg Leu His Pro Gln Pro Pro Arg Val Leu
    690                 695                 700

Pro Thr Ser Pro Leu Asp Ile Ala Asp Phe Ile Asn Asp Gly Leu Glu
705                 710                 715                 720

Ala Ala Asp Ser Asp Pro Ser Val Pro Pro Tyr Asp Thr Ala Leu Ile
                725                 730                 735

Tyr Asp Tyr Glu Gly Asp Gly Ser Val Ala Gly Thr Leu Ser Ser Ile
            740                 745                 750

Leu Ser Ser Gln Gly Asp Glu Asp Gln Asp Tyr Asp Tyr Leu Arg Asp
        755                 760                 765
```

```
Trp Gly Pro Arg Phe Ala Arg Leu Ala Asp Met Tyr Gly His Pro Cys
    770                 775                 780

Gly Leu Glu Tyr Gly Ala Arg Trp Asp His Gln Ala Arg Glu Gly Leu
785                 790                 795                 800

Ser Pro Gly Ala Leu Leu Pro Arg His Arg Gly Arg Thr Ala
                805                 810
```

<210> 10329
<211> 829
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2069; "

<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
<221> source
<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="Uniprot ID: O75309; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299752"

<400> 10329

```
Met Val Pro Ala Trp Leu Trp Leu Leu Cys Val Ser Val Pro Gln Ala
1               5                   10                  15

Leu Pro Lys Ala Gln Pro Ala Glu Leu Ser Val Glu Val Pro Glu Asn
            20                  25                  30

Tyr Gly Gly Asn Phe Pro Leu Tyr Leu Thr Lys Leu Pro Leu Pro Arg
        35                  40                  45

Glu Gly Ala Glu Gly Gln Ile Val Leu Ser Gly Asp Ser Gly Lys Ala
    50                  55                  60

Thr Glu Gly Pro Phe Ala Met Asp Pro Asp Ser Gly Phe Leu Leu Val
65                  70                  75                  80
```

```
Thr Arg Ala Leu Asp Arg Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val
                85                  90                  95

Thr Leu Glu Met Gln Asp Gly His Val Leu Trp Gly Pro Gln Pro Val
            100                 105                 110

Leu Val His Val Lys Asp Glu Asn Asp Gln Val Pro His Phe Ser Gln
        115                 120                 125

Ala Ile Tyr Arg Ala Arg Leu Ser Arg Gly Thr Arg Pro Gly Ile Pro
    130                 135                 140

Phe Leu Phe Leu Glu Ala Ser Asp Arg Asp Glu Pro Gly Thr Ala Asn
145                 150                 155                 160

Ser Asp Leu Arg Phe His Ile Leu Ser Gln Ala Pro Ala Gln Pro Ser
                165                 170                 175

Pro Asp Met Phe Gln Leu Glu Pro Arg Leu Gly Ala Leu Ala Leu Ser
            180                 185                 190

Pro Lys Gly Ser Thr Ser Leu Asp His Ala Leu Glu Arg Thr Tyr Gln
        195                 200                 205

Leu Leu Val Gln Val Lys Asp Met Gly Asp Gln Ala Ser Gly His Gln
    210                 215                 220

Ala Thr Ala Thr Val Glu Val Ser Ile Ile Glu Ser Thr Trp Val Ser
225                 230                 235                 240

Leu Glu Pro Ile His Leu Ala Glu Asn Leu Lys Val Leu Tyr Pro His
                245                 250                 255

His Met Ala Gln Val His Trp Ser Gly Gly Asp Val His Tyr His Leu
            260                 265                 270

Glu Ser His Pro Pro Gly Pro Phe Glu Val Asn Ala Glu Gly Asn Leu
        275                 280                 285

Tyr Val Thr Arg Glu Leu Asp Arg Glu Ala Gln Ala Glu Tyr Leu Leu
    290                 295                 300
```

```
Gln Val Arg Ala Gln Asn Ser His Gly Glu Asp Tyr Ala Ala Pro Leu
305                 310                 315                 320

Glu Leu His Val Leu Val Met Asp Glu Asn Asp Asn Val Pro Ile Cys
                325                 330                 335

Pro Pro Arg Asp Pro Thr Val Ser Ile Pro Glu Leu Ser Pro Pro Gly
            340                 345                 350

Thr Glu Val Thr Arg Leu Ser Ala Glu Asp Ala Asp Ala Pro Gly Ser
        355                 360                 365

Pro Asn Ser His Val Val Tyr Gln Leu Leu Ser Pro Glu Pro Glu Asp
    370                 375                 380

Gly Val Glu Gly Arg Ala Phe Gln Val Asp Pro Thr Ser Gly Ser Val
385                 390                 395                 400

Thr Leu Gly Val Leu Pro Leu Arg Ala Gly Gln Asn Ile Leu Leu Leu
                405                 410                 415

Val Leu Ala Met Asp Leu Ala Gly Ala Glu Gly Gly Phe Ser Ser Thr
            420                 425                 430

Cys Glu Val Glu Val Ala Val Thr Asp Ile Asn Asp His Ala Pro Glu
        435                 440                 445

Phe Ile Thr Ser Gln Ile Gly Pro Ile Ser Leu Pro Glu Asp Val Glu
    450                 455                 460

Pro Gly Thr Leu Val Ala Met Leu Thr Ala Ile Asp Ala Asp Leu Glu
465                 470                 475                 480

Pro Ala Phe Arg Leu Met Asp Phe Ala Ile Glu Arg Gly Asp Thr Glu
                485                 490                 495

Gly Thr Phe Gly Leu Asp Trp Glu Pro Asp Ser Gly His Val Arg Leu
            500                 505                 510

Arg Leu Cys Lys Asn Leu Ser Tyr Glu Ala Ala Pro Ser His Glu Val
        515                 520                 525

Val Val Val Val Gln Ser Val Ala Lys Leu Val Gly Pro Gly Pro Gly
```

530 535 540

Pro Gly Ala Thr Ala Thr Val Thr Val Leu Val Glu Arg Val Met Pro
545 550 555 560

Pro Pro Lys Leu Asp Gln Glu Ser Tyr Glu Ala Ser Val Pro Ile Ser
565 570 575

Ala Pro Ala Gly Ser Phe Leu Leu Thr Ile Gln Pro Ser Asp Pro Ile
580 585 590

Ser Arg Thr Leu Arg Phe Ser Leu Val Asn Asp Ser Glu Gly Trp Leu
595 600 605

Cys Ile Glu Lys Phe Ser Gly Glu Val His Thr Ala Gln Ser Leu Gln
610 615 620

Gly Ala Gln Pro Gly Asp Thr Tyr Thr Val Leu Val Glu Ala Gln Asp
625 630 635 640

Thr Asp Glu Pro Arg Leu Ser Ala Ser Ala Pro Leu Val Ile His Phe
645 650 655

Leu Lys Ala Pro Pro Ala Pro Ala Leu Thr Leu Ala Pro Val Pro Ser
660 665 670

Gln Tyr Leu Cys Thr Pro Arg Gln Asp His Gly Leu Ile Val Ser Gly
675 680 685

Pro Ser Lys Asp Pro Asp Leu Ala Ser Gly His Gly Pro Tyr Ser Phe
690 695 700

Thr Leu Gly Pro Asn Pro Thr Val Gln Arg Asp Trp Arg Leu Gln Thr
705 710 715 720

Leu Asn Gly Ser His Ala Tyr Leu Thr Leu Ala Leu His Trp Val Glu
725 730 735

Pro Arg Glu His Ile Ile Pro Val Val Val Ser His Asn Ala Gln Met
740 745 750

Trp Gln Leu Leu Val Arg Val Ile Val Cys Arg Cys Asn Val Glu Gly
755 760 765

```
Gln Cys Met Arg Lys Val Gly Arg Met Lys Gly Met Pro Thr Lys Leu
    770                 775                 780

Ser Ala Val Gly Ile Leu Val Gly Thr Leu Val Ala Ile Gly Ile Phe
785                 790                 795                 800

Leu Ile Leu Ile Phe Thr His Trp Thr Met Ser Arg Lys Lys Asp Pro
                805                 810                 815

Asp Gln Pro Ala Asp Ser Val Pro Leu Lys Ala Thr Val
            820                 825
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<210> 10330
<211> 807
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
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<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="Uniprot ID: O75309; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377619"

<400> 10330

```
Met Val Pro Ala Trp Leu Trp Leu Leu Cys Val Ser Val Pro Gln Ala
1               5                   10                  15

Leu Pro Lys Ala Gln Pro Ala Glu Leu Ser Val Glu Val Pro Glu Asn
            20                  25                  30

Tyr Gly Gly Asn Phe Pro Leu Tyr Leu Thr Lys Leu Pro Leu Pro Arg
        35                  40                  45

Glu Gly Ala Glu Gly Gln Ile Val Leu Ser Gly Asp Ser Gly Lys Ala
```

50 55 60

Thr Glu Gly Pro Phe Ala Met Asp Pro Asp Ser Gly Phe Leu Leu Val
65 70 75 80

Thr Arg Ala Leu Asp Arg Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val
85 90 95

Thr Leu Glu Met Gln Asp Gly His Val Leu Trp Gly Pro Gln Pro Val
100 105 110

Leu Val His Val Lys Asp Glu Asn Asp Gln Val Pro His Phe Ser Gln
115 120 125

Ala Ile Tyr Arg Ala Arg Leu Ser Arg Gly Thr Arg Pro Gly Ile Pro
130 135 140

Phe Leu Phe Leu Glu Ala Ser Asp Arg Asp Glu Pro Gly Thr Ala Asn
145 150 155 160

Ser Asp Leu Arg Phe His Ile Leu Ser Gln Ala Pro Ala Gln Pro Ser
165 170 175

Pro Asp Met Phe Gln Leu Glu Pro Arg Leu Gly Ala Leu Ala Leu Ser
180 185 190

Pro Lys Gly Ser Thr Ser Leu Asp His Ala Leu Glu Arg Thr Tyr Gln
195 200 205

Leu Leu Val Gln Val Lys Asp Met Gly Asp Gln Ala Ser Gly His Gln
210 215 220

Ala Thr Ala Thr Val Glu Val Ser Ile Ile Glu Ser Thr Trp Val Ser
225 230 235 240

Leu Glu Pro Ile His Leu Ala Glu Asn Leu Lys Val Leu Tyr Pro His
245 250 255

His Met Ala Gln Val His Trp Ser Gly Gly Asp Val His Tyr His Leu
260 265 270

Glu Ser His Pro Pro Gly Pro Phe Glu Val Asn Ala Glu Gly Asn Leu
275 280 285

```
Tyr Val Thr Arg Glu Leu Asp Arg Glu Ala Gln Ala Glu Tyr Leu Leu
    290                 295                 300

Gln Val Arg Ala Gln Asn Ser His Gly Glu Asp Tyr Ala Ala Pro Leu
305                 310                 315                 320

Glu Leu His Val Leu Val Met Asp Glu Asn Asp Asn Val Pro Ile Cys
                325                 330                 335

Pro Pro Arg Asp Pro Thr Val Ser Ile Pro Glu Leu Ser Pro Pro Gly
            340                 345                 350

Thr Glu Val Thr Arg Leu Ser Ala Glu Asp Ala Asp Ala Pro Gly Ser
        355                 360                 365

Pro Asn Ser His Val Val Tyr Gln Leu Leu Ser Pro Glu Pro Glu Asp
    370                 375                 380

Gly Val Glu Gly Arg Ala Phe Gln Val Asp Pro Thr Ser Gly Ser Val
385                 390                 395                 400

Thr Leu Gly Val Leu Pro Leu Arg Ala Gly Gln Asn Ile Leu Leu Leu
                405                 410                 415

Val Leu Ala Met Asp Leu Ala Gly Ala Glu Gly Gly Phe Ser Ser Thr
            420                 425                 430

Cys Glu Val Glu Val Ala Val Thr Asp Ile Asn Asp His Ala Pro Glu
        435                 440                 445

Phe Ile Thr Ser Gln Ile Gly Pro Ile Ser Leu Pro Glu Asp Val Glu
    450                 455                 460

Pro Gly Thr Leu Val Ala Met Leu Thr Ala Ile Asp Ala Asp Leu Glu
465                 470                 475                 480

Pro Ala Phe Arg Leu Met Asp Phe Ala Ile Glu Arg Gly Asp Thr Glu
                485                 490                 495

Gly Thr Phe Gly Leu Asp Trp Glu Pro Asp Ser Gly His Val Arg Leu
            500                 505                 510
```

```
Arg Leu Cys Lys Asn Leu Ser Tyr Glu Ala Ala Pro Ser His Glu Val
        515                 520                 525

Val Val Val Val Gln Ser Val Ala Lys Leu Val Gly Pro Gly Pro Gly
    530                 535                 540

Pro Gly Ala Thr Ala Thr Val Thr Val Leu Val Glu Arg Val Met Pro
545                 550                 555                 560

Pro Pro Lys Leu Asp Gln Glu Ser Tyr Glu Ala Ser Val Pro Ile Ser
                565                 570                 575

Ala Pro Ala Gly Ser Phe Leu Leu Thr Ile Gln Pro Ser Asp Pro Ile
            580                 585                 590

Ser Arg Thr Leu Arg Phe Ser Leu Val Asn Asp Ser Glu Gly Trp Leu
        595                 600                 605

Cys Ile Glu Lys Phe Ser Gly Glu Val His Thr Ala Gln Ser Leu Gln
    610                 615                 620

Gly Ala Gln Pro Gly Asp Thr Tyr Thr Val Leu Val Glu Ala Gln Asp
625                 630                 635                 640

Thr Ala Leu Thr Leu Ala Pro Val Pro Ser Gln Tyr Leu Cys Thr Pro
                645                 650                 655

Arg Gln Asp His Gly Leu Ile Val Ser Gly Pro Ser Lys Asp Pro Asp
            660                 665                 670

Leu Ala Ser Gly His Gly Pro Tyr Ser Phe Thr Leu Gly Pro Asn Pro
        675                 680                 685

Thr Val Gln Arg Asp Trp Arg Leu Gln Thr Leu Asn Gly Ser His Ala
    690                 695                 700

Tyr Leu Thr Leu Ala Leu His Trp Val Glu Pro Arg Glu His Ile Ile
705                 710                 715                 720

Pro Val Val Val Ser His Asn Ala Gln Met Trp Gln Leu Leu Val Arg
                725                 730                 735
```

```
Val Ile Val Cys Arg Cys Asn Val Glu Gly Gln Cys Met Arg Lys Val
            740                 745                 750

Gly Arg Met Lys Gly Met Pro Thr Lys Leu Ser Ala Val Gly Ile Leu
        755                 760                 765

Val Gly Thr Leu Val Ala Ile Gly Ile Phe Leu Ile Leu Ile Phe Thr
    770                 775                 780

His Trp Thr Met Ser Arg Lys Lys Asp Pro Asp Gln Pro Ala Asp Ser
785                 790                 795                 800

Val Pro Leu Lys Ala Thr Val
                805
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<210> 10331
<211> 790
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2069; "

<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
<221> source
<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="Uniprot ID: O75309; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454784"

<400> 10331

```
Met Val Pro Ala Trp Leu Trp Leu Leu Cys Val Ser Val Pro Gln Ala
1               5                  10                  15

Leu Pro Lys Ala Gln Pro Ala Glu Leu Ser Val Glu Val Pro Glu Asn
            20                  25                  30

Tyr Gly Gly Asn Phe Pro Leu Tyr Leu Thr Lys Leu Pro Leu Pro Arg
        35                  40                  45
```

```
Glu Gly Ala Glu Gly Gln Ile Val Leu Ser Gly Asp Ser Gly Lys Ala
    50                  55                  60

Thr Glu Gly Pro Phe Ala Met Asp Pro Asp Ser Gly Phe Leu Leu Val
65                  70                  75                  80

Thr Arg Ala Leu Asp Arg Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val
                85                  90                  95

Thr Leu Glu Met Gln Asp Gly His Val Leu Trp Gly Pro Gln Pro Val
            100                 105                 110

Leu Val His Val Lys Asp Glu Asn Asp Gln Val Pro His Phe Ser Gln
        115                 120                 125

Ala Ile Tyr Arg Ala Arg Leu Ser Arg Gly Thr Arg Pro Gly Ile Pro
    130                 135                 140

Phe Leu Phe Leu Glu Ala Ser Asp Arg Asp Glu Pro Gly Thr Ala Asn
145                 150                 155                 160

Ser Asp Leu Arg Phe His Ile Leu Ser Gln Ala Pro Ala Gln Pro Ser
                165                 170                 175

Pro Asp Met Phe Gln Leu Glu Pro Arg Leu Gly Ala Leu Ala Leu Ser
            180                 185                 190

Pro Lys Gly Ser Thr Ser Leu Asp His Ala Leu Glu Arg Thr Tyr Gln
        195                 200                 205

Leu Leu Val Gln Val Lys Asp Met Gly Asp Gln Ala Ser Gly His Gln
    210                 215                 220

Ala Thr Ala Thr Val Glu Val Ser Ile Ile Glu Ser Thr Trp Val Ser
225                 230                 235                 240

Leu Glu Pro Ile His Leu Ala Glu Asn Leu Lys Val Leu Tyr Pro His
                245                 250                 255

His Met Ala Gln Val His Trp Ser Gly Gly Asp Val His Tyr His Leu
            260                 265                 270
```

```
Glu Ser His Pro Pro Gly Pro Phe Glu Val Asn Ala Glu Gly Asn Leu
        275                 280                 285

Tyr Val Thr Arg Glu Leu Asp Arg Glu Ala Gln Ala Glu Tyr Leu Leu
    290                 295                 300

Gln Val Arg Ala Gln Asn Ser His Gly Glu Asp Tyr Ala Ala Pro Leu
305                 310                 315                 320

Glu Leu His Val Leu Val Met Asp Glu Asn Asp Asn Val Pro Ile Cys
                325                 330                 335

Pro Pro Arg Asp Pro Thr Val Ser Ile Pro Glu Leu Ser Pro Pro Gly
            340                 345                 350

Thr Glu Val Thr Arg Leu Ser Ala Glu Asp Ala Asp Ala Pro Gly Ser
        355                 360                 365

Pro Asn Ser His Val Val Tyr Gln Leu Leu Ser Pro Glu Pro Glu Asp
    370                 375                 380

Gly Val Glu Gly Arg Ala Phe Gln Val Asp Pro Thr Ser Gly Ser Val
385                 390                 395                 400

Thr Leu Gly Val Leu Pro Leu Arg Ala Gly Gln Asn Ile Leu Leu Leu
                405                 410                 415

Val Leu Ala Met Asp Leu Ala Gly Ala Glu Gly Gly Phe Ser Ser Thr
            420                 425                 430

Cys Glu Val Glu Val Ala Val Thr Asp Ile Asn Asp His Ala Pro Glu
        435                 440                 445

Phe Ile Thr Ser Gln Ile Gly Pro Ile Ser Leu Pro Glu Asp Val Glu
    450                 455                 460

Pro Gly Thr Leu Val Ala Met Leu Thr Ala Ile Asp Ala Asp Leu Glu
465                 470                 475                 480

Pro Ala Phe Arg Leu Met Asp Phe Ala Ile Glu Arg Gly Asp Thr Glu
                485                 490                 495

Gly Thr Phe Gly Leu Asp Trp Glu Pro Asp Ser Gly His Val Arg Leu
```

```
            500                 505                 510

Arg Leu Cys Lys Asn Leu Ser Tyr Glu Ala Ala Pro Ser His Glu Val
        515                 520                 525

Val Val Val Val Gln Ser Val Ala Lys Leu Val Gly Pro Gly Pro Gly
    530                 535                 540

Pro Gly Ala Thr Ala Thr Val Thr Val Leu Val Glu Arg Val Met Pro
545                 550                 555                 560

Pro Pro Lys Leu Asp Gln Glu Ser Tyr Glu Ala Ser Val Pro Ile Ser
                565                 570                 575

Ala Pro Ala Gly Ser Phe Leu Leu Thr Ile Gln Pro Ser Asp Pro Ile
            580                 585                 590

Ser Arg Thr Leu Arg Phe Ser Leu Val Asn Asp Ser Glu Gly Trp Leu
        595                 600                 605

Cys Ile Glu Lys Phe Ser Gly Glu Val His Thr Ala Gln Ser Leu Gln
    610                 615                 620

Gly Ala Gln Pro Gly Asp Thr Tyr Thr Val Leu Val Glu Ala Gln Asp
625                 630                 635                 640

Thr Asp His Gly Leu Ile Val Ser Gly Pro Ser Lys Asp Pro Asp Leu
                645                 650                 655

Ala Ser Gly His Gly Pro Tyr Ser Phe Thr Leu Gly Pro Asn Pro Thr
            660                 665                 670

Val Gln Arg Asp Trp Arg Leu Gln Thr Leu Asn Gly Ser His Ala Tyr
        675                 680                 685

Leu Thr Leu Ala Leu His Trp Val Glu Pro Arg Glu His Ile Ile Pro
    690                 695                 700

Val Val Val Ser His Asn Ala Gln Met Trp Gln Leu Leu Val Arg Val
705                 710                 715                 720

Ile Val Cys Arg Cys Asn Val Glu Gly Gln Cys Met Arg Lys Val Gly
                725                 730                 735
```

```
Arg Met Lys Gly Met Pro Thr Lys Leu Ser Ala Val Gly Ile Leu Val
            740                 745                 750

Gly Thr Leu Val Ala Ile Gly Ile Phe Leu Ile Leu Ile Phe Thr His
        755                 760                 765

Trp Thr Met Ser Arg Lys Lys Asp Pro Asp Gln Pro Ala Asp Ser Val
    770                 775                 780

Pro Leu Lys Ala Thr Val
785                 790
```

<210> 10332
<211> 732
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2069; "

<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
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<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="Uniprot ID: O75309; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455263"

<400> 10332

```
Met Val Pro Ala Trp Leu Trp Leu Leu Cys Val Ser Val Pro Gln Ala
1               5                   10                  15

Leu Pro Lys Ala Gln Pro Ala Glu Leu Ser Val Glu Val Pro Glu Asn
            20                  25                  30

Tyr Gly Gly Asn Phe Pro Leu Tyr Leu Thr Lys Leu Pro Leu Pro Arg
        35                  40                  45

Glu Gly Ala Glu Gly Gln Ile Val Leu Ser Gly Asp Ser Gly Lys Ala
```

```
    50                  55                  60

Thr Glu Gly Pro Phe Ala Met Asp Pro Asp Ser Gly Phe Leu Leu Val
65                  70                  75                  80

Thr Arg Ala Leu Asp Arg Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val
                85                  90                  95

Thr Leu Glu Met Gln Asp Gly His Val Leu Trp Gly Pro Gln Pro Val
            100                 105                 110

Leu Val His Val Lys Asp Glu Asn Asp Gln Ala Ser Gly His Gln Ala
        115                 120                 125

Thr Ala Thr Val Glu Val Ser Ile Ile Glu Ser Thr Trp Val Ser Leu
    130                 135                 140

Glu Pro Ile His Leu Ala Glu Asn Leu Lys Val Leu Tyr Pro His His
145                 150                 155                 160

Met Ala Gln Val His Trp Ser Gly Gly Asp Val His Tyr His Leu Glu
                165                 170                 175

Ser His Pro Pro Gly Pro Phe Glu Val Asn Ala Glu Gly Asn Leu Tyr
            180                 185                 190

Val Thr Arg Glu Leu Asp Arg Glu Ala Gln Ala Glu Tyr Leu Leu Gln
        195                 200                 205

Val Arg Ala Gln Asn Ser His Gly Glu Asp Tyr Ala Ala Pro Leu Glu
    210                 215                 220

Leu His Val Leu Val Met Asp Glu Asn Asp Asn Val Pro Ile Cys Pro
225                 230                 235                 240

Pro Arg Asp Pro Thr Val Ser Ile Pro Glu Leu Ser Pro Pro Gly Thr
                245                 250                 255

Glu Val Thr Arg Leu Ser Ala Glu Asp Ala Asp Ala Pro Gly Ser Pro
            260                 265                 270

Asn Ser His Val Val Tyr Gln Leu Leu Ser Pro Glu Pro Glu Asp Gly
        275                 280                 285
```

```
Val Glu Gly Arg Ala Phe Gln Val Asp Pro Thr Ser Gly Ser Val Thr
    290                 295                 300

Leu Gly Val Leu Pro Leu Arg Ala Gly Gln Asn Ile Leu Leu Leu Val
305                 310                 315                 320

Leu Ala Met Asp Leu Ala Gly Ala Glu Gly Gly Phe Ser Ser Thr Cys
                325                 330                 335

Glu Val Glu Val Ala Val Thr Asp Ile Asn Asp His Ala Pro Glu Phe
            340                 345                 350

Ile Thr Ser Gln Ile Gly Pro Ile Ser Leu Pro Glu Asp Val Glu Pro
        355                 360                 365

Gly Thr Leu Val Ala Met Leu Thr Ala Ile Asp Ala Asp Leu Glu Pro
    370                 375                 380

Ala Phe Arg Leu Met Asp Phe Ala Ile Glu Arg Gly Asp Thr Glu Gly
385                 390                 395                 400

Thr Phe Gly Leu Asp Trp Glu Pro Asp Ser Gly His Val Arg Leu Arg
                405                 410                 415

Leu Cys Lys Asn Leu Ser Tyr Glu Ala Ala Pro Ser His Glu Val Val
            420                 425                 430

Val Val Val Gln Ser Val Ala Lys Leu Val Gly Pro Gly Pro Gly Pro
        435                 440                 445

Gly Ala Thr Ala Thr Val Thr Val Leu Val Glu Arg Val Met Pro Pro
    450                 455                 460

Pro Lys Leu Asp Gln Glu Ser Tyr Glu Ala Ser Val Pro Ile Ser Ala
465                 470                 475                 480

Pro Ala Gly Ser Phe Leu Leu Thr Ile Gln Pro Ser Asp Pro Ile Ser
                485                 490                 495

Arg Thr Leu Arg Phe Ser Leu Val Asn Asp Ser Glu Gly Trp Leu Cys
            500                 505                 510
```

```
Ile Glu Lys Phe Ser Gly Glu Val His Thr Ala Gln Ser Leu Gln Gly
        515                 520                 525

Ala Gln Pro Gly Asp Thr Tyr Thr Val Leu Val Glu Ala Gln Asp Thr
    530                 535                 540

Asp Glu Pro Arg Leu Ser Ala Ser Ala Pro Leu Val Ile His Phe Leu
545                 550                 555                 560

Lys Ala Pro Pro Ala Pro Ala Leu Thr Leu Ala Pro Val Pro Ser Gln
                565                 570                 575

Tyr Leu Cys Thr Pro Arg Gln Asp His Gly Leu Ile Val Ser Gly Pro
            580                 585                 590

Ser Lys Asp Pro Asp Leu Ala Ser Gly His Gly Pro Tyr Ser Phe Thr
        595                 600                 605

Leu Gly Pro Asn Pro Thr Val Gln Arg Asp Trp Arg Leu Gln Thr Leu
    610                 615                 620

Asn Gly Ser His Ala Tyr Leu Thr Leu Ala Leu His Trp Val Glu Pro
625                 630                 635                 640

Arg Glu His Ile Ile Pro Val Val Val Ser His Asn Ala Gln Met Trp
                645                 650                 655

Gln Leu Leu Val Arg Val Ile Val Cys Arg Cys Asn Val Glu Gly Gln
            660                 665                 670

Cys Met Arg Lys Val Gly Arg Met Lys Gly Met Pro Thr Lys Leu Ser
        675                 680                 685

Ala Val Gly Ile Leu Val Gly Thr Leu Val Ala Ile Gly Ile Phe Leu
    690                 695                 700

Ile Leu Ile Phe Thr His Trp Thr Met Ser Arg Lys Lys Asp Pro Asp
705                 710                 715                 720

Gln Pro Ala Asp Ser Val Pro Leu Lys Ala Thr Val
                725                 730
```

<210> 10333
<211> 175
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
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<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455523"

<400> 10333
Met Val Pro Ala Trp Leu Trp Leu Leu Cys Val Ser Val Pro Gln Ala
1   5   10   15

Leu Pro Lys Ala Gln Pro Ala Glu Leu Ser Val Glu Val Pro Glu Asn
            20   25   30

Tyr Gly Gly Asn Phe Pro Leu Tyr Leu Thr Lys Leu Pro Leu Pro Arg
        35   40   45

Glu Gly Ala Glu Gly Gln Ile Val Leu Ser Gly Asp Ser Gly Lys Ala
    50   55   60

Thr Glu Gly Pro Phe Ala Met Asp Pro Asp Ser Gly Phe Leu Leu Val
65   70   75   80

Thr Arg Ala Leu Asp Arg Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val
                85   90   95

Thr Leu Glu Met Gln Asp Gly His Val Leu Trp Gly Pro Gln Pro Val
            100   105   110

Leu Val His Val Lys Asp Glu Asn Asp Gln Val Pro His Phe Ser Gln
        115   120   125

Ala Ile Tyr Arg Ala Arg Leu Ser Arg Gly Thr Arg Pro Val Cys Pro
    130   135   140

Pro Thr Val Asn Gln Ala Ser Pro Ser Ser Ser Leu Arg Leu Gln Thr
145 150 155 160

Gly Met Ser Gln Ala Gln Pro Thr Arg Ile Phe Asp Ser Thr Ser
165 170 175

<210> 10334
<211> 749
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2069; "

<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
<221> source
<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456690"

<400> 10334
Met Val Pro Ala Trp Leu Trp Leu Leu Cys Val Ser Val Pro Gln Val
1 5 10 15

Thr Leu Glu Met Gln Asp Gly His Val Leu Trp Gly Pro Gln Pro Val
20 25 30

Leu Val His Val Lys Asp Glu Asn Asp Gln Val Pro His Phe Ser Gln
35 40 45

Ala Ile Tyr Arg Ala Arg Leu Ser Arg Gly Thr Arg Pro Gly Ile Pro
50 55 60

Phe Leu Phe Leu Glu Ala Ser Asp Arg Asp Glu Pro Gly Thr Ala Asn
65 70 75 80

Ser Asp Leu Arg Phe His Ile Leu Ser Gln Ala Pro Ala Gln Pro Ser
85 90 95

Pro Asp Met Phe Gln Leu Glu Pro Arg Leu Gly Ala Leu Ala Leu Ser
100 105 110

```
Pro Lys Gly Ser Thr Ser Leu Asp His Ala Leu Glu Arg Thr Tyr Gln
        115                 120                 125

Leu Leu Val Gln Val Lys Asp Met Gly Asp Gln Ala Ser Gly His Gln
    130                 135                 140

Ala Thr Ala Thr Val Glu Val Ser Ile Ile Glu Ser Thr Trp Val Ser
145                 150                 155                 160

Leu Glu Pro Ile His Leu Ala Glu Asn Leu Lys Val Leu Tyr Pro His
                165                 170                 175

His Met Ala Gln Val His Trp Ser Gly Gly Asp Val His Tyr His Leu
            180                 185                 190

Glu Ser His Pro Pro Gly Pro Phe Glu Val Asn Ala Glu Gly Asn Leu
        195                 200                 205

Tyr Val Thr Arg Glu Leu Asp Arg Glu Ala Gln Ala Glu Tyr Leu Leu
    210                 215                 220

Gln Val Arg Ala Gln Asn Ser His Gly Glu Asp Tyr Ala Ala Pro Leu
225                 230                 235                 240

Glu Leu His Val Leu Val Met Asp Glu Asn Asp Asn Val Pro Ile Cys
                245                 250                 255

Pro Pro Arg Asp Pro Thr Val Ser Ile Pro Glu Leu Ser Pro Pro Gly
            260                 265                 270

Thr Glu Val Thr Arg Leu Ser Ala Glu Asp Ala Asp Ala Pro Gly Ser
        275                 280                 285

Pro Asn Ser His Val Val Tyr Gln Leu Leu Ser Pro Glu Pro Glu Asp
    290                 295                 300

Gly Val Glu Gly Arg Ala Phe Gln Val Asp Pro Thr Ser Gly Ser Val
305                 310                 315                 320

Thr Leu Gly Val Leu Pro Leu Arg Ala Gly Gln Asn Ile Leu Leu Leu
                325                 330                 335
```

```
Val Leu Ala Met Asp Leu Ala Gly Ala Glu Gly Gly Phe Ser Ser Thr
            340                 345                 350

Cys Glu Val Glu Val Ala Val Thr Asp Ile Asn Asp His Ala Pro Glu
        355                 360                 365

Phe Ile Thr Ser Gln Ile Gly Pro Ile Ser Leu Pro Glu Asp Val Glu
    370                 375                 380

Pro Gly Thr Leu Val Ala Met Leu Thr Ala Ile Asp Ala Asp Leu Glu
385                 390                 395                 400

Pro Ala Phe Arg Leu Met Asp Phe Ala Ile Glu Arg Gly Asp Thr Glu
                405                 410                 415

Gly Thr Phe Gly Leu Asp Trp Glu Pro Asp Ser Gly His Val Arg Leu
            420                 425                 430

Arg Leu Cys Lys Asn Leu Ser Tyr Glu Ala Ala Pro Ser His Glu Val
        435                 440                 445

Val Val Val Val Gln Ser Val Ala Lys Leu Val Gly Pro Gly Pro Gly
    450                 455                 460

Pro Gly Ala Thr Ala Thr Val Thr Val Leu Val Glu Arg Val Met Pro
465                 470                 475                 480

Pro Pro Lys Leu Asp Gln Glu Ser Tyr Glu Ala Ser Val Pro Ile Ser
                485                 490                 495

Ala Pro Ala Gly Ser Phe Leu Leu Thr Ile Gln Pro Ser Asp Pro Ile
            500                 505                 510

Ser Arg Thr Leu Arg Phe Ser Leu Val Asn Asp Ser Glu Gly Trp Leu
        515                 520                 525

Cys Ile Glu Lys Phe Ser Gly Glu Val His Thr Ala Gln Ser Leu Gln
    530                 535                 540

Gly Ala Gln Pro Gly Asp Thr Tyr Thr Val Leu Val Glu Ala Gln Asp
545                 550                 555                 560
```

```
Thr Asp Glu Pro Arg Leu Ser Ala Ser Ala Pro Leu Val Ile His Phe
                565                 570                 575

Leu Lys Ala Pro Pro Ala Pro Ala Leu Thr Leu Ala Pro Val Pro Ser
            580                 585                 590

Gln Tyr Leu Cys Thr Pro Arg Gln Asp His Gly Leu Ile Val Ser Gly
        595                 600                 605

Pro Ser Lys Asp Pro Asp Leu Ala Ser Gly His Gly Pro Tyr Ser Phe
    610                 615                 620

Thr Leu Gly Pro Asn Pro Thr Val Gln Arg Asp Trp Arg Leu Gln Thr
625                 630                 635                 640

Leu Asn Gly Ser His Ala Tyr Leu Thr Leu Ala Leu His Trp Val Glu
                645                 650                 655

Pro Arg Glu His Ile Ile Pro Val Val Val Ser His Asn Ala Gln Met
            660                 665                 670

Trp Gln Leu Leu Val Arg Val Ile Val Cys Arg Cys Asn Val Glu Gly
        675                 680                 685

Gln Cys Met Arg Lys Val Gly Arg Met Lys Gly Met Pro Thr Lys Leu
    690                 695                 700

Ser Ala Val Gly Ile Leu Val Gly Thr Leu Val Ala Ile Gly Ile Phe
705                 710                 715                 720

Leu Ile Leu Ile Phe Thr His Trp Thr Met Ser Arg Lys Lys Asp Pro
                725                 730                 735

Asp Gln Pro Ala Asp Ser Val Pro Leu Lys Ala Thr Val
            740                 745


<210> 10335
<211> 248
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2069; "
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<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
<221> source
<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456891"

<400> 10335
Met Val Pro Ala Trp Leu Trp Leu Leu Cys Val Ser Val Pro Gln Ala
1   5   10   15

Leu Pro Lys Ala Gln Pro Ala Glu Leu Ser Val Glu Val Pro Glu Asn
            20   25   30

Tyr Gly Gly Asn Phe Pro Leu Tyr Leu Thr Lys Leu Pro Leu Pro Arg
        35   40   45

Glu Gly Ala Glu Gly Gln Ile Val Leu Ser Gly Asp Ser Gly Lys Ala
    50   55   60

Thr Glu Gly Pro Phe Ala Met Asp Pro Asp Ser Gly Phe Leu Leu Val
65   70   75   80

Thr Arg Ala Leu Asp Arg Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val
                85   90   95

Thr Leu Glu Met Gln Asp Gly His Val Leu Trp Gly Pro Gln Pro Val
            100   105   110

Leu Val His Val Lys Asp Glu Asn Asp Gln Val Pro His Phe Ser Gln
        115   120   125

Ala Ile Tyr Arg Ala Arg Leu Ser Arg Gly Thr Arg Pro Gly Ile Pro
    130   135   140

Phe Leu Phe Leu Glu Ala Ser Asp Arg Asp Glu Pro Gly Thr Ala Asn
145   150   155   160

Ser Asp Leu Arg Phe His Ile Leu Ser Gln Ala Pro Ala Gln Pro Ser
                165   170   175

```
Pro Asp Met Phe Gln Leu Glu Pro Arg Leu Gly Ala Leu Ala Leu Ser
            180                 185                 190

Pro Lys Gly Ser Thr Ser Leu Asp His Ala Leu Glu Arg Thr Tyr Gln
        195                 200                 205

Leu Leu Val Gln Val Lys Asp Met Gly Asp Gln Ala Ser Gly His Gln
    210                 215                 220

Ala Thr Ala Thr Val Glu Gly Arg His Arg Arg Asp Phe Trp Pro Gly
225                 230                 235                 240

Leu Gly Ala Arg Leu Trp Ala Cys
                245


<210> 10336
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2069; "

<220>
<221> source
<223> /note="Gene Symbol: CDH16; "

<220>
<221> source
<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460891"

<400> 10336
Ile Val Leu Ser Gly Asp Ser Gly Lys Ala Thr Glu Gly Pro Phe Ala
1               5                   10                  15

Met Asp Pro Asp Ser Gly Phe Leu Leu Val Thr Arg Ala Leu Asp Arg
            20                  25                  30

Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val Thr Leu Glu Met Gln Asp
        35                  40                  45

Gly His Val Leu Trp Gly Pro Gln Pro Val Leu Val His Val Lys Asp
    50                  55                  60
```

```
Glu Asn Asp Gln Val Pro His Phe Ser Gln Ala Ile Tyr Arg Ala Arg
65                  70                  75                  80

Leu Ser Arg Gly Thr Arg Pro Gly Ile Pro Phe Leu Phe Leu Glu Ala
                85                  90                  95

Ser Asp Arg Asp Glu Pro Gly Thr Ala Asn Ser Asp Leu Arg Phe His
            100                 105                 110

Ile Leu Ser Gln Ala Pro Ala Gln Pro Ser Pro Asp Met Phe Gln Leu
        115                 120                 125

Glu Pro Arg Leu Gly Ala Leu Ala Leu Ser Pro Lys Gly Ser Thr Ser
    130                 135                 140

Leu Asp His Ala Leu Glu Arg Thr Tyr Gln Leu Leu Val Gln Val Lys
145                 150                 155                 160

Asp Met Gly Asp Gln Ala Ser Gly His Gln Ala Thr Ala Thr Val Glu
                165                 170                 175

Val Ser Ile Ile Glu Ser Thr Trp Val Ser Leu Glu Pro Ile His Leu
            180                 185                 190

Ala Glu Asn Leu Lys Val Leu Tyr Pro His His Met Ala Gln Tyr Leu
        195                 200                 205

Leu Gln Val Arg Ala Gln Asn Ser His Gly Glu Asp Tyr Ala Ala Pro
    210                 215                 220

Leu Glu Leu His Val Leu Val Met Asp Glu Asn Asp Asn Val
225                 230                 235


<210> 10337
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2069; "

<220>
<221> source
<223> /note="Gene Symbol: CDH16; "
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<220>
<221> source
<223> /note="Gene Name: cadherin 16, KSP-cadherin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463451"

<400> 10337
Met Asp Pro Asp Ser Gly Phe Leu Leu Val Thr Arg Ala Leu Asp Arg
1   5   10   15

Glu Glu Gln Ala Glu Tyr Gln Leu Gln Val Thr Leu Glu Met Gln Asp
            20   25   30

Gly His Val Leu Trp Gly Pro Gln Pro Val Leu Val His Val Lys Asp
        35   40   45

Glu Asn Asp Gln Val Pro His Phe Ser Gln Ala Ile Tyr Arg Ala Arg
    50   55   60

Leu Ser Arg Gly Thr Arg Pro Gly Ile Pro Phe Leu Phe Leu Glu Ala
65   70   75   80

Ser Asp Arg Asp Glu Pro Gly Thr Ala Asn Ser Asp Leu Arg Phe His
                85   90   95

Ile Leu Ser Gln Ala Pro Ala Gln Pro Ser Pro Asp Met Phe Gln Leu
            100   105   110

Glu Pro Arg Leu Gly Ala Leu Ala Leu Ser Pro Lys
        115   120

<210> 10338
<211> 832
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2070; "

<220>
<221> source
<223> /note="Gene Symbol: CDH17; "

<220>
<221> source

<223> /note="Gene Name: cadherin 17, LI cadherin
(liver-intestine); "

<220>
<221> source
<223> /note="Uniprot ID: Q12864; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000027335"

<400> 10338

```
Met Ile Leu Gln Ala His Leu His Ser Leu Cys Leu Leu Met Leu Tyr
1               5                   10                  15

Leu Ala Thr Gly Tyr Gly Gln Glu Gly Lys Phe Ser Gly Pro Leu Lys
            20                  25                  30

Pro Met Thr Phe Ser Ile Tyr Glu Gly Gln Glu Pro Ser Gln Ile Ile
        35                  40                  45

Phe Gln Phe Lys Ala Asn Pro Pro Ala Val Thr Phe Glu Leu Thr Gly
    50                  55                  60

Glu Thr Asp Asn Ile Phe Val Ile Glu Arg Glu Gly Leu Leu Tyr Tyr
65                  70                  75                  80

Asn Arg Ala Leu Asp Arg Glu Thr Arg Ser Thr His Asn Leu Gln Val
                85                  90                  95

Ala Ala Leu Asp Ala Asn Gly Ile Ile Val Glu Gly Pro Val Pro Ile
            100                 105                 110

Thr Ile Lys Val Lys Asp Ile Asn Asp Asn Arg Pro Thr Phe Leu Gln
        115                 120                 125

Ser Lys Tyr Glu Gly Ser Val Arg Gln Asn Ser Arg Pro Gly Lys Pro
    130                 135                 140

Phe Leu Tyr Val Asn Ala Thr Asp Leu Asp Asp Pro Ala Thr Pro Asn
145                 150                 155                 160

Gly Gln Leu Tyr Tyr Gln Ile Val Ile Gln Leu Pro Met Ile Asn Asn
                165                 170                 175

Val Met Tyr Phe Gln Ile Asn Asn Lys Thr Gly Ala Ile Ser Leu Thr
```

```
            180                 185                 190

Arg Glu Gly Ser Gln Glu Leu Asn Pro Ala Lys Asn Pro Ser Tyr Asn
        195                 200                 205

Leu Val Ile Ser Val Lys Asp Met Gly Gly Gln Ser Glu Asn Ser Phe
    210                 215                 220

Ser Asp Thr Thr Ser Val Asp Ile Ile Val Thr Glu Asn Ile Trp Lys
225                 230                 235                 240

Ala Pro Lys Pro Val Glu Met Val Glu Asn Ser Thr Asp Pro His Pro
                245                 250                 255

Ile Lys Ile Thr Gln Val Arg Trp Asn Asp Pro Gly Ala Gln Tyr Ser
            260                 265                 270

Leu Val Asp Lys Glu Lys Leu Pro Arg Phe Pro Phe Ser Ile Asp Gln
        275                 280                 285

Glu Gly Asp Ile Tyr Val Thr Gln Pro Leu Asp Arg Glu Glu Lys Asp
    290                 295                 300

Ala Tyr Val Phe Tyr Ala Val Ala Lys Asp Glu Tyr Gly Lys Pro Leu
305                 310                 315                 320

Ser Tyr Pro Leu Glu Ile His Val Lys Val Lys Asp Ile Asn Asp Asn
                325                 330                 335

Pro Pro Thr Cys Pro Ser Pro Val Thr Val Phe Glu Val Gln Glu Asn
            340                 345                 350

Glu Arg Leu Gly Asn Ser Ile Gly Thr Leu Thr Ala His Asp Arg Asp
        355                 360                 365

Glu Glu Asn Thr Ala Asn Ser Phe Leu Asn Tyr Arg Ile Val Glu Gln
    370                 375                 380

Thr Pro Lys Leu Pro Met Asp Gly Leu Phe Leu Ile Gln Thr Tyr Ala
385                 390                 395                 400

Gly Met Leu Gln Leu Ala Lys Gln Ser Leu Lys Lys Gln Asp Thr Pro
                405                 410                 415
```

```
Gln Tyr Asn Leu Thr Ile Glu Val Ser Asp Lys Asp Phe Lys Thr Leu
            420                 425                 430

Cys Phe Val Gln Ile Asn Val Ile Asp Ile Asn Asp Gln Ile Pro Ile
        435                 440                 445

Phe Glu Lys Ser Asp Tyr Gly Asn Leu Thr Leu Ala Glu Asp Thr Asn
    450                 455                 460

Ile Gly Ser Thr Ile Leu Thr Ile Gln Ala Thr Asp Ala Asp Glu Pro
465                 470                 475                 480

Phe Thr Gly Ser Ser Lys Ile Leu Tyr His Ile Ile Lys Gly Asp Ser
                485                 490                 495

Glu Gly Arg Leu Gly Val Asp Thr Asp Pro His Thr Asn Thr Gly Tyr
            500                 505                 510

Val Ile Ile Lys Lys Pro Leu Asp Phe Glu Thr Ala Ala Val Ser Asn
        515                 520                 525

Ile Val Phe Lys Ala Glu Asn Pro Glu Pro Leu Val Phe Gly Val Lys
    530                 535                 540

Tyr Asn Ala Ser Ser Phe Ala Lys Phe Thr Leu Ile Val Thr Asp Val
545                 550                 555                 560

Asn Glu Ala Pro Gln Phe Ser Gln His Val Phe Gln Ala Lys Val Ser
                565                 570                 575

Glu Asp Val Ala Ile Gly Thr Lys Val Gly Asn Val Thr Ala Lys Asp
            580                 585                 590

Pro Glu Gly Leu Asp Ile Ser Tyr Ser Leu Arg Gly Asp Thr Arg Gly
        595                 600                 605

Trp Leu Lys Ile Asp His Val Thr Gly Glu Ile Phe Ser Val Ala Pro
    610                 615                 620

Leu Asp Arg Glu Ala Gly Ser Pro Tyr Arg Val Gln Val Val Ala Thr
625                 630                 635                 640
```

```
Glu Val Gly Gly Ser Ser Leu Ser Ser Val Ser Glu Phe His Leu Ile
                645                 650                 655

Leu Met Asp Val Asn Asp Asn Pro Pro Arg Leu Ala Lys Asp Tyr Thr
            660                 665                 670

Gly Leu Phe Phe Cys His Pro Leu Ser Ala Pro Gly Ser Leu Ile Phe
        675                 680                 685

Glu Ala Thr Asp Asp Asp Gln His Leu Phe Arg Gly Pro His Phe Thr
    690                 695                 700

Phe Ser Leu Gly Ser Gly Ser Leu Gln Asn Asp Trp Glu Val Ser Lys
705                 710                 715                 720

Ile Asn Gly Thr His Ala Arg Leu Ser Thr Arg His Thr Glu Phe Glu
                725                 730                 735

Glu Arg Glu Tyr Val Val Leu Ile Arg Ile Asn Asp Gly Gly Arg Pro
            740                 745                 750

Pro Leu Glu Gly Ile Val Ser Leu Pro Val Thr Phe Cys Ser Cys Val
        755                 760                 765

Glu Gly Ser Cys Phe Arg Pro Ala Gly His Gln Thr Gly Ile Pro Thr
    770                 775                 780

Val Gly Met Ala Val Gly Ile Leu Leu Thr Thr Leu Leu Val Ile Gly
785                 790                 795                 800

Ile Ile Leu Ala Val Val Phe Ile Arg Ile Lys Lys Asp Lys Gly Lys
                805                 810                 815

Asp Asn Val Glu Ser Ala Gln Ala Ser Glu Val Lys Pro Leu Arg Ser
            820                 825                 830
```

<210> 10339
<211> 580
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2070; "

<220>
<221> source
<223> /note="Gene Symbol: CDH17; "

<220>
<221> source
<223> /note="Gene Name: cadherin 17, LI cadherin
(liver-intestine); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392811"

<400> 10339
Met Ile Leu Gln Ala His Leu His Ser Leu Cys Leu Leu Met Leu Tyr
1 5 10 15

Leu Ala Thr Gly Tyr Gly Gln Glu Gly Lys Phe Ser Gly Pro Leu Lys
20 25 30

Pro Met Thr Phe Ser Ile Tyr Glu Gly Gln Glu Pro Ser Gln Ile Ile
35 40 45

Phe Gln Phe Lys Ala Asn Pro Pro Ala Val Thr Phe Glu Leu Thr Gly
50 55 60

Glu Thr Asp Asn Ile Phe Val Ile Glu Arg Glu Gly Leu Leu Tyr Tyr
65 70 75 80

Asn Arg Ala Leu Asp Arg Glu Thr Arg Ser Thr His Asn Leu Gln Val
85 90 95

Ala Ala Leu Asp Ala Asn Gly Ile Ile Val Glu Gly Pro Val Pro Ile
100 105 110

Thr Ile Lys Val Lys Asp Ile Asn Asp Asn Arg Pro Thr Phe Leu Gln
115 120 125

Ser Lys Tyr Glu Gly Ser Val Arg Gln Asn Ser Arg Pro Gly Asn Ser
130 135 140

Ile Gly Thr Leu Thr Ala His Asp Arg Asp Glu Glu Asn Thr Ala Asn
145 150 155 160

Ser Phe Leu Asn Tyr Arg Ile Val Glu Gln Thr Pro Lys Leu Pro Met
165 170 175

```
Asp Gly Leu Phe Leu Ile Gln Thr Tyr Ala Gly Met Leu Gln Leu Ala
            180                 185                 190

Lys Gln Ser Leu Lys Lys Gln Asp Thr Pro Gln Tyr Asn Leu Thr Ile
        195                 200                 205

Glu Val Ser Asp Lys Asp Phe Lys Thr Leu Cys Phe Val Gln Ile Asn
    210                 215                 220

Val Ile Asp Ile Asn Asp Gln Ile Pro Ile Phe Glu Lys Ser Asp Tyr
225                 230                 235                 240

Gly Asn Leu Thr Leu Ala Glu Asp Thr Asn Ile Gly Ser Thr Ile Leu
                245                 250                 255

Thr Ile Gln Ala Thr Asp Ala Asp Glu Pro Phe Thr Gly Ser Ser Lys
            260                 265                 270

Ile Leu Tyr His Ile Ile Lys Gly Asp Ser Glu Gly Arg Leu Gly Val
        275                 280                 285

Asp Thr Asp Pro His Thr Asn Thr Gly Tyr Val Ile Ile Lys Lys Pro
    290                 295                 300

Leu Asp Phe Glu Thr Ala Ala Val Ser Asn Ile Val Phe Lys Ala Glu
305                 310                 315                 320

Asn Pro Glu Pro Leu Val Phe Gly Val Lys Tyr Asn Ala Ser Ser Phe
                325                 330                 335

Ala Lys Phe Thr Leu Ile Val Thr Asp Val Asn Glu Ala Pro Gln Phe
            340                 345                 350

Ser Gln His Val Phe Gln Ala Lys Val Ser Glu Asp Val Ala Ile Gly
        355                 360                 365

Thr Lys Val Gly Asn Val Thr Ala Lys Asp Pro Glu Gly Leu Asp Ile
    370                 375                 380

Ser Tyr Ser Leu Arg Gly Asp Thr Arg Gly Trp Leu Lys Ile Asp His
385                 390                 395                 400
```

```
Val Thr Gly Glu Ile Phe Ser Val Ala Pro Leu Asp Arg Glu Ala Gly
                405                 410                 415

Ser Pro Tyr Arg Val Gln Val Val Ala Thr Glu Val Gly Gly Ser Ser
            420                 425                 430

Leu Ser Ser Val Ser Glu Phe His Leu Ile Leu Met Asp Val Asn Asp
        435                 440                 445

Asn Pro Pro Arg Leu Ala Lys Asp Tyr Thr Gly Leu Phe Phe Cys His
    450                 455                 460

Pro Leu Ser Ala Pro Gly Ser Leu Ile Phe Glu Ala Thr Asp Asp Asp
465                 470                 475                 480

Gln His Leu Phe Arg Gly Pro His Phe Thr Phe Ser Leu Gly Ser Gly
                485                 490                 495

Ser Leu Gln Asn Asp Trp Glu Val Ser Lys Ile Asn Gly Thr His Ala
            500                 505                 510

Arg Leu Ser Thr Arg His Thr Glu Phe Glu Glu Arg Glu Tyr Val Val
        515                 520                 525

Leu Ile Arg Ile Asn Asp Gly Gly Arg Pro Pro Leu Glu Gly Ile Val
    530                 535                 540

Ser Leu Pro Gly Ile Ile Leu Ala Val Val Phe Ile Arg Ile Lys Lys
545                 550                 555                 560

Asp Lys Gly Lys Asp Asn Val Glu Ser Ala Gln Ala Ser Glu Val Lys
                565                 570                 575

Pro Leu Arg Ser
            580
```

<210> 10340
<211> 832
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2070; "

<220>
<221> source
<223> /note="Gene Symbol: CDH17; "

<220>
<221> source
<223> /note="Gene Name: cadherin 17, LI cadherin
(liver-intestine); "

<220>
<221> source
<223> /note="Uniprot ID: Q12864; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401468"

<400> 10340
Met Ile Leu Gln Ala His Leu His Ser Leu Cys Leu Leu Met Leu Tyr
1   5   10   15

Leu Ala Thr Gly Tyr Gly Gln Glu Gly Lys Phe Ser Gly Pro Leu Lys
            20   25   30

Pro Met Thr Phe Ser Ile Tyr Glu Gly Gln Glu Pro Ser Gln Ile Ile
        35   40   45

Phe Gln Phe Lys Ala Asn Pro Pro Ala Val Thr Phe Glu Leu Thr Gly
    50   55   60

Glu Thr Asp Asn Ile Phe Val Ile Glu Arg Glu Gly Leu Leu Tyr Tyr
65   70   75   80

Asn Arg Ala Leu Asp Arg Glu Thr Arg Ser Thr His Asn Leu Gln Val
                85   90   95

Ala Ala Leu Asp Ala Asn Gly Ile Ile Val Glu Gly Pro Val Pro Ile
            100   105   110

Thr Ile Lys Val Lys Asp Ile Asn Asp Asn Arg Pro Thr Phe Leu Gln
        115   120   125

Ser Lys Tyr Glu Gly Ser Val Arg Gln Asn Ser Arg Pro Gly Lys Pro
    130   135   140

Phe Leu Tyr Val Asn Ala Thr Asp Leu Asp Asp Pro Ala Thr Pro Asn
145   150   155   160

```
Gly Gln Leu Tyr Tyr Gln Ile Val Ile Gln Leu Pro Met Ile Asn Asn
                165                 170                 175

Val Met Tyr Phe Gln Ile Asn Asn Lys Thr Gly Ala Ile Ser Leu Thr
            180                 185                 190

Arg Glu Gly Ser Gln Glu Leu Asn Pro Ala Lys Asn Pro Ser Tyr Asn
        195                 200                 205

Leu Val Ile Ser Val Lys Asp Met Gly Gly Gln Ser Glu Asn Ser Phe
    210                 215                 220

Ser Asp Thr Thr Ser Val Asp Ile Ile Val Thr Glu Asn Ile Trp Lys
225                 230                 235                 240

Ala Pro Lys Pro Val Glu Met Val Glu Asn Ser Thr Asp Pro His Pro
                245                 250                 255

Ile Lys Ile Thr Gln Val Arg Trp Asn Asp Pro Gly Ala Gln Tyr Ser
            260                 265                 270

Leu Val Asp Lys Glu Lys Leu Pro Arg Phe Pro Phe Ser Ile Asp Gln
        275                 280                 285

Glu Gly Asp Ile Tyr Val Thr Gln Pro Leu Asp Arg Glu Glu Lys Asp
    290                 295                 300

Ala Tyr Val Phe Tyr Ala Val Ala Lys Asp Glu Tyr Gly Lys Pro Leu
305                 310                 315                 320

Ser Tyr Pro Leu Glu Ile His Val Lys Val Lys Asp Ile Asn Asp Asn
                325                 330                 335

Pro Pro Thr Cys Pro Ser Pro Val Thr Val Phe Glu Val Gln Glu Asn
            340                 345                 350

Glu Arg Leu Gly Asn Ser Ile Gly Thr Leu Thr Ala His Asp Arg Asp
        355                 360                 365

Glu Glu Asn Thr Ala Asn Ser Phe Leu Asn Tyr Arg Ile Val Glu Gln
    370                 375                 380
```

Thr Pro Lys Leu Pro Met Asp Gly Leu Phe Leu Ile Gln Thr Tyr Ala
385 390 395 400

Gly Met Leu Gln Leu Ala Lys Gln Ser Leu Lys Lys Gln Asp Thr Pro
405 410 415

Gln Tyr Asn Leu Thr Ile Glu Val Ser Asp Lys Asp Phe Lys Thr Leu
420 425 430

Cys Phe Val Gln Ile Asn Val Ile Asp Ile Asn Asp Gln Ile Pro Ile
435 440 445

Phe Glu Lys Ser Asp Tyr Gly Asn Leu Thr Leu Ala Glu Asp Thr Asn
450 455 460

Ile Gly Ser Thr Ile Leu Thr Ile Gln Ala Thr Asp Ala Asp Glu Pro
465 470 475 480

Phe Thr Gly Ser Ser Lys Ile Leu Tyr His Ile Ile Lys Gly Asp Ser
485 490 495

Glu Gly Arg Leu Gly Val Asp Thr Asp Pro His Thr Asn Thr Gly Tyr
500 505 510

Val Ile Ile Lys Lys Pro Leu Asp Phe Glu Thr Ala Ala Val Ser Asn
515 520 525

Ile Val Phe Lys Ala Glu Asn Pro Glu Pro Leu Val Phe Gly Val Lys
530 535 540

Tyr Asn Ala Ser Ser Phe Ala Lys Phe Thr Leu Ile Val Thr Asp Val
545 550 555 560

Asn Glu Ala Pro Gln Phe Ser Gln His Val Phe Gln Ala Lys Val Ser
565 570 575

Glu Asp Val Ala Ile Gly Thr Lys Val Gly Asn Val Thr Ala Lys Asp
580 585 590

Pro Glu Gly Leu Asp Ile Ser Tyr Ser Leu Arg Gly Asp Thr Arg Gly
595 600 605

```
Trp Leu Lys Ile Asp His Val Thr Gly Glu Ile Phe Ser Val Ala Pro
    610                 615                 620

Leu Asp Arg Glu Ala Gly Ser Pro Tyr Arg Val Gln Val Val Ala Thr
625                 630                 635                 640

Glu Val Gly Gly Ser Ser Leu Ser Ser Val Ser Glu Phe His Leu Ile
                645                 650                 655

Leu Met Asp Val Asn Asp Asn Pro Pro Arg Leu Ala Lys Asp Tyr Thr
            660                 665                 670

Gly Leu Phe Phe Cys His Pro Leu Ser Ala Pro Gly Ser Leu Ile Phe
        675                 680                 685

Glu Ala Thr Asp Asp Asp Gln His Leu Phe Arg Gly Pro His Phe Thr
    690                 695                 700

Phe Ser Leu Gly Ser Gly Ser Leu Gln Asn Asp Trp Glu Val Ser Lys
705                 710                 715                 720

Ile Asn Gly Thr His Ala Arg Leu Ser Thr Arg His Thr Glu Phe Glu
                725                 730                 735

Glu Arg Glu Tyr Val Val Leu Ile Arg Ile Asn Asp Gly Gly Arg Pro
            740                 745                 750

Pro Leu Glu Gly Ile Val Ser Leu Pro Val Thr Phe Cys Ser Cys Val
        755                 760                 765

Glu Gly Ser Cys Phe Arg Pro Ala Gly His Gln Thr Gly Ile Pro Thr
    770                 775                 780

Val Gly Met Ala Val Gly Ile Leu Leu Thr Thr Leu Leu Val Ile Gly
785                 790                 795                 800

Ile Ile Leu Ala Val Val Phe Ile Arg Ile Lys Lys Asp Lys Gly Lys
                805                 810                 815

Asp Asn Val Glu Ser Ala Gln Ala Ser Glu Val Lys Pro Leu Arg Ser
            820                 825                 830
```

<210> 10341

<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2070; "

<220>
<221> source
<223> /note="Gene Symbol: CDH17; "

<220>
<221> source
<223> /note="Gene Name: cadherin 17, LI cadherin
(liver-intestine); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428189"

<400> 10341
Met Ile Leu Gln Ala His Leu His Ser Leu Cys Leu Leu Met Leu Tyr
1 5 10 15

Leu Ala Thr Gly Tyr Gly Gln Glu Gly Lys Phe Ser Gly Pro Leu Lys
20 25 30

Pro Met Thr Phe Ser Ile Tyr Glu Gly Gln Glu Pro Ser Gln Ile Ile
35 40 45

Phe Gln Phe Lys Ala Asn Pro Pro Ala Val Thr Phe Glu Leu Thr Gly
50 55 60

Glu Thr Asp Asn Ile Phe Val Ile Glu Arg Glu Gly Leu Leu Tyr Tyr
65 70 75 80

Asn Arg Ala Leu Asp Arg Glu Thr Arg Ser Thr His Asn Leu Gln Val
85 90 95

Ala Ala Leu Asp Ala Asn Gly Ile Ile Val Glu Gly Pro Val Pro Ile
100 105 110

Thr Ile Lys Val Lys Asp Ile Asn Asp Asn Arg Pro Thr Phe Leu Gln
115 120 125

Ser Lys Tyr Glu Gly Ser Val Arg Gln Asn Ser Arg Pro Gly Lys Pro
130 135 140

Phe Leu Tyr
145

<210> 10342
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2070; "

<220>
<221> source
<223> /note="Gene Symbol: CDH17; "

<220>
<221> source
<223> /note="Gene Name: cadherin 17, LI cadherin
(liver-intestine); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429730"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10342
Xaa Ile Asp Ile Asn Asp Gln Ile Pro Ile Phe Glu Lys Ser Asp Tyr
1 5 10 15

Gly Asn Leu Thr Leu Ala Glu Asp Thr Asn Ile Gly Ser Thr Ile Leu
20 25 30

Thr Ile Gln Ala Thr Asp Ala Asp Glu Pro Phe Thr Gly Ser Ser Lys
35 40 45

Ile Leu Tyr His Ile Ile Lys Gly Asp Ser Glu Gly Arg Leu Gly Val
50 55 60

Asp Thr Asp Pro His Thr Asn Thr Gly Tyr Val Ile Ile Lys Lys Leu
65 70 75 80

Phe Thr Glu Gly Arg His Lys Arg Leu Ala
85 90

<210> 10343
<211> 790
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2071; "

<220>
<221> source
<223> /note="Gene Symbol: CDH18; "

<220>
<221> source
<223> /note="Gene Name: cadherin 18, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q13634; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000274170"

<400> 10343
Met Lys Ile Thr Ser Thr Ser Cys Ile Cys Pro Val Leu Val Cys Leu
1   5   10   15

Cys Phe Val Gln Arg Cys Tyr Gly Thr Ala His His Ser Ser Ile Lys
            20   25   30

Val Met Arg Asn Gln Thr Lys His Ile Glu Gly Glu Thr Glu Val His
        35   40   45

His Arg Pro Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu Glu
    50   55   60

Glu His Met Gly Pro Asp Pro Gln Tyr Val Gly Lys Leu His Ser Asn
65   70   75   80

Ser Asp Lys Gly Asp Gly Ser Val Lys Tyr Ile Leu Thr Gly Glu Gly
                85   90   95

Ala Gly Thr Ile Phe Ile Ile Asp Asp Thr Thr Gly Asp Ile His Ser
            100   105   110

Thr Lys Ser Leu Asp Arg Glu Gln Lys Thr His Tyr Val Leu His Ala
        115   120   125

```
Gln Ala Ile Asp Arg Arg Thr Asn Lys Pro Leu Glu Pro Glu Ser Glu
    130                 135                 140

Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Ala Pro Lys Phe Thr
145                 150                 155                 160

Asp Gly Pro Tyr Ile Val Thr Val Pro Glu Met Ser Asp Met Gly Thr
                165                 170                 175

Ser Val Leu Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu His Asn Met
    210                 215                 220

Asp Arg Glu Ala Arg Glu His Tyr Ser Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Ala Gly Gln Val Gly Gly Leu Ser Gly Ser Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Lys His
            260                 265                 270

Tyr Gln Leu Tyr Val Pro Glu Ser Ala Gln Val Gly Ser Ala Val Gly
        275                 280                 285

Lys Ile Lys Ala Asn Asp Ala Asp Thr Gly Ser Asn Ala Asp Met Thr
    290                 295                 300

Tyr Ser Ile Ile Asn Gly Asp Gly Met Gly Ile Phe Ser Ile Ser Thr
305                 310                 315                 320

Asp Lys Glu Thr Arg Glu Gly Ile Leu Ser Leu Lys Lys Pro Leu Asn
                325                 330                 335

Tyr Glu Lys Lys Lys Ser Tyr Thr Leu Asn Ile Glu Gly Ala Asn Thr
            340                 345                 350
```

```
His Leu Asp Phe Arg Phe Ser His Leu Gly Pro Phe Lys Asp Ala Thr
        355                 360                 365

Met Leu Lys Ile Ile Val Gly Asp Val Asp Glu Pro Pro Leu Phe Ser
    370                 375                 380

Met Pro Ser Tyr Leu Met Glu Val Tyr Glu Asn Ala Lys Ile Gly Thr
385                 390                 395                 400

Val Val Gly Thr Val Leu Ala Gln Asp Pro Asp Ser Thr Asn Ser Leu
                405                 410                 415

Val Arg Tyr Phe Ile Asn Tyr Asn Val Glu Asp Asp Arg Phe Phe Asn
            420                 425                 430

Ile Asp Ala Asn Thr Gly Thr Ile Arg Thr Thr Lys Val Leu Asp Arg
        435                 440                 445

Glu Glu Thr Pro Trp Tyr Asn Ile Thr Val Thr Ala Ser Glu Ile Asp
    450                 455                 460

Asn Pro Asp Leu Leu Ser His Val Thr Val Gly Ile Arg Val Leu Asp
465                 470                 475                 480

Val Asn Asp Asn Pro Pro Glu Leu Ala Arg Glu Tyr Asp Ile Ile Val
                485                 490                 495

Cys Glu Asn Ser Lys Pro Gly Gln Val Ile His Thr Ile Ser Ala Thr
            500                 505                 510

Asp Lys Asp Asp Phe Ala Asn Gly Pro Arg Phe Asn Phe Phe Leu Asp
        515                 520                 525

Glu Arg Leu Pro Val Asn Pro Asn Phe Thr Leu Lys Asp Asn Glu Asp
    530                 535                 540

Asn Thr Ala Ser Ile Leu Thr Arg Arg Arg Arg Phe Ser Arg Thr Val
545                 550                 555                 560

Gln Asp Val Tyr Tyr Leu Pro Ile Met Ile Ser Asp Gly Gly Ile Pro
                565                 570                 575
```

Ser Leu Ser Ser Ser Ser Thr Leu Thr Ile Arg Val Cys Ala Cys Glu
580 585 590

Arg Asp Gly Arg Val Arg Thr Cys His Ala Glu Ala Phe Leu Ser Ser
595 600 605

Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Leu Cys Val Leu
610 615 620

Ile Leu Leu Ala Ile Val Val Leu Phe Ile Thr Leu Arg Arg Ser Lys
625 630 635 640

Lys Glu Pro Leu Ile Ile Ser Glu Glu Asp Val Arg Glu Asn Val Val
645 650 655

Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp
660 665 670

Ile Thr Ala Leu Arg Asn Pro Ser Ala Ala Glu Glu Leu Lys Tyr Arg
675 680 685

Arg Asp Ile Arg Pro Glu Val Lys Leu Thr Pro Arg His Gln Thr Ser
690 695 700

Ser Thr Leu Glu Ser Ile Asp Val Gln Glu Phe Ile Lys Gln Arg Leu
705 710 715 720

Ala Glu Ala Asp Leu Asp Pro Ser Val Pro Pro Tyr Asp Ser Leu Gln
725 730 735

Thr Tyr Ala Tyr Glu Gly Gln Arg Ser Glu Ala Gly Ser Ile Ser Ser
740 745 750

Leu Asp Ser Ala Thr Thr Gln Ser Asp Gln Asp Tyr His Tyr Leu Gly
755 760 765

Asp Trp Gly Pro Glu Phe Lys Lys Leu Ala Glu Leu Tyr Gly Glu Ile
770 775 780

Glu Ser Glu Arg Thr Thr
785 790

<210> 10344

<211> 790
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CDH18; "

<220>
<221> source
<223> /note="Gene Name: cadherin 18, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q13634; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371710"

<400> 10344
Met Lys Ile Thr Ser Thr Ser Cys Ile Cys Pro Val Leu Val Cys Leu
1   5   10   15

Cys Phe Val Gln Arg Cys Tyr Gly Thr Ala His His Ser Ser Ile Lys
            20   25   30

Val Met Arg Asn Gln Thr Lys His Ile Glu Gly Glu Thr Glu Val His
        35   40   45

His Arg Pro Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu Glu
    50   55   60

Glu His Met Gly Pro Asp Pro Gln Tyr Val Gly Lys Leu His Ser Asn
65   70   75   80

Ser Asp Lys Gly Asp Gly Ser Val Lys Tyr Ile Leu Thr Gly Glu Gly
                85   90   95

Ala Gly Thr Ile Phe Ile Ile Asp Asp Thr Thr Gly Asp Ile His Ser
            100   105   110

Thr Lys Ser Leu Asp Arg Glu Gln Lys Thr His Tyr Val Leu His Ala
        115   120   125

```
Gln Ala Ile Asp Arg Arg Thr Asn Lys Pro Leu Glu Pro Glu Ser Glu
    130                 135                 140

Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Ala Pro Lys Phe Thr
145                 150                 155                 160

Asp Gly Pro Tyr Ile Val Thr Val Pro Glu Met Ser Asp Met Gly Thr
                165                 170                 175

Ser Val Leu Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu His Asn Met
    210                 215                 220

Asp Arg Glu Ala Arg Glu His Tyr Ser Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Ala Gly Gln Val Gly Gly Leu Ser Gly Ser Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Lys His
            260                 265                 270

Tyr Gln Leu Tyr Val Pro Glu Ser Ala Gln Val Gly Ser Ala Val Gly
        275                 280                 285

Lys Ile Lys Ala Asn Asp Ala Asp Thr Gly Ser Asn Ala Asp Met Thr
    290                 295                 300

Tyr Ser Ile Ile Asn Gly Asp Gly Met Gly Ile Phe Ser Ile Ser Thr
305                 310                 315                 320

Asp Lys Glu Thr Arg Glu Gly Ile Leu Ser Leu Lys Lys Pro Leu Asn
                325                 330                 335

Tyr Glu Lys Lys Lys Ser Tyr Thr Leu Asn Ile Glu Gly Ala Asn Thr
            340                 345                 350

His Leu Asp Phe Arg Phe Ser His Leu Gly Pro Phe Lys Asp Ala Thr
```

```
        355                 360                 365

Met Leu Lys Ile Ile Val Gly Asp Val Asp Glu Pro Pro Leu Phe Ser
    370                 375                 380

Met Pro Ser Tyr Leu Met Glu Val Tyr Glu Asn Ala Lys Ile Gly Thr
385                 390                 395                 400

Val Val Gly Thr Val Leu Ala Gln Asp Pro Asp Ser Thr Asn Ser Leu
                405                 410                 415

Val Arg Tyr Phe Ile Asn Tyr Asn Val Glu Asp Asp Arg Phe Phe Asn
            420                 425                 430

Ile Asp Ala Asn Thr Gly Thr Ile Arg Thr Thr Lys Val Leu Asp Arg
        435                 440                 445

Glu Glu Thr Pro Trp Tyr Asn Ile Thr Val Thr Ala Ser Glu Ile Asp
    450                 455                 460

Asn Pro Asp Leu Leu Ser His Val Thr Val Gly Ile Arg Val Leu Asp
465                 470                 475                 480

Val Asn Asp Asn Pro Pro Glu Leu Ala Arg Glu Tyr Asp Ile Ile Val
                485                 490                 495

Cys Glu Asn Ser Lys Pro Gly Gln Val Ile His Thr Ile Ser Ala Thr
            500                 505                 510

Asp Lys Asp Asp Phe Ala Asn Gly Pro Arg Phe Asn Phe Phe Leu Asp
        515                 520                 525

Glu Arg Leu Pro Val Asn Pro Asn Phe Thr Leu Lys Asp Asn Glu Asp
    530                 535                 540

Asn Thr Ala Ser Ile Leu Thr Arg Arg Arg Arg Phe Ser Arg Thr Val
545                 550                 555                 560

Gln Asp Val Tyr Tyr Leu Pro Ile Met Ile Ser Asp Gly Gly Ile Pro
                565                 570                 575

Ser Leu Ser Ser Ser Ser Thr Leu Thr Ile Arg Val Cys Ala Cys Glu
            580                 585                 590
```

```
Arg Asp Gly Arg Val Arg Thr Cys His Ala Glu Ala Phe Leu Ser Ser
        595                 600                 605

Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Leu Cys Val Leu
    610                 615                 620

Ile Leu Leu Ala Ile Val Val Leu Phe Ile Thr Leu Arg Arg Ser Lys
625                 630                 635                 640

Lys Glu Pro Leu Ile Ile Ser Glu Glu Asp Val Arg Glu Asn Val Val
                645                 650                 655

Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp
            660                 665                 670

Ile Thr Ala Leu Arg Asn Pro Ser Ala Ala Glu Glu Leu Lys Tyr Arg
        675                 680                 685

Arg Asp Ile Arg Pro Glu Val Lys Leu Thr Pro Arg His Gln Thr Ser
    690                 695                 700

Ser Thr Leu Glu Ser Ile Asp Val Gln Glu Phe Ile Lys Gln Arg Leu
705                 710                 715                 720

Ala Glu Ala Asp Leu Asp Pro Ser Val Pro Pro Tyr Asp Ser Leu Gln
                725                 730                 735

Thr Tyr Ala Tyr Glu Gly Gln Arg Ser Glu Ala Gly Ser Ile Ser Ser
            740                 745                 750

Leu Asp Ser Ala Thr Thr Gln Ser Asp Gln Asp Tyr His Tyr Leu Gly
        755                 760                 765

Asp Trp Gly Pro Glu Phe Lys Lys Leu Ala Glu Leu Tyr Gly Glu Ile
    770                 775                 780

Glu Ser Glu Arg Thr Thr
785                 790
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<210> 10345
<211> 574
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2071; "

<220>
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<220>
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<223> /note="Gene Name: cadherin 18, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q13634; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422138"

<400> 10345

```
Met Lys Ile Thr Ser Thr Ser Cys Ile Cys Pro Val Leu Val Cys Leu
1               5                  10                  15

Cys Phe Val Gln Arg Cys Tyr Gly Thr Ala His His Ser Ser Ile Lys
            20                  25                  30

Val Met Arg Asn Gln Thr Lys His Ile Glu Gly Glu Thr Glu Val His
        35                  40                  45

His Arg Pro Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu Glu
    50                  55                  60

Glu His Met Gly Pro Asp Pro Gln Tyr Val Gly Lys Leu His Ser Asn
65                  70                  75                  80

Ser Asp Lys Gly Asp Gly Ser Val Lys Tyr Ile Leu Thr Gly Glu Gly
                85                  90                  95

Ala Gly Thr Ile Phe Ile Ile Asp Asp Thr Thr Gly Asp Ile His Ser
            100                 105                 110

Thr Lys Ser Leu Asp Arg Glu Gln Lys Thr His Tyr Val Leu His Ala
        115                 120                 125

Gln Ala Ile Asp Arg Arg Thr Asn Lys Pro Leu Glu Pro Glu Ser Glu
    130                 135                 140
```

```
Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Ala Pro Lys Phe Thr
145                 150                 155                 160

Asp Gly Pro Tyr Ile Val Thr Val Pro Glu Met Ser Asp Met Gly Thr
                165                 170                 175

Ser Val Leu Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu His Asn Met
    210                 215                 220

Asp Arg Glu Ala Arg Glu His Tyr Ser Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Ala Gly Gln Val Gly Gly Leu Ser Gly Ser Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Lys His
            260                 265                 270

Tyr Gln Leu Tyr Val Pro Glu Ser Ala Gln Val Gly Ser Ala Val Gly
        275                 280                 285

Lys Ile Lys Ala Asn Asp Ala Asp Thr Gly Ser Asn Ala Asp Met Thr
    290                 295                 300

Tyr Ser Ile Ile Asn Gly Asp Gly Met Gly Ile Phe Ser Ile Ser Thr
305                 310                 315                 320

Asp Lys Glu Thr Arg Glu Gly Ile Leu Ser Leu Lys Lys Pro Leu Asn
                325                 330                 335

Tyr Glu Lys Lys Lys Ser Tyr Thr Leu Asn Ile Glu Gly Ala Asn Thr
            340                 345                 350

His Leu Asp Phe Arg Phe Ser His Leu Gly Pro Phe Lys Asp Ala Thr
        355                 360                 365
```

```
Met Leu Lys Ile Ile Val Gly Asp Val Asp Glu Pro Pro Leu Phe Ser
    370                 375                 380

Met Pro Ser Tyr Leu Met Glu Val Tyr Glu Asn Ala Lys Ile Gly Thr
385                 390                 395                 400

Val Val Gly Thr Val Leu Ala Gln Asp Pro Asp Ser Thr Asn Ser Leu
                405                 410                 415

Val Arg Tyr Phe Ile Asn Tyr Asn Val Glu Asp Asp Arg Phe Phe Asn
            420                 425                 430

Ile Asp Ala Asn Thr Gly Thr Ile Arg Thr Thr Lys Val Leu Asp Arg
        435                 440                 445

Glu Glu Thr Pro Trp Tyr Asn Ile Thr Val Thr Ala Ser Glu Ile Asp
    450                 455                 460

Asn Pro Asp Leu Leu Ser His Val Thr Val Gly Ile Arg Val Leu Asp
465                 470                 475                 480

Val Asn Asp Asn Pro Pro Glu Leu Ala Arg Glu Tyr Asp Ile Ile Val
                485                 490                 495

Cys Glu Asn Ser Lys Pro Gly Gln Val Ile His Thr Ile Ser Ala Thr
            500                 505                 510

Asp Lys Asp Asp Phe Ala Asn Gly Pro Arg Phe Asn Phe Phe Leu Asp
        515                 520                 525

Glu Arg Leu Pro Val Asn Pro Asn Phe Thr Leu Lys Asp Asn Glu Ala
    530                 535                 540

Ala Ala Pro Ser Pro Ser Gly Phe Val His Ala Arg Glu Met Gly Val
545                 550                 555                 560

Cys Gly Pro Ala Met Gln Lys Pro Ser Cys Pro Arg Leu Val
                565                 570
```

<210> 10346
<211> 575
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: cadherin 18, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424931"

<400> 10346
Met Lys Ile Thr Ser Thr Ser Cys Ile Cys Pro Val Leu Val Cys Leu
1   5   10   15

Cys Phe Val Gln Arg Cys Tyr Gly Thr Ala His His Ser Ser Ile Lys
            20   25   30

Val Met Arg Asn Gln Thr Lys His Ile Glu Gly Glu Thr Glu Val His
        35   40   45

His Arg Pro Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu Glu
    50   55   60

Glu His Met Gly Pro Asp Pro Gln Tyr Val Gly Lys Leu His Ser Asn
65   70   75   80

Ser Asp Lys Gly Asp Gly Ser Val Lys Tyr Ile Leu Thr Gly Glu Gly
                85   90   95

Ala Gly Thr Ile Phe Ile Ile Asp Asp Thr Thr Gly Asp Ile His Ser
            100   105   110

Thr Lys Ser Leu Asp Arg Glu Gln Lys Thr His Tyr Val Leu His Ala
        115   120   125

Gln Ala Ile Asp Arg Arg Thr Asn Lys Pro Leu Glu Pro Glu Ser Glu
    130   135   140

Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Ala Pro Lys Phe Thr
145   150   155   160

```
Asp Gly Pro Tyr Ile Val Thr Val Pro Glu Met Ser Asp Met Gly Thr
                165                 170                 175

Ser Val Leu Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu His Asn Met
    210                 215                 220

Asp Arg Glu Ala Arg Glu His Tyr Ser Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Ala Gly Gln Val Gly Gly Leu Ser Gly Ser Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Lys His
            260                 265                 270

Tyr Gln Leu Tyr Val Pro Glu Ser Ala Gln Val Gly Ser Ala Val Gly
        275                 280                 285

Lys Ile Lys Ala Asn Asp Ala Asp Thr Gly Ser Asn Ala Asp Met Thr
    290                 295                 300

Tyr Ser Ile Ile Asn Gly Asp Gly Met Gly Ile Phe Ser Ile Ser Thr
305                 310                 315                 320

Asp Lys Glu Thr Arg Glu Gly Ile Leu Ser Leu Lys Lys Pro Leu Asn
                325                 330                 335

Tyr Glu Lys Lys Lys Ser Tyr Thr Leu Asn Ile Glu Gly Ala Asn Thr
            340                 345                 350

His Leu Asp Phe Arg Phe Ser His Leu Gly Pro Phe Lys Asp Ala Thr
        355                 360                 365

Met Leu Lys Ile Ile Val Gly Asp Val Asp Glu Pro Pro Leu Phe Ser
    370                 375                 380
```

```
Met Pro Ser Tyr Leu Met Glu Val Tyr Glu Asn Ala Lys Ile Gly Thr
385                 390                 395                 400

Val Val Gly Thr Val Leu Ala Gln Asp Pro Asp Ser Thr Asn Ser Leu
                405                 410                 415

Val Arg Tyr Phe Ile Asn Tyr Asn Val Glu Asp Asp Arg Phe Phe Asn
            420                 425                 430

Ile Asp Ala Asn Thr Gly Thr Ile Arg Thr Thr Lys Val Leu Asp Arg
        435                 440                 445

Glu Glu Thr Pro Trp Tyr Asn Ile Thr Val Thr Ala Ser Glu Ile Asp
    450                 455                 460

Asn Pro Asp Leu Leu Ser His Val Thr Val Gly Ile Arg Val Leu Asp
465                 470                 475                 480

Val Asn Asp Asn Pro Pro Glu Leu Ala Arg Glu Tyr Asp Ile Ile Val
                485                 490                 495

Cys Glu Asn Ser Lys Pro Gly Gln Val Ile His Thr Ile Ser Ala Thr
            500                 505                 510

Asp Lys Asp Asp Phe Ala Asn Gly Pro Arg Phe Asn Phe Phe Leu Asp
        515                 520                 525

Glu Arg Leu Pro Val Asn Pro Asn Phe Thr Leu Lys Asp Asn Glu Ala
    530                 535                 540

Ala Ala Ala Pro Ser Pro Ser Gly Phe Val His Ala Arg Glu Met Gly
545                 550                 555                 560

Val Cys Gly Pro Ala Met Gln Lys Pro Ser Cys Pro Arg Leu Val
                565                 570                 575


<210> 10347
<211> 790
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Name: cadherin 18, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q13634; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425093"

<400> 10347
Met Lys Ile Thr Ser Thr Ser Cys Ile Cys Pro Val Leu Val Cys Leu
1   5   10   15

Cys Phe Val Gln Arg Cys Tyr Gly Thr Ala His His Ser Ser Ile Lys
            20   25   30

Val Met Arg Asn Gln Thr Lys His Ile Glu Gly Glu Thr Glu Val His
        35   40   45

His Arg Pro Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu Glu
    50   55   60

Glu His Met Gly Pro Asp Pro Gln Tyr Val Gly Lys Leu His Ser Asn
65   70   75   80

Ser Asp Lys Gly Asp Gly Ser Val Lys Tyr Ile Leu Thr Gly Glu Gly
                85   90   95

Ala Gly Thr Ile Phe Ile Ile Asp Asp Thr Thr Gly Asp Ile His Ser
            100   105   110

Thr Lys Ser Leu Asp Arg Glu Gln Lys Thr His Tyr Val Leu His Ala
        115   120   125

Gln Ala Ile Asp Arg Arg Thr Asn Lys Pro Leu Glu Pro Glu Ser Glu
    130   135   140

Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Ala Pro Lys Phe Thr
145   150   155   160

```
Asp Gly Pro Tyr Ile Val Thr Val Pro Glu Met Ser Asp Met Gly Thr
                165                 170                 175

Ser Val Leu Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu His Asn Met
    210                 215                 220

Asp Arg Glu Ala Arg Glu His Tyr Ser Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Ala Gly Gln Val Gly Gly Leu Ser Gly Ser Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Lys His
            260                 265                 270

Tyr Gln Leu Tyr Val Pro Glu Ser Ala Gln Val Gly Ser Ala Val Gly
        275                 280                 285

Lys Ile Lys Ala Asn Asp Ala Asp Thr Gly Ser Asn Ala Asp Met Thr
    290                 295                 300

Tyr Ser Ile Ile Asn Gly Asp Gly Met Gly Ile Phe Ser Ile Ser Thr
305                 310                 315                 320

Asp Lys Glu Thr Arg Glu Gly Ile Leu Ser Leu Lys Lys Pro Leu Asn
                325                 330                 335

Tyr Glu Lys Lys Lys Ser Tyr Thr Leu Asn Ile Glu Gly Ala Asn Thr
            340                 345                 350

His Leu Asp Phe Arg Phe Ser His Leu Gly Pro Phe Lys Asp Ala Thr
        355                 360                 365

Met Leu Lys Ile Ile Val Gly Asp Val Asp Glu Pro Pro Leu Phe Ser
    370                 375                 380

Met Pro Ser Tyr Leu Met Glu Val Tyr Glu Asn Ala Lys Ile Gly Thr
```

385 390 395 400

Val Val Gly Thr Val Leu Ala Gln Asp Pro Asp Ser Thr Asn Ser Leu
405 410 415

Val Arg Tyr Phe Ile Asn Tyr Asn Val Glu Asp Asp Arg Phe Phe Asn
420 425 430

Ile Asp Ala Asn Thr Gly Thr Ile Arg Thr Thr Lys Val Leu Asp Arg
435 440 445

Glu Glu Thr Pro Trp Tyr Asn Ile Thr Val Thr Ala Ser Glu Ile Asp
450 455 460

Asn Pro Asp Leu Leu Ser His Val Thr Val Gly Ile Arg Val Leu Asp
465 470 475 480

Val Asn Asp Asn Pro Pro Glu Leu Ala Arg Glu Tyr Asp Ile Ile Val
485 490 495

Cys Glu Asn Ser Lys Pro Gly Gln Val Ile His Thr Ile Ser Ala Thr
500 505 510

Asp Lys Asp Asp Phe Ala Asn Gly Pro Arg Phe Asn Phe Phe Leu Asp
515 520 525

Glu Arg Leu Pro Val Asn Pro Asn Phe Thr Leu Lys Asp Asn Glu Asp
530 535 540

Asn Thr Ala Ser Ile Leu Thr Arg Arg Arg Arg Phe Ser Arg Thr Val
545 550 555 560

Gln Asp Val Tyr Tyr Leu Pro Ile Met Ile Ser Asp Gly Gly Ile Pro
565 570 575

Ser Leu Ser Ser Ser Ser Thr Leu Thr Ile Arg Val Cys Ala Cys Glu
580 585 590

Arg Asp Gly Arg Val Arg Thr Cys His Ala Glu Ala Phe Leu Ser Ser
595 600 605

Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Leu Cys Val Leu
610 615 620

```
Ile Leu Leu Ala Ile Val Val Leu Phe Ile Thr Leu Arg Arg Ser Lys
625                 630                 635                 640

Lys Glu Pro Leu Ile Ile Ser Glu Glu Asp Val Arg Glu Asn Val Val
                645                 650                 655

Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp
            660                 665                 670

Ile Thr Ala Leu Arg Asn Pro Ser Ala Ala Glu Glu Leu Lys Tyr Arg
        675                 680                 685

Arg Asp Ile Arg Pro Glu Val Lys Leu Thr Pro Arg His Gln Thr Ser
    690                 695                 700

Ser Thr Leu Glu Ser Ile Asp Val Gln Glu Phe Ile Lys Gln Arg Leu
705                 710                 715                 720

Ala Glu Ala Asp Leu Asp Pro Ser Val Pro Pro Tyr Asp Ser Leu Gln
                725                 730                 735

Thr Tyr Ala Tyr Glu Gly Gln Arg Ser Glu Ala Gly Ser Ile Ser Ser
            740                 745                 750

Leu Asp Ser Ala Thr Thr Gln Ser Asp Gln Asp Tyr His Tyr Leu Gly
        755                 760                 765

Asp Trp Gly Pro Glu Phe Lys Lys Leu Ala Glu Leu Tyr Gly Glu Ile
    770                 775                 780

Glu Ser Glu Arg Thr Thr
785                 790


<210> 10348
<211> 590
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<223> /note="Gene Symbol: CDH18; "

<220>
<221> source
<223> /note="Gene Name: cadherin 18, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425854"

<400> 10348

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Met Lys Ile Thr Ser Thr Ser Cys Ile Cys Pro Val Leu Val Cys Leu
1               5                  10                  15

Cys Phe Val Gln Arg Cys Tyr Gly Thr Ala His His Ser Ser Ile Lys
            20                  25                  30

Val Met Arg Asn Gln Thr Lys His Ile Glu Gly Glu Thr Glu Val His
        35                  40                  45

His Arg Pro Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Leu Glu
    50                  55                  60

Glu His Met Gly Pro Asp Pro Gln Tyr Val Gly Lys Leu His Ser Asn
65                  70                  75                  80

Ser Asp Lys Gly Asp Gly Ser Val Lys Tyr Ile Leu Thr Gly Glu Gly
                85                  90                  95

Ala Gly Thr Ile Phe Ile Ile Asp Asp Thr Thr Gly Asp Ile His Ser
            100                 105                 110

Thr Lys Ser Leu Asp Arg Glu Gln Lys Thr His Tyr Val Leu His Ala
        115                 120                 125

Gln Ala Ile Asp Arg Arg Thr Asn Lys Pro Leu Glu Pro Glu Ser Glu
    130                 135                 140

Phe Ile Ile Lys Val Gln Asp Ile Asn Asp Asn Ala Pro Lys Phe Thr
145                 150                 155                 160

Asp Gly Pro Tyr Ile Val Thr Val Pro Glu Met Ser Asp Met Gly Thr
                165                 170                 175

Ser Val Leu Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190
```

```
Asn Ser Ala Arg Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Asp Pro Lys Thr Gly Val Ile Arg Thr Ala Leu His Asn Met
    210                 215                 220

Asp Arg Glu Ala Arg Glu His Tyr Ser Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Ala Gly Gln Val Gly Gly Leu Ser Gly Ser Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Lys His
            260                 265                 270

Tyr Gln Leu Tyr Val Pro Glu Ser Ala Gln Val Gly Ser Ala Val Gly
        275                 280                 285

Lys Ile Lys Ala Asn Asp Ala Asp Thr Gly Ser Asn Ala Asp Met Thr
    290                 295                 300

Tyr Ser Ile Ile Asn Gly Asp Gly Met Gly Ile Phe Ser Ile Ser Thr
305                 310                 315                 320

Asp Lys Glu Thr Arg Glu Gly Ile Leu Ser Leu Lys Lys Pro Leu Asn
                325                 330                 335

Tyr Glu Lys Lys Lys Ser Tyr Thr Leu Asn Ile Glu Gly Ala Asn Thr
            340                 345                 350

His Leu Asp Phe Arg Phe Ser His Leu Gly Pro Phe Lys Asp Ala Thr
        355                 360                 365

Met Leu Lys Ile Ile Val Gly Asp Val Asp Glu Pro Pro Leu Phe Ser
    370                 375                 380

Met Pro Ser Tyr Leu Met Glu Val Tyr Glu Asn Ala Lys Ile Gly Thr
385                 390                 395                 400

Val Val Gly Thr Val Leu Ala Gln Asp Pro Asp Ser Thr Asn Ser Leu
                405                 410                 415
```

```
Val Arg Tyr Phe Ile Asn Tyr Asn Val Glu Asp Asp Arg Phe Phe Asn
            420                 425                 430

Ile Asp Ala Asn Thr Gly Thr Ile Arg Thr Thr Lys Val Leu Asp Arg
        435                 440                 445

Glu Glu Thr Pro Trp Tyr Asn Ile Thr Val Thr Ala Ser Glu Ile Asp
    450                 455                 460

Asn Pro Asp Leu Leu Ser His Val Thr Val Gly Ile Arg Val Leu Asp
465                 470                 475                 480

Val Asn Asp Asn Pro Pro Glu Leu Ala Arg Glu Tyr Asp Ile Ile Val
                485                 490                 495

Cys Glu Asn Ser Lys Pro Gly Gln Val Ile His Thr Ile Ser Ala Thr
            500                 505                 510

Asp Lys Asp Asp Phe Ala Asn Gly Pro Arg Phe Asn Phe Phe Leu Asp
        515                 520                 525

Glu Arg Leu Pro Val Asn Pro Asn Phe Thr Leu Lys Asp Asn Glu Gly
    530                 535                 540

Glu His Ile Tyr Thr Tyr Leu Phe Ile Tyr Val Val Ser Ala Leu Thr
545                 550                 555                 560

Leu Tyr Val Ile Gly Phe Ile Leu Ile Tyr Thr Gln Thr Ser Cys Lys
                565                 570                 575

Ser Ala Phe Lys Val Ser Leu Met Leu Leu Cys Tyr Asp Leu
            580                 585                 590
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<210> 10349
<211> 441
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CDH18; "

<220>
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<223> /note="Gene Name: cadherin 18, type 2; "

<220>
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<400> 10349
Trp Val Trp Asn Gln Phe Phe Val Leu Glu Glu His Met Gly Pro Asp
1   5   10   15

Pro Gln Tyr Val Gly Lys Leu His Ser Asn Ser Asp Lys Gly Asp Gly
            20   25   30

Ser Val Lys Tyr Ile Leu Thr Gly Glu Gly Ala Gly Thr Ile Phe Ile
        35   40   45

Ile Asp Asp Thr Thr Gly Asp Ile His Ser Thr Lys Ser Leu Asp Arg
    50   55   60

Glu Gln Lys Thr His Tyr Val Leu His Ala Gln Ala Ile Asp Arg Arg
65   70   75   80

Thr Asn Lys Pro Leu Glu Pro Glu Ser Glu Phe Ile Ile Lys Val Gln
                85   90   95

Asp Ile Asn Asp Asn Ala Pro Lys Phe Thr Asp Gly Pro Tyr Ile Val
            100   105   110

Thr Val Pro Glu Met Ser Asp Met Gly Thr Ser Val Leu Gln Val Thr
        115   120   125

Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly Asn Ser Ala Arg Val Val
    130   135   140

Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe Ser Val Asp Pro Lys Thr
145   150   155   160

Gly Val Ile Arg Thr Ala Leu His Asn Met Asp Arg Glu Ala Arg Glu
                165   170   175

His Tyr Ser Val Val Ile Gln Ala Lys Asp Met Ala Gly Gln Val Gly
            180   185   190

```
Gly Leu Ser Gly Ser Thr Thr Val Asn Ile Thr Leu Thr Asp Val Asn
        195                 200                 205

Asp Asn Pro Pro Arg Phe Pro Gln Lys His Tyr Gln Leu Tyr Val Pro
    210                 215                 220

Glu Ser Ala Gln Val Gly Ser Ala Val Gly Lys Ile Lys Ala Asn Asp
225                 230                 235                 240

Ala Asp Thr Gly Ser Asn Ala Asp Met Thr Tyr Ser Ile Ile Asn Gly
                245                 250                 255

Asp Gly Met Gly Ile Phe Ser Ile Ser Thr Asp Lys Glu Thr Arg Glu
            260                 265                 270

Gly Ile Leu Ser Leu Lys Lys Pro Leu Asn Tyr Glu Lys Lys Lys Ser
        275                 280                 285

Tyr Thr Leu Asn Ile Glu Gly Ala Asn Thr His Leu Asp Phe Arg Phe
    290                 295                 300

Ser His Leu Gly Pro Phe Lys Asp Ala Thr Met Leu Lys Ile Ile Val
305                 310                 315                 320

Gly Asp Val Asp Glu Pro Pro Leu Phe Ser Met Pro Ser Tyr Leu Met
                325                 330                 335

Glu Val Tyr Glu Asn Ala Lys Ile Gly Thr Val Val Gly Thr Val Leu
            340                 345                 350

Ala Gln Asp Pro Asp Ser Thr Asn Ser Leu Val Arg Tyr Phe Ile Asn
        355                 360                 365

Tyr Asn Val Glu Asp Asp Arg Phe Phe Asn Ile Asp Ala Asn Thr Gly
    370                 375                 380

Thr Ile Arg Thr Thr Lys Val Leu Asp Arg Glu Glu Thr Pro Trp Tyr
385                 390                 395                 400

Asn Ile Thr Val Thr Ala Ser Glu Ile Ala Ala Ala Ala Pro Ser Pro
                405                 410                 415
```

Ser Gly Phe Val His Ala Arg Glu Met Gly Val Cys Gly Pro Ala Met
420 425 430

Gln Lys Pro Ser Cys Pro Arg Leu Val
435 440

<210> 10350
<211> 772
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2072; "

<220>
<221> source
<223> /note="Gene Symbol: CDH19; "

<220>
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<223> /note="Gene Name: cadherin 19, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H159; "

<220>
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<223> /note="ENSP ID: ENSP00000262150"

<400> 10350
Met Asn Cys Tyr Leu Leu Leu Arg Phe Met Leu Gly Ile Pro Leu Leu
1 5 10 15

Trp Pro Cys Leu Gly Ala Thr Glu Asn Ser Gln Thr Lys Lys Val Lys
20 25 30

Gln Pro Val Arg Ser His Leu Arg Val Lys Arg Gly Trp Val Trp Asn
35 40 45

Gln Phe Phe Val Pro Glu Glu Met Asn Thr Thr Ser His His Ile Gly
50 55 60

Gln Leu Arg Ser Asp Leu Asp Asn Gly Asn Asn Ser Phe Gln Tyr Lys
65 70 75 80

Leu Leu Gly Ala Gly Ala Gly Ser Thr Phe Ile Ile Asp Glu Arg Thr
85 90 95

```
Gly Asp Ile Tyr Ala Ile Gln Lys Leu Asp Arg Glu Glu Arg Ser Leu
            100                 105                 110

Tyr Ile Leu Arg Ala Gln Val Ile Asp Ile Ala Thr Gly Arg Ala Val
        115                 120                 125

Glu Pro Glu Ser Glu Phe Val Ile Lys Val Ser Asp Ile Asn Asp Asn
    130                 135                 140

Glu Pro Lys Phe Leu Asp Glu Pro Tyr Glu Ala Ile Val Pro Glu Met
145                 150                 155                 160

Ser Pro Glu Gly Thr Leu Val Ile Gln Val Thr Ala Ser Asp Ala Asp
                165                 170                 175

Asp Pro Ser Ser Gly Asn Asn Ala Arg Leu Leu Tyr Ser Leu Leu Gln
            180                 185                 190

Gly Gln Pro Tyr Phe Ser Val Glu Pro Thr Thr Gly Val Ile Arg Ile
        195                 200                 205

Ser Ser Lys Met Asp Arg Glu Leu Gln Asp Glu Tyr Trp Val Ile Ile
    210                 215                 220

Gln Ala Lys Asp Met Ile Gly Gln Pro Gly Ala Leu Ser Gly Thr Thr
225                 230                 235                 240

Ser Val Leu Ile Lys Leu Ser Asp Val Asn Asp Asn Lys Pro Ile Phe
                245                 250                 255

Lys Glu Ser Leu Tyr Arg Leu Thr Val Ser Glu Ser Ala Pro Thr Gly
            260                 265                 270

Thr Ser Ile Gly Thr Ile Met Ala Tyr Asp Asn Asp Ile Gly Glu Asn
        275                 280                 285

Ala Glu Met Asp Tyr Ser Ile Glu Glu Asp Asp Ser Gln Thr Phe Asp
    290                 295                 300

Ile Ile Thr Asn His Glu Thr Gln Glu Gly Ile Val Ile Leu Lys Lys
305                 310                 315                 320
```

```
Lys Val Asp Phe Glu His Gln Asn His Tyr Gly Ile Arg Ala Lys Val
                325                 330                 335

Lys Asn His His Val Pro Glu Gln Leu Met Lys Tyr His Thr Glu Ala
            340                 345                 350

Ser Thr Thr Phe Ile Lys Ile Gln Val Glu Asp Val Asp Glu Pro Pro
        355                 360                 365

Leu Phe Leu Leu Pro Tyr Tyr Val Phe Glu Val Phe Glu Glu Thr Pro
    370                 375                 380

Gln Gly Ser Phe Val Gly Val Val Ser Ala Thr Asp Pro Asp Asn Arg
385                 390                 395                 400

Lys Ser Pro Ile Arg Tyr Ser Ile Thr Arg Ser Lys Val Phe Asn Ile
                405                 410                 415

Asn Asp Asn Gly Thr Ile Thr Thr Ser Asn Ser Leu Asp Arg Glu Ile
            420                 425                 430

Ser Ala Trp Tyr Asn Leu Ser Ile Thr Ala Thr Glu Lys Tyr Asn Ile
        435                 440                 445

Glu Gln Ile Ser Ser Ile Pro Leu Tyr Val Gln Val Leu Asn Ile Asn
    450                 455                 460

Asp His Ala Pro Glu Phe Ser Gln Tyr Tyr Glu Thr Tyr Val Cys Glu
465                 470                 475                 480

Asn Ala Gly Ser Gly Gln Val Ile Gln Thr Ile Ser Ala Val Asp Arg
                485                 490                 495

Asp Glu Ser Ile Glu Glu His His Phe Tyr Phe Asn Leu Ser Val Glu
            500                 505                 510

Asp Thr Asn Asn Ser Ser Phe Thr Ile Ile Asp Asn Gln Asp Asn Thr
        515                 520                 525

Ala Val Ile Leu Thr Asn Arg Thr Gly Phe Asn Leu Gln Glu Glu Pro
    530                 535                 540

Val Phe Tyr Ile Ser Ile Leu Ile Ala Asp Asn Gly Ile Pro Ser Leu
```

545 550 555 560

Thr Ser Thr Asn Thr Leu Thr Ile His Val Cys Asp Cys Gly Asp Ser
565 570 575

Gly Ser Thr Gln Thr Cys Gln Tyr Gln Glu Leu Val Leu Ser Met Gly
580 585 590

Phe Lys Thr Glu Val Ile Ile Ala Ile Leu Ile Cys Ile Met Ile Ile
595 600 605

Phe Gly Phe Ile Phe Leu Thr Leu Gly Leu Lys Gln Arg Arg Lys Gln
610 615 620

Ile Leu Phe Pro Glu Lys Ser Glu Asp Phe Arg Glu Asn Ile Phe Gln
625 630 635 640

Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp Ile
645 650 655

Ala Glu Leu Arg Ser Ser Thr Ile Met Arg Glu Arg Lys Thr Arg Lys
660 665 670

Thr Thr Ser Ala Glu Ile Arg Ser Leu Tyr Arg Gln Ser Leu Gln Val
675 680 685

Gly Pro Asp Ser Ala Ile Phe Arg Lys Phe Ile Leu Glu Lys Leu Glu
690 695 700

Glu Ala Asn Thr Asp Pro Cys Ala Pro Pro Phe Asp Ser Leu Gln Thr
705 710 715 720

Tyr Ala Phe Glu Gly Thr Gly Ser Leu Ala Gly Ser Leu Ser Ser Leu
725 730 735

Glu Ser Ala Val Ser Asp Gln Asp Glu Ser Tyr Asp Tyr Leu Asn Glu
740 745 750

Leu Gly Pro Arg Phe Lys Arg Leu Ala Cys Met Phe Gly Ser Ala Val
755 760 765

Gln Ser Asn Asn
770

<210> 10351
<211> 434
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2072; "

<220>
<221> source
<223> /note="Gene Symbol: CDH19; "

<220>
<221> source
<223> /note="Gene Name: cadherin 19, type 2; "

<220>
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<223> /note="ENSP ID: ENSP00000401998"

<400> 10351
Gly Ile Pro Leu Leu Trp Pro Cys Leu Gly Ala Thr Glu Asn Ser Gln
1   5   10   15

Thr Lys Lys Val Lys Gln Pro Val Arg Ser His Leu Arg Val Lys Arg
            20   25   30

Gly Trp Val Trp Asn Gln Phe Phe Val Pro Glu Glu Met Asn Thr Thr
        35   40   45

Ser His His Ile Gly Gln Leu Arg Ser Asp Leu Asp Asn Gly Asn Asn
    50   55   60

Ser Phe Gln Tyr Lys Leu Leu Gly Ala Gly Ala Gly Ser Thr Phe Ile
65   70   75   80

Ile Asp Glu Arg Thr Gly Asp Ile Tyr Ala Ile Gln Lys Leu Asp Arg
                85   90   95

Glu Glu Arg Ser Leu Tyr Ile Leu Arg Ala Gln Val Ile Asp Ile Ala
            100   105   110

Thr Gly Arg Ala Val Glu Pro Glu Ser Glu Phe Val Ile Lys Val Ser
        115   120   125

Asp Ile Asn Asp Asn Glu Pro Lys Phe Leu Asp Glu Pro Tyr Glu Ala

```
    130                 135                 140

Ile Val Pro Glu Met Ser Pro Glu Gly Thr Leu Val Ile Gln Val Thr
145                 150                 155                 160

Ala Ser Asp Ala Asp Asp Pro Ser Ser Gly Asn Asn Ala Arg Leu Leu
                165                 170                 175

Tyr Ser Leu Leu Gln Gly Gln Pro Tyr Phe Ser Val Glu Pro Thr Thr
            180                 185                 190

Gly Val Ile Arg Ile Ser Ser Lys Met Asp Arg Glu Leu Gln Asp Glu
        195                 200                 205

Tyr Trp Val Ile Ile Gln Ala Lys Asp Met Ile Gly Gln Pro Gly Ala
    210                 215                 220

Leu Ser Gly Thr Thr Ser Val Leu Ile Lys Leu Ser Asp Val Asn Asp
225                 230                 235                 240

Asn Lys Pro Ile Phe Lys Glu Ser Leu Tyr Arg Leu Thr Val Ser Glu
                245                 250                 255

Ser Ala Pro Thr Gly Thr Ser Ile Gly Thr Ile Met Ala Tyr Asp Asn
            260                 265                 270

Asp Ile Gly Glu Asn Ala Glu Met Asp Tyr Ser Ile Glu Glu Asp Asp
        275                 280                 285

Ser Gln Thr Phe Asp Ile Ile Thr Asn His Glu Thr Gln Glu Gly Ile
    290                 295                 300

Val Ile Leu Lys Lys Lys Val Asp Phe Glu His Gln Asn His Tyr Gly
305                 310                 315                 320

Ile Arg Ala Lys Val Lys Asn His His Val Pro Glu Gln Leu Met Lys
                325                 330                 335

Tyr His Thr Glu Ala Ser Thr Thr Phe Ile Lys Ile Gln Val Glu Asp
            340                 345                 350

Val Asp Glu Pro Pro Leu Phe Leu Leu Pro Tyr Tyr Val Phe Glu Val
        355                 360                 365
```

Phe Glu Glu Thr Pro Gln Gly Ser Phe Val Gly Val Val Ser Ala Thr
370 375 380

Asp Pro Asp Asn Arg Lys Ser Pro Ile Arg Tyr Ser Ile Thr Arg Ser
385 390 395 400

Lys Val Phe Asn Ile Asn Asp Asn Gly Thr Ile Thr Thr Ser Asn Ser
405 410 415

Leu Asp Arg Glu Ile Ser Ala Trp Tyr Asn Leu Ser Ile Thr Ala Thr
420 425 430

Glu Lys

<210> 10352
<211> 490
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2072; "

<220>
<221> source
<223> /note="Gene Symbol: CDH19; "

<220>
<221> source
<223> /note="Gene Name: cadherin 19, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H159; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439593"

<400> 10352
Met Asn Cys Tyr Leu Leu Leu Arg Phe Met Leu Gly Ile Pro Leu Leu
1 5 10 15

Trp Pro Cys Leu Gly Ala Thr Glu Asn Ser Gln Thr Lys Lys Val Lys
20 25 30

Gln Pro Val Arg Ser His Leu Arg Val Lys Arg Gly Trp Val Trp Asn

```
        35                  40                  45

Gln Phe Phe Val Pro Glu Glu Met Asn Thr Thr Ser His His Ile Gly
    50                  55                  60

Gln Leu Arg Ser Asp Leu Asp Asn Gly Asn Asn Ser Phe Gln Tyr Lys
65                  70                  75                  80

Leu Leu Gly Ala Gly Ala Gly Ser Thr Phe Ile Ile Asp Glu Arg Thr
                85                  90                  95

Gly Asp Ile Tyr Ala Ile Gln Lys Leu Asp Arg Glu Glu Arg Ser Leu
            100                 105                 110

Tyr Ile Leu Arg Ala Gln Val Ile Asp Ile Ala Thr Gly Arg Ala Val
        115                 120                 125

Glu Pro Glu Ser Glu Phe Val Ile Lys Val Ser Asp Ile Asn Asp Asn
    130                 135                 140

Glu Pro Lys Phe Leu Asp Glu Pro Tyr Glu Ala Ile Val Pro Glu Met
145                 150                 155                 160

Ser Pro Glu Gly Thr Leu Val Ile Gln Val Thr Ala Ser Asp Ala Asp
                165                 170                 175

Asp Pro Ser Ser Gly Asn Asn Ala Arg Leu Leu Tyr Ser Leu Leu Gln
            180                 185                 190

Gly Gln Pro Tyr Phe Ser Val Glu Pro Thr Thr Gly Val Ile Arg Ile
        195                 200                 205

Ser Ser Lys Met Asp Arg Glu Leu Gln Asp Glu Tyr Trp Val Ile Ile
    210                 215                 220

Gln Ala Lys Asp Met Ile Gly Gln Pro Gly Ala Leu Ser Gly Thr Thr
225                 230                 235                 240

Ser Val Leu Ile Lys Leu Ser Asp Val Asn Asp Asn Lys Pro Ile Phe
                245                 250                 255

Lys Glu Ser Leu Tyr Arg Leu Thr Val Ser Glu Ser Ala Pro Thr Gly
            260                 265                 270
```

```
Thr Ser Ile Gly Thr Ile Met Ala Tyr Asp Asn Asp Ile Gly Glu Asn
        275                 280                 285

Ala Glu Met Asp Tyr Ser Ile Glu Glu Asp Asp Ser Gln Thr Phe Asp
    290                 295                 300

Ile Ile Thr Asn His Glu Thr Gln Glu Gly Ile Val Ile Leu Lys Lys
305                 310                 315                 320

Lys Val Asp Phe Glu His Gln Asn His Tyr Gly Ile Arg Ala Lys Val
                325                 330                 335

Lys Asn His His Val Pro Glu Gln Leu Met Lys Tyr His Thr Glu Ala
            340                 345                 350

Ser Thr Thr Phe Ile Lys Ile Gln Val Glu Asp Val Asp Glu Pro Pro
        355                 360                 365

Leu Phe Leu Leu Pro Tyr Tyr Val Phe Glu Val Phe Glu Glu Thr Pro
    370                 375                 380

Gln Gly Ser Phe Val Gly Val Val Ser Ala Thr Asp Pro Asp Asn Arg
385                 390                 395                 400

Lys Ser Pro Ile Arg Tyr Ser Ile Thr Arg Ser Lys Val Phe Asn Ile
                405                 410                 415

Asn Asp Asn Gly Thr Ile Thr Thr Ser Asn Ser Leu Asp Arg Glu Ile
            420                 425                 430

Ser Ala Trp Tyr Asn Leu Ser Ile Thr Ala Thr Glu Lys Tyr Asn Ile
        435                 440                 445

Glu Gln Ile Ser Ser Ile Pro Leu Tyr Val Gln Val Leu Asn Ile Asn
    450                 455                 460

Asp His Ala Pro Glu Phe Ser Gln Tyr Tyr Glu Thr Tyr Val Cys Glu
465                 470                 475                 480

Asn Ala Gly Ser Gly Gln Gly Leu Phe Phe
                485                 490
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<210> 10353
<211> 541
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2072; "

<220>
<221> source
<223> /note="Gene Symbol: CDH19; "

<220>
<221> source
<223> /note="Gene Name: cadherin 19, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463085"

<400> 10353
Met Asn Cys Tyr Leu Leu Leu Arg Phe Met Leu Gly Ile Pro Leu Leu
1   5   10   15

Trp Pro Cys Leu Gly Ala Thr Glu Asn Ser Gln Thr Lys Lys Val Lys
            20   25   30

Gln Pro Val Arg Ser His Leu Arg Val Lys Arg Gly Trp Val Trp Asn
        35   40   45

Gln Phe Phe Val Pro Glu Glu Met Asn Thr Thr Ser His His Ile Gly
    50   55   60

Gln Leu Arg Ser Asp Leu Asp Asn Gly Asn Asn Ser Phe Gln Tyr Lys
65   70   75   80

Leu Leu Gly Ala Gly Ala Gly Ser Thr Phe Ile Ile Asp Glu Arg Thr
                85   90   95

Gly Asp Ile Tyr Ala Ile Gln Lys Leu Asp Arg Glu Glu Arg Ser Leu
            100   105   110

Tyr Ile Leu Arg Ala Gln Val Ile Asp Ile Ala Thr Gly Arg Ala Val
        115   120   125

Glu Pro Glu Ser Glu Phe Val Ile Lys Val Ser Asp Ile Asn Asp Asn
    130   135   140

```
Glu Pro Lys Phe Leu Asp Glu Pro Tyr Glu Ala Ile Val Pro Glu Met
145                 150                 155                 160

Ser Pro Glu Gly Thr Leu Val Ile Gln Val Thr Ala Ser Asp Ala Asp
                165                 170                 175

Asp Pro Ser Ser Gly Asn Asn Ala Arg Leu Leu Tyr Ser Leu Leu Gln
            180                 185                 190

Gly Gln Pro Tyr Phe Ser Val Glu Pro Thr Thr Gly Val Ile Arg Ile
        195                 200                 205

Ser Ser Lys Met Asp Arg Glu Leu Gln Asp Glu Tyr Trp Val Ile Ile
    210                 215                 220

Gln Ala Lys Asp Met Ile Gly Gln Pro Gly Ala Leu Ser Gly Thr Thr
225                 230                 235                 240

Ser Val Leu Ile Lys Leu Ser Asp Val Asn Asp Asn Lys Pro Ile Phe
                245                 250                 255

Lys Glu Ser Leu Tyr Arg Leu Thr Val Ser Glu Ser Ala Pro Thr Gly
            260                 265                 270

Thr Ser Ile Gly Thr Ile Met Ala Tyr Asp Asn Asp Ile Gly Glu Asn
        275                 280                 285

Ala Glu Met Asp Tyr Ser Ile Glu Glu Asp Asp Ser Gln Thr Phe Asp
    290                 295                 300

Ile Ile Thr Asn His Glu Thr Gln Glu Gly Ile Val Ile Leu Lys Lys
305                 310                 315                 320

Lys Val Asp Phe Glu His Gln Asn His Tyr Gly Ile Arg Ala Lys Val
                325                 330                 335

Lys Asn His His Val Pro Glu Gln Leu Met Lys Tyr His Thr Glu Ala
            340                 345                 350

Ser Thr Thr Phe Ile Lys Ile Gln Val Glu Asp Val Asp Glu Pro Pro
        355                 360                 365
```

```
Leu Phe Leu Leu Pro Tyr Tyr Val Phe Glu Val Phe Glu Glu Thr Pro
    370                 375                 380

Gln Gly Ser Phe Val Gly Val Val Ser Ala Thr Asp Pro Asp Asn Arg
385                 390                 395                 400

Lys Ser Pro Ile Arg Tyr Ser Ile Thr Arg Ser Lys Val Phe Asn Ile
                405                 410                 415

Asn Asp Asn Gly Thr Ile Thr Thr Ser Asn Ser Leu Asp Arg Glu Ile
            420                 425                 430

Ser Ala Trp Tyr Asn Leu Ser Ile Thr Ala Thr Glu Lys Tyr Asn Ile
        435                 440                 445

Glu Gln Ile Ser Ser Ile Pro Leu Tyr Val Gln Val Leu Asn Ile Asn
    450                 455                 460

Asp His Ala Pro Glu Phe Ser Gln Tyr Tyr Glu Thr Tyr Val Cys Glu
465                 470                 475                 480

Asn Ala Gly Ser Gly Gln Val Ile Gln Thr Ile Ser Ala Val Asp Arg
                485                 490                 495

Asp Glu Ser Ile Glu Glu His His Phe Tyr Phe Asn Leu Ser Val Glu
            500                 505                 510

Asp Thr Asn Asn Ser Ser Phe Thr Ile Ile Asp Asn Gln Glu Leu Val
        515                 520                 525

Leu Thr Phe Lys Lys Asn Leu Ser Ser Thr Ser Pro Ser
    530                 535                 540


<210> 10354
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CDH19; "
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<220>
<221> source
<223> /note="Gene Name: cadherin 19, type 2; "

<220>
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<223> /note="ENSP ID: ENSP00000464477"

<400> 10354
Met Asn Cys Tyr Leu Leu Leu Arg Phe Met Leu Gly Ile Pro Leu Leu
1   5   10   15

Trp Pro Cys Leu Gly Ala Thr Glu Asn Ser Gln Thr Lys Lys Val Lys
            20   25   30

Gln Pro Val Arg Ser His Leu Arg Val Lys Arg Gly Trp Val Trp Asn
        35   40   45

Gln Phe Phe Val Pro Glu Glu Met Asn Thr Thr Ser His His Ile Gly
    50   55   60

Gln
65

<210> 10355
<211> 906
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2073; "

<220>
<221> source
<223> /note="Gene Symbol: CDH2; "

<220>
<221> source
<223> /note="Gene Name: cadherin 2, type 1, N-cadherin
(neuronal); "

<220>
<221> source
<223> /note="Uniprot ID: P19022; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000269141"

<400> 10355

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Met Cys Arg Ile Ala Gly Ala Leu Arg Thr Leu Leu Pro Leu Leu Ala
1               5                  10                  15

Ala Leu Leu Gln Ala Ser Val Glu Ala Ser Gly Glu Ile Ala Leu Cys
            20                  25                  30

Lys Thr Gly Phe Pro Glu Asp Val Tyr Ser Ala Val Leu Ser Lys Asp
        35                  40                  45

Val His Glu Gly Gln Pro Leu Leu Asn Val Lys Phe Ser Asn Cys Asn
    50                  55                  60

Gly Lys Arg Lys Val Gln Tyr Glu Ser Ser Glu Pro Ala Asp Phe Lys
65                  70                  75                  80

Val Asp Glu Asp Gly Met Val Tyr Ala Val Arg Ser Phe Pro Leu Ser
                85                  90                  95

Ser Glu His Ala Lys Phe Leu Ile Tyr Ala Gln Asp Lys Glu Thr Gln
            100                 105                 110

Glu Lys Trp Gln Val Ala Val Lys Leu Ser Leu Lys Pro Thr Leu Thr
        115                 120                 125

Glu Glu Ser Val Lys Glu Ser Ala Glu Val Glu Glu Ile Val Phe Pro
    130                 135                 140

Arg Gln Phe Ser Lys His Ser Gly His Leu Gln Arg Gln Lys Arg Asp
145                 150                 155                 160

Trp Val Ile Pro Pro Ile Asn Leu Pro Glu Asn Ser Arg Gly Pro Phe
                165                 170                 175

Pro Gln Glu Leu Val Arg Ile Arg Ser Asp Arg Asp Lys Asn Leu Ser
            180                 185                 190

Leu Arg Tyr Ser Val Thr Gly Pro Gly Ala Asp Gln Pro Pro Thr Gly
        195                 200                 205

Ile Phe Ile Ile Asn Pro Ile Ser Gly Gln Leu Ser Val Thr Lys Pro
    210                 215                 220

Leu Asp Arg Glu Gln Ile Ala Arg Phe His Leu Arg Ala His Ala Val
```

225 230 235 240

Asp Ile Asn Gly Asn Gln Val Glu Asn Pro Ile Asp Ile Val Ile Asn
245 250 255

Val Ile Asp Met Asn Asp Asn Arg Pro Glu Phe Leu His Gln Val Trp
260 265 270

Asn Gly Thr Val Pro Glu Gly Ser Lys Pro Gly Thr Tyr Val Met Thr
275 280 285

Val Thr Ala Ile Asp Ala Asp Asp Pro Asn Ala Leu Asn Gly Met Leu
290 295 300

Arg Tyr Arg Ile Val Ser Gln Ala Pro Ser Thr Pro Ser Pro Asn Met
305 310 315 320

Phe Thr Ile Asn Asn Glu Thr Gly Asp Ile Ile Thr Val Ala Ala Gly
325 330 335

Leu Asp Arg Glu Lys Val Gln Gln Tyr Thr Leu Ile Ile Gln Ala Thr
340 345 350

Asp Met Glu Gly Asn Pro Thr Tyr Gly Leu Ser Asn Thr Ala Thr Ala
355 360 365

Val Ile Thr Val Thr Asp Val Asn Asp Asn Pro Pro Glu Phe Thr Ala
370 375 380

Met Thr Phe Tyr Gly Glu Val Pro Glu Asn Arg Val Asp Ile Ile Val
385 390 395 400

Ala Asn Leu Thr Val Thr Asp Lys Asp Gln Pro His Thr Pro Ala Trp
405 410 415

Asn Ala Val Tyr Arg Ile Ser Gly Gly Asp Pro Thr Gly Arg Phe Ala
420 425 430

Ile Gln Thr Asp Pro Asn Ser Asn Asp Gly Leu Val Thr Val Val Lys
435 440 445

Pro Ile Asp Phe Glu Thr Asn Arg Met Phe Val Leu Thr Val Ala Ala
450 455 460

```
Glu Asn Gln Val Pro Leu Ala Lys Gly Ile Gln His Pro Pro Gln Ser
465                 470                 475                 480

Thr Ala Thr Val Ser Val Thr Val Ile Asp Val Asn Glu Asn Pro Tyr
                485                 490                 495

Phe Ala Pro Asn Pro Lys Ile Ile Arg Gln Glu Glu Gly Leu His Ala
            500                 505                 510

Gly Thr Met Leu Thr Thr Phe Thr Ala Gln Asp Pro Asp Arg Tyr Met
        515                 520                 525

Gln Gln Asn Ile Arg Tyr Thr Lys Leu Ser Asp Pro Ala Asn Trp Leu
    530                 535                 540

Lys Ile Asp Pro Val Asn Gly Gln Ile Thr Thr Ile Ala Val Leu Asp
545                 550                 555                 560

Arg Glu Ser Pro Asn Val Lys Asn Asn Ile Tyr Asn Ala Thr Phe Leu
                565                 570                 575

Ala Ser Asp Asn Gly Ile Pro Pro Met Ser Gly Thr Gly Thr Leu Gln
            580                 585                 590

Ile Tyr Leu Leu Asp Ile Asn Asp Asn Ala Pro Gln Val Leu Pro Gln
        595                 600                 605

Glu Ala Glu Thr Cys Glu Thr Pro Asp Pro Asn Ser Ile Asn Ile Thr
    610                 615                 620

Ala Leu Asp Tyr Asp Ile Asp Pro Asn Ala Gly Pro Phe Ala Phe Asp
625                 630                 635                 640

Leu Pro Leu Ser Pro Val Thr Ile Lys Arg Asn Trp Thr Ile Thr Arg
                645                 650                 655

Leu Asn Gly Asp Phe Ala Gln Leu Asn Leu Lys Ile Lys Phe Leu Glu
            660                 665                 670

Ala Gly Ile Tyr Glu Val Pro Ile Ile Ile Thr Asp Ser Gly Asn Pro
        675                 680                 685
```

```
Pro Lys Ser Asn Ile Ser Ile Leu Arg Val Lys Val Cys Gln Cys Asp
    690                 695                 700

Ser Asn Gly Asp Cys Thr Asp Val Asp Arg Ile Val Gly Ala Gly Leu
705                 710                 715                 720

Gly Thr Gly Ala Ile Ile Ala Ile Leu Leu Cys Ile Ile Ile Leu Leu
                725                 730                 735

Ile Leu Val Leu Met Phe Val Val Trp Met Lys Arg Arg Asp Lys Glu
            740                 745                 750

Arg Gln Ala Lys Gln Leu Leu Ile Asp Pro Glu Asp Asp Val Arg Asp
        755                 760                 765

Asn Ile Leu Lys Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp
    770                 775                 780

Tyr Asp Leu Ser Gln Leu Gln Gln Pro Asp Thr Val Glu Pro Asp Ala
785                 790                 795                 800

Ile Lys Pro Val Gly Ile Arg Arg Met Asp Glu Arg Pro Ile His Ala
                805                 810                 815

Glu Pro Gln Tyr Pro Val Arg Ser Ala Ala Pro His Pro Gly Asp Ile
            820                 825                 830

Gly Asp Phe Ile Asn Glu Gly Leu Lys Ala Ala Asp Asn Asp Pro Thr
        835                 840                 845

Ala Pro Pro Tyr Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly
    850                 855                 860

Ser Thr Ala Gly Ser Leu Ser Ser Leu Asn Ser Ser Ser Ser Gly Gly
865                 870                 875                 880

Glu Gln Asp Tyr Asp Tyr Leu Asn Asp Trp Gly Pro Arg Phe Lys Lys
                885                 890                 895

Leu Ala Asp Met Tyr Gly Gly Gly Asp Asp
            900                 905
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<210> 10356
<211> 875
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2073; "

<220>
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<223> /note="Gene Symbol: CDH2; "

<220>
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<223> /note="Gene Name: cadherin 2, type 1, N-cadherin
(neuronal); "

<220>
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<223> /note="Uniprot ID: P19022; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000382312"

<400> 10356
Met Phe Leu Leu Arg Arg Tyr Val Cys Ile Phe Thr Glu Lys Leu Lys
1   5   10   15

Asn Gln Ala Glu Leu Tyr Val Phe Leu Ser Val Lys Phe Ser Asn Cys
            20   25   30

Asn Gly Lys Arg Lys Val Gln Tyr Glu Ser Ser Glu Pro Ala Asp Phe
        35   40   45

Lys Val Asp Glu Asp Gly Met Val Tyr Ala Val Arg Ser Phe Pro Leu
    50   55   60

Ser Ser Glu His Ala Lys Phe Leu Ile Tyr Ala Gln Asp Lys Glu Thr
65   70   75   80

Gln Glu Lys Trp Gln Val Ala Val Lys Leu Ser Leu Lys Pro Thr Leu
                85   90   95

Thr Glu Glu Ser Val Lys Glu Ser Ala Glu Val Glu Glu Ile Val Phe
            100   105   110

Pro Arg Gln Phe Ser Lys His Ser Gly His Leu Gln Arg Gln Lys Arg
        115   120   125

```
Asp Trp Val Ile Pro Pro Ile Asn Leu Pro Glu Asn Ser Arg Gly Pro
    130                 135                 140

Phe Pro Gln Glu Leu Val Arg Ile Arg Ser Asp Arg Asp Lys Asn Leu
145                 150                 155                 160

Ser Leu Arg Tyr Ser Val Thr Gly Pro Gly Ala Asp Gln Pro Pro Thr
                165                 170                 175

Gly Ile Phe Ile Ile Asn Pro Ile Ser Gly Gln Leu Ser Val Thr Lys
            180                 185                 190

Pro Leu Asp Arg Glu Gln Ile Ala Arg Phe His Leu Arg Ala His Ala
        195                 200                 205

Val Asp Ile Asn Gly Asn Gln Val Glu Asn Pro Ile Asp Ile Val Ile
    210                 215                 220

Asn Val Ile Asp Met Asn Asp Asn Arg Pro Glu Phe Leu His Gln Val
225                 230                 235                 240

Trp Asn Gly Thr Val Pro Glu Gly Ser Lys Pro Gly Thr Tyr Val Met
                245                 250                 255

Thr Val Thr Ala Ile Asp Ala Asp Asp Pro Asn Ala Leu Asn Gly Met
            260                 265                 270

Leu Arg Tyr Arg Ile Val Ser Gln Ala Pro Ser Thr Pro Ser Pro Asn
        275                 280                 285

Met Phe Thr Ile Asn Asn Glu Thr Gly Asp Ile Ile Thr Val Ala Ala
    290                 295                 300

Gly Leu Asp Arg Glu Lys Val Gln Gln Tyr Thr Leu Ile Ile Gln Ala
305                 310                 315                 320

Thr Asp Met Glu Gly Asn Pro Thr Tyr Gly Leu Ser Asn Thr Ala Thr
                325                 330                 335

Ala Val Ile Thr Val Thr Asp Val Asn Asp Asn Pro Pro Glu Phe Thr
            340                 345                 350
```

```
Ala Met Thr Phe Tyr Gly Glu Val Pro Glu Asn Arg Val Asp Ile Ile
        355                 360                 365

Val Ala Asn Leu Thr Val Thr Asp Lys Asp Gln Pro His Thr Pro Ala
    370                 375                 380

Trp Asn Ala Val Tyr Arg Ile Ser Gly Gly Asp Pro Thr Gly Arg Phe
385                 390                 395                 400

Ala Ile Gln Thr Asp Pro Asn Ser Asn Asp Gly Leu Val Thr Val Val
                405                 410                 415

Lys Pro Ile Asp Phe Glu Thr Asn Arg Met Phe Val Leu Thr Val Ala
            420                 425                 430

Ala Glu Asn Gln Val Pro Leu Ala Lys Gly Ile Gln His Pro Pro Gln
        435                 440                 445

Ser Thr Ala Thr Val Ser Val Thr Val Ile Asp Val Asn Glu Asn Pro
    450                 455                 460

Tyr Phe Ala Pro Asn Pro Lys Ile Ile Arg Gln Glu Glu Gly Leu His
465                 470                 475                 480

Ala Gly Thr Met Leu Thr Thr Phe Thr Ala Gln Asp Pro Asp Arg Tyr
                485                 490                 495

Met Gln Gln Asn Ile Arg Tyr Thr Lys Leu Ser Asp Pro Ala Asn Trp
            500                 505                 510

Leu Lys Ile Asp Pro Val Asn Gly Gln Ile Thr Thr Ile Ala Val Leu
        515                 520                 525

Asp Arg Glu Ser Pro Asn Val Lys Asn Asn Ile Tyr Asn Ala Thr Phe
    530                 535                 540

Leu Ala Ser Asp Asn Gly Ile Pro Pro Met Ser Gly Thr Gly Thr Leu
545                 550                 555                 560

Gln Ile Tyr Leu Leu Asp Ile Asn Asp Asn Ala Pro Gln Val Leu Pro
                565                 570                 575
```

```
Gln Glu Ala Glu Thr Cys Glu Thr Pro Asp Pro Asn Ser Ile Asn Ile
            580                 585                 590

Thr Ala Leu Asp Tyr Asp Ile Asp Pro Asn Ala Gly Pro Phe Ala Phe
        595                 600                 605

Asp Leu Pro Leu Ser Pro Val Thr Ile Lys Arg Asn Trp Thr Ile Thr
    610                 615                 620

Arg Leu Asn Gly Asp Phe Ala Gln Leu Asn Leu Lys Ile Lys Phe Leu
625                 630                 635                 640

Glu Ala Gly Ile Tyr Glu Val Pro Ile Ile Ile Thr Asp Ser Gly Asn
                645                 650                 655

Pro Pro Lys Ser Asn Ile Ser Ile Leu Arg Val Lys Val Cys Gln Cys
            660                 665                 670

Asp Ser Asn Gly Asp Cys Thr Asp Val Asp Arg Ile Val Gly Ala Gly
        675                 680                 685

Leu Gly Thr Gly Ala Ile Ile Ala Ile Leu Leu Cys Ile Ile Ile Leu
    690                 695                 700

Leu Ile Leu Val Leu Met Phe Val Val Trp Met Lys Arg Arg Asp Lys
705                 710                 715                 720

Glu Arg Gln Ala Lys Gln Leu Leu Ile Asp Pro Glu Asp Asp Val Arg
                725                 730                 735

Asp Asn Ile Leu Lys Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln
            740                 745                 750

Asp Tyr Asp Leu Ser Gln Leu Gln Gln Pro Asp Thr Val Glu Pro Asp
        755                 760                 765

Ala Ile Lys Pro Val Gly Ile Arg Arg Met Asp Glu Arg Pro Ile His
    770                 775                 780

Ala Glu Pro Gln Tyr Pro Val Arg Ser Ala Ala Pro His Pro Gly Asp
785                 790                 795                 800

Ile Gly Asp Phe Ile Asn Glu Gly Leu Lys Ala Ala Asp Asn Asp Pro
```

805 810 815

Thr Ala Pro Pro Tyr Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser
820 825 830

Gly Ser Thr Ala Gly Ser Leu Ser Ser Leu Asn Ser Ser Ser Ser Gly
835 840 845

Gly Glu Gln Asp Tyr Asp Tyr Leu Asn Asp Trp Gly Pro Arg Phe Lys
850 855 860

Lys Leu Ala Asp Met Tyr Gly Gly Gly Asp Asp
865 870 875

<210> 10357
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2073; "

<220>
<221> source
<223> /note="Gene Symbol: CDH2; "

<220>
<221> source
<223> /note="Gene Name: cadherin 2, type 1, N-cadherin
(neuronal); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000411360"

<400> 10357
Met Cys Asn Thr Gln Arg Met Lys Phe Ser Asn Cys Asn Gly Lys Arg
1 5 10 15

Lys Val Gln Tyr Glu Ser Ser Glu Pro Ala Asp Phe Lys Val Asp Glu
20 25 30

Asp Gly Met Val Tyr Ala Val Arg Ser Phe Pro Leu Ser Ser Glu His
35 40 45

Ala Lys Phe Leu Ile Tyr Ala Gln Asp Lys Glu Thr Gln Glu Lys Trp
50 55 60

```
Gln Val Ala Val Lys Leu Ser Leu Lys Pro Thr Leu Thr Glu Glu Ser
65                  70                  75                  80

Val Lys Glu Ser Ala Glu Val Glu Glu Ile Val Phe Pro Arg Gln Phe
                85                  90                  95

Ser Lys His Ser Gly His Leu Gln Arg Gln Lys Arg Asp Trp Val Ile
            100                 105                 110

Pro Pro Ile Asn Leu Pro Glu Asn Ser Arg Gly Pro Phe Pro Gln Glu
        115                 120                 125

Leu Val Arg Ile Arg Ser Asp Arg Asp Lys Asn Leu Ser Leu Arg Tyr
    130                 135                 140

Ser Val Thr Gly Pro Gly Ala Asp Gln Pro Pro Thr Gly Ile Phe Ile
145                 150                 155                 160

Ile Asn Pro Ile Ser Gly Gln Leu Ser Val Thr Lys Pro Leu Asp Arg
                165                 170                 175

Glu Gln Ile Ala Arg Phe His Leu Arg Ala His Ala Val Asp Ile
            180                 185                 190


<210> 10358
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CDH2; "

<220>
<221> source
<223> /note="Gene Name: cadherin 2, type 1, N-cadherin
(neuronal); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000412120"

<400> 10358
Met Val Tyr Ala Val Arg Ser Phe Pro Leu Ser Ser Glu His Ala Lys
```

```
1               5                   10                  15

Phe Leu Ile Tyr Ala Gln Asp Lys Glu Thr Gln Glu Lys Trp Gln Val
            20                  25                  30

Ala Val Lys Leu Ser Leu Lys Pro Thr Leu Thr Glu Glu Ser Val Lys
        35                  40                  45

Glu Ser Ala Glu Val Glu Glu Ile Val Phe Pro Arg Gln Phe Ser Lys
    50                  55                  60

His Ser Gly His Leu Gln Arg Gln Lys Arg Asp Trp Val Ile Pro Pro
65                  70                  75                  80

Ile Asn Leu Pro Glu Asn Ser Arg Gly Pro Phe Pro Gln Glu Leu Val
                85                  90                  95

Arg Ile Arg Ser Asp Arg Asp Lys Asn Leu Ser Leu Arg Tyr Ser Val
            100                 105                 110

Thr Gly Pro Gly Ala Asp Gln Pro
        115                 120
```

<210> 10359
<211> 73
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CDH2; "

<220>
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<223> /note="Gene Name: cadherin 2, type 1, N-cadherin (neuronal); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414269"

<400> 10359

```
Met Val Tyr Ala Val Arg Ser Phe Pro Leu Ser Ser Glu His Ala Lys
1               5                   10                  15
```

```
Phe Leu Ile Tyr Ala Gln Asp Lys Glu Thr Gln Glu Lys Trp Gln Val
            20                  25                  30

Ala Val Lys Leu Ser Leu Lys Pro Thr Leu Thr Glu Glu Ser Val Lys
        35                  40                  45

Glu Ser Ala Glu Val Glu Glu Ile Val Phe Pro Arg Gln Phe Ser Lys
    50                  55                  60

His Ser Gly His Leu Gln Arg Gln Lys
65                  70


<210> 10360
<211> 801
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2074; "

<220>
<221> source
<223> /note="Gene Symbol: CDH20; "

<220>
<221> source
<223> /note="Gene Name: cadherin 20, type 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9HBT6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000262717"

<400> 10360
Met Trp Thr Ser Gly Arg Met Ser Asn Ala Lys Asn Trp Leu Gly Leu
1               5                   10                  15

Gly Met Ser Leu Tyr Phe Trp Gly Leu Met Asp Leu Thr Thr Thr Val
            20                  25                  30

Leu Ser Asp Thr Pro Thr Pro Gln Gly Glu Leu Glu Ala Leu Leu Ser
        35                  40                  45

Asp Lys Pro Gln Ser His Gln Arg Thr Lys Arg Ser Trp Val Trp Asn
    50                  55                  60
```

```
Gln Phe Phe Val Leu Glu Glu Tyr Thr Gly Thr Asp Pro Leu Tyr Val
65                  70                  75                  80

Gly Lys Leu His Ser Asp Met Asp Arg Gly Asp Gly Ser Ile Lys Tyr
                85                  90                  95

Ile Leu Ser Gly Glu Gly Ala Gly Ile Val Phe Thr Ile Asp Asp Thr
            100                 105                 110

Thr Gly Asp Ile His Ala Ile Gln Arg Leu Asp Arg Glu Glu Arg Ala
        115                 120                 125

Gln Tyr Thr Leu Arg Ala Gln Ala Leu Asp Arg Arg Thr Gly Arg Pro
    130                 135                 140

Met Glu Pro Glu Ser Glu Phe Ile Ile Lys Ile Gln Asp Ile Asn Asp
145                 150                 155                 160

Asn Glu Pro Lys Phe Leu Asp Gly Pro Tyr Val Ala Thr Val Pro Glu
                165                 170                 175

Met Ser Pro Val Gly Thr Ser Val Ile Gln Val Thr Ala Thr Asp Ala
            180                 185                 190

Asp Asp Pro Thr Tyr Gly Asn Ser Ala Arg Val Val Tyr Ser Ile Leu
        195                 200                 205

Gln Gly Gln Pro Tyr Phe Ser Val Asp Ser Lys Thr Gly Val Ile Arg
    210                 215                 220

Thr Ala Leu Met Asn Met Asp Arg Glu Ala Lys Glu Tyr Tyr Glu Val
225                 230                 235                 240

Ile Ile Gln Ala Lys Asp Met Gly Gly Gln Leu Gly Gly Leu Ala Gly
                245                 250                 255

Thr Thr Thr Val Asn Ile Thr Leu Ser Asp Val Asn Asp Asn Pro Pro
            260                 265                 270

Arg Phe Pro Gln Lys His Tyr Gln Met Ser Val Leu Glu Ser Ala Pro
        275                 280                 285
```

```
Ile Ser Ser Thr Val Gly Arg Val Phe Ala Lys Asp Leu Asp Glu Gly
    290                 295                 300

Ile Asn Ala Glu Met Lys Tyr Thr Ile Val Asp Gly Asp Gly Ala Asp
305                 310                 315                 320

Ala Phe Asp Ile Ser Thr Asp Pro Asn Phe Gln Val Gly Ile Ile Thr
                325                 330                 335

Val Lys Lys Pro Leu Ser Phe Glu Ser Lys Lys Ser Tyr Thr Leu Lys
            340                 345                 350

Val Glu Gly Ala Asn Pro His Leu Glu Met Arg Phe Leu Asn Leu Gly
        355                 360                 365

Pro Phe Gln Asp Thr Thr Thr Val His Ile Ser Val Glu Asp Val Asp
    370                 375                 380

Glu Pro Pro Val Phe Glu Pro Gly Phe Tyr Phe Val Glu Val Pro Glu
385                 390                 395                 400

Asp Val Ala Ile Gly Thr Thr Ile Gln Ile Ile Ser Ala Lys Asp Pro
                405                 410                 415

Asp Val Thr Asn Asn Ser Ile Arg Tyr Ser Ile Asp Arg Ser Ser Asp
            420                 425                 430

Pro Gly Arg Phe Phe Tyr Val Asp Ile Thr Thr Gly Ala Leu Met Thr
        435                 440                 445

Ala Arg Pro Leu Asp Arg Glu Glu Phe Ser Trp His Asn Ile Thr Val
    450                 455                 460

Leu Ala Met Glu Met Asn Asn Pro Ser Gln Val Gly Ser Val Pro Val
465                 470                 475                 480

Thr Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Arg
                485                 490                 495

Phe Tyr Glu Ala Phe Val Cys Glu Asn Ala Lys Ala Gly Gln Leu Ile
            500                 505                 510
```

```
Gln Thr Val Ser Ala Val Asp Gln Asp Asp Pro Arg Asn Gly Gln His
        515                 520                 525

Phe Tyr Tyr Ser Leu Ala Pro Glu Ala Ala Asn Asn Pro Asn Phe Thr
    530                 535                 540

Ile Arg Asp Asn Gln Asp Asn Thr Ala Arg Ile Leu Thr Arg Arg Ser
545                 550                 555                 560

Gly Phe Arg Gln Gln Glu Gln Ser Val Phe His Leu Pro Ile Leu Ile
                565                 570                 575

Ala Asp Ser Gly Gln Pro Val Leu Ser Ser Thr Gly Thr Leu Thr Ile
            580                 585                 590

Gln Val Cys Ser Cys Asp Asp Asp Gly His Val Met Ser Cys Ser Pro
        595                 600                 605

Glu Ala Tyr Met Leu Pro Val Ser Leu Ser Arg Gly Ala Leu Ile Ala
    610                 615                 620

Ile Leu Ala Cys Ile Phe Val Leu Leu Val Leu Val Leu Leu Ile Leu
625                 630                 635                 640

Ser Met Arg Arg His Arg Lys Gln Pro Tyr Ile Ile Asp Asp Glu Glu
                645                 650                 655

Asn Ile His Glu Asn Ile Val Arg Tyr Asp Asp Glu Gly Gly Gly Glu
            660                 665                 670

Glu Asp Thr Glu Ala Phe Asp Ile Ala Ala Met Trp Asn Pro Arg Glu
        675                 680                 685

Ala Gln Ala Gly Ala Ala Pro Lys Thr Arg Gln Asp Met Leu Pro Glu
    690                 695                 700

Ile Glu Ser Leu Ser Arg Tyr Val Pro Gln Thr Cys Ala Val Asn Ser
705                 710                 715                 720

Thr Val His Ser Tyr Val Leu Ala Lys Leu Tyr Glu Ala Asp Met Asp
                725                 730                 735

Leu Trp Ala Pro Pro Phe Asp Ser Leu Gln Thr Tyr Met Phe Glu Gly
```

740 745 750

Asp Gly Ser Val Ala Gly Ser Leu Ser Ser Leu Gln Ser Ala Thr Ser
755 760 765

Asp Ser Glu Gln Ser Phe Asp Phe Leu Thr Asp Trp Gly Pro Arg Phe
770 775 780

Arg Lys Leu Ala Glu Leu Tyr Gly Ala Ser Glu Gly Pro Ala Pro Leu
785 790 795 800

Trp

<210> 10361
<211> 801
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2074; "

<220>
<221> source
<223> /note="Gene Symbol: CDH20; "

<220>
<221> source
<223> /note="Gene Name: cadherin 20, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HBT6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442226"

<400> 10361
Met Trp Thr Ser Gly Arg Met Ser Asn Ala Lys Asn Trp Leu Gly Leu
1 5 10 15

Gly Met Ser Leu Tyr Phe Trp Gly Leu Met Asp Leu Thr Thr Thr Val
20 25 30

Leu Ser Asp Thr Pro Thr Pro Gln Gly Glu Leu Glu Ala Leu Leu Ser
35 40 45

```
Asp Lys Pro Gln Ser His Gln Arg Thr Lys Arg Ser Trp Val Trp Asn
     50                  55                  60

Gln Phe Phe Val Leu Glu Glu Tyr Thr Gly Thr Asp Pro Leu Tyr Val
65                  70                  75                  80

Gly Lys Leu His Ser Asp Met Asp Arg Gly Asp Gly Ser Ile Lys Tyr
                85                  90                  95

Ile Leu Ser Gly Glu Gly Ala Gly Ile Val Phe Thr Ile Asp Asp Thr
            100                 105                 110

Thr Gly Asp Ile His Ala Ile Gln Arg Leu Asp Arg Glu Glu Arg Ala
        115                 120                 125

Gln Tyr Thr Leu Arg Ala Gln Ala Leu Asp Arg Arg Thr Gly Arg Pro
    130                 135                 140

Met Glu Pro Glu Ser Glu Phe Ile Ile Lys Ile Gln Asp Ile Asn Asp
145                 150                 155                 160

Asn Glu Pro Lys Phe Leu Asp Gly Pro Tyr Val Ala Thr Val Pro Glu
                165                 170                 175

Met Ser Pro Val Gly Thr Ser Val Ile Gln Val Thr Ala Thr Asp Ala
            180                 185                 190

Asp Asp Pro Thr Tyr Gly Asn Ser Ala Arg Val Val Tyr Ser Ile Leu
        195                 200                 205

Gln Gly Gln Pro Tyr Phe Ser Val Asp Ser Lys Thr Gly Val Ile Arg
    210                 215                 220

Thr Ala Leu Met Asn Met Asp Arg Glu Ala Lys Glu Tyr Tyr Glu Val
225                 230                 235                 240

Ile Ile Gln Ala Lys Asp Met Gly Gly Gln Leu Gly Gly Leu Ala Gly
                245                 250                 255

Thr Thr Thr Val Asn Ile Thr Leu Ser Asp Val Asn Asp Asn Pro Pro
            260                 265                 270

Arg Phe Pro Gln Lys His Tyr Gln Met Ser Val Leu Glu Ser Ala Pro
```

275 280 285

Ile Ser Ser Thr Val Gly Arg Val Phe Ala Lys Asp Leu Asp Glu Gly
290 295 300

Ile Asn Ala Glu Met Lys Tyr Thr Ile Val Asp Gly Asp Gly Ala Asp
305 310 315 320

Ala Phe Asp Ile Ser Thr Asp Pro Asn Phe Gln Val Gly Ile Ile Thr
325 330 335

Val Lys Lys Pro Leu Ser Phe Glu Ser Lys Lys Ser Tyr Thr Leu Lys
340 345 350

Val Glu Gly Ala Asn Pro His Leu Glu Met Arg Phe Leu Asn Leu Gly
355 360 365

Pro Phe Gln Asp Thr Thr Thr Val His Ile Ser Val Glu Asp Val Asp
370 375 380

Glu Pro Pro Val Phe Glu Pro Gly Phe Tyr Phe Val Glu Val Pro Glu
385 390 395 400

Asp Val Ala Ile Gly Thr Thr Ile Gln Ile Ile Ser Ala Lys Asp Pro
405 410 415

Asp Val Thr Asn Asn Ser Ile Arg Tyr Ser Ile Asp Arg Ser Ser Asp
420 425 430

Pro Gly Arg Phe Phe Tyr Val Asp Ile Thr Thr Gly Ala Leu Met Thr
435 440 445

Ala Arg Pro Leu Asp Arg Glu Glu Phe Ser Trp His Asn Ile Thr Val
450 455 460

Leu Ala Met Glu Met Asn Asn Pro Ser Gln Val Gly Ser Val Pro Val
465 470 475 480

Thr Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Arg
485 490 495

Phe Tyr Glu Ala Phe Val Cys Glu Asn Ala Lys Ala Gly Gln Leu Ile
500 505 510

```
Gln Thr Val Ser Ala Val Asp Gln Asp Asp Pro Arg Asn Gly Gln His
        515                 520                 525

Phe Tyr Tyr Ser Leu Ala Pro Glu Ala Ala Asn Asn Pro Asn Phe Thr
    530                 535                 540

Ile Arg Asp Asn Gln Asp Asn Thr Ala Arg Ile Leu Thr Arg Arg Ser
545                 550                 555                 560

Gly Phe Arg Gln Gln Glu Gln Ser Val Phe His Leu Pro Ile Leu Ile
                565                 570                 575

Ala Asp Ser Gly Gln Pro Val Leu Ser Ser Thr Gly Thr Leu Thr Ile
            580                 585                 590

Gln Val Cys Ser Cys Asp Asp Asp Gly His Val Met Ser Cys Ser Pro
        595                 600                 605

Glu Ala Tyr Met Leu Pro Val Ser Leu Ser Arg Gly Ala Leu Ile Ala
    610                 615                 620

Ile Leu Ala Cys Ile Phe Val Leu Leu Val Leu Val Leu Leu Ile Leu
625                 630                 635                 640

Ser Met Arg Arg His Arg Lys Gln Pro Tyr Ile Ile Asp Asp Glu Glu
                645                 650                 655

Asn Ile His Glu Asn Ile Val Arg Tyr Asp Asp Glu Gly Gly Gly Glu
            660                 665                 670

Glu Asp Thr Glu Ala Phe Asp Ile Ala Ala Met Trp Asn Pro Arg Glu
        675                 680                 685

Ala Gln Ala Gly Ala Ala Pro Lys Thr Arg Gln Asp Met Leu Pro Glu
    690                 695                 700

Ile Glu Ser Leu Ser Arg Tyr Val Pro Gln Thr Cys Ala Val Asn Ser
705                 710                 715                 720

Thr Val His Ser Tyr Val Leu Ala Lys Leu Tyr Glu Ala Asp Met Asp
                725                 730                 735
```

```
Leu Trp Ala Pro Pro Phe Asp Ser Leu Gln Thr Tyr Met Phe Glu Gly
            740                 745                 750

Asp Gly Ser Val Ala Gly Ser Leu Ser Ser Leu Gln Ser Ala Thr Ser
        755                 760                 765

Asp Ser Glu Gln Ser Phe Asp Phe Leu Thr Asp Trp Gly Pro Arg Phe
    770                 775                 780

Arg Lys Leu Ala Glu Leu Tyr Gly Ala Ser Glu Gly Pro Ala Pro Leu
785                 790                 795                 800

Trp
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<210> 10362
<211> 801
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2074; "

<220>
<221> source
<223> /note="Gene Symbol: CDH20; "

<220>
<221> source
<223> /note="Gene Name: cadherin 20, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HBT6; "

<220>
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<223> /note="ENSP ID: ENSP00000444767"

<400> 10362

```
Met Trp Thr Ser Gly Arg Met Ser Asn Ala Lys Asn Trp Leu Gly Leu
1               5                   10                  15

Gly Met Ser Leu Tyr Phe Trp Gly Leu Met Asp Leu Thr Thr Thr Val
            20                  25                  30

Leu Ser Asp Thr Pro Thr Pro Gln Gly Glu Leu Glu Ala Leu Leu Ser
        35                  40                  45
```

```
Asp Lys Pro Gln Ser His Gln Arg Thr Lys Arg Ser Trp Val Trp Asn
    50                  55                  60

Gln Phe Phe Val Leu Glu Glu Tyr Thr Gly Thr Asp Pro Leu Tyr Val
65                  70                  75                  80

Gly Lys Leu His Ser Asp Met Asp Arg Gly Asp Gly Ser Ile Lys Tyr
                85                  90                  95

Ile Leu Ser Gly Glu Gly Ala Gly Ile Val Phe Thr Ile Asp Asp Thr
            100                 105                 110

Thr Gly Asp Ile His Ala Ile Gln Arg Leu Asp Arg Glu Glu Arg Ala
        115                 120                 125

Gln Tyr Thr Leu Arg Ala Gln Ala Leu Asp Arg Arg Thr Gly Arg Pro
    130                 135                 140

Met Glu Pro Glu Ser Glu Phe Ile Ile Lys Ile Gln Asp Ile Asn Asp
145                 150                 155                 160

Asn Glu Pro Lys Phe Leu Asp Gly Pro Tyr Val Ala Thr Val Pro Glu
                165                 170                 175

Met Ser Pro Val Gly Thr Ser Val Ile Gln Val Thr Ala Thr Asp Ala
            180                 185                 190

Asp Asp Pro Thr Tyr Gly Asn Ser Ala Arg Val Val Tyr Ser Ile Leu
        195                 200                 205

Gln Gly Gln Pro Tyr Phe Ser Val Asp Ser Lys Thr Gly Val Ile Arg
    210                 215                 220

Thr Ala Leu Met Asn Met Asp Arg Glu Ala Lys Glu Tyr Tyr Glu Val
225                 230                 235                 240

Ile Ile Gln Ala Lys Asp Met Gly Gly Gln Leu Gly Gly Leu Ala Gly
                245                 250                 255

Thr Thr Thr Val Asn Ile Thr Leu Ser Asp Val Asn Asp Asn Pro Pro
            260                 265                 270
```

```
Arg Phe Pro Gln Lys His Tyr Gln Met Ser Val Leu Glu Ser Ala Pro
        275                 280                 285

Ile Ser Ser Thr Val Gly Arg Val Phe Ala Lys Asp Leu Asp Glu Gly
    290                 295                 300

Ile Asn Ala Glu Met Lys Tyr Thr Ile Val Asp Gly Asp Gly Ala Asp
305                 310                 315                 320

Ala Phe Asp Ile Ser Thr Asp Pro Asn Phe Gln Val Gly Ile Ile Thr
                325                 330                 335

Val Lys Lys Pro Leu Ser Phe Glu Ser Lys Lys Ser Tyr Thr Leu Lys
            340                 345                 350

Val Glu Gly Ala Asn Pro His Leu Glu Met Arg Phe Leu Asn Leu Gly
        355                 360                 365

Pro Phe Gln Asp Thr Thr Thr Val His Ile Ser Val Glu Asp Val Asp
    370                 375                 380

Glu Pro Pro Val Phe Glu Pro Gly Phe Tyr Phe Val Glu Val Pro Glu
385                 390                 395                 400

Asp Val Ala Ile Gly Thr Thr Ile Gln Ile Ile Ser Ala Lys Asp Pro
                405                 410                 415

Asp Val Thr Asn Asn Ser Ile Arg Tyr Ser Ile Asp Arg Ser Ser Asp
            420                 425                 430

Pro Gly Arg Phe Phe Tyr Val Asp Ile Thr Thr Gly Ala Leu Met Thr
        435                 440                 445

Ala Arg Pro Leu Asp Arg Glu Glu Phe Ser Trp His Asn Ile Thr Val
    450                 455                 460

Leu Ala Met Glu Met Asn Asn Pro Ser Gln Val Gly Ser Val Pro Val
465                 470                 475                 480

Thr Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Arg
                485                 490                 495
```

```
Phe Tyr Glu Ala Phe Val Cys Glu Asn Ala Lys Ala Gly Gln Leu Ile
            500                 505                 510

Gln Thr Val Ser Ala Val Asp Gln Asp Asp Pro Arg Asn Gly Gln His
        515                 520                 525

Phe Tyr Tyr Ser Leu Ala Pro Glu Ala Ala Asn Asn Pro Asn Phe Thr
    530                 535                 540

Ile Arg Asp Asn Gln Asp Asn Thr Ala Arg Ile Leu Thr Arg Arg Ser
545                 550                 555                 560

Gly Phe Arg Gln Gln Glu Gln Ser Val Phe His Leu Pro Ile Leu Ile
                565                 570                 575

Ala Asp Ser Gly Gln Pro Val Leu Ser Ser Thr Gly Thr Leu Thr Ile
            580                 585                 590

Gln Val Cys Ser Cys Asp Asp Asp Gly His Val Met Ser Cys Ser Pro
        595                 600                 605

Glu Ala Tyr Met Leu Pro Val Ser Leu Ser Arg Gly Ala Leu Ile Ala
    610                 615                 620

Ile Leu Ala Cys Ile Phe Val Leu Leu Val Leu Val Leu Leu Ile Leu
625                 630                 635                 640

Ser Met Arg Arg His Arg Lys Gln Pro Tyr Ile Ile Asp Asp Glu Glu
                645                 650                 655

Asn Ile His Glu Asn Ile Val Arg Tyr Asp Asp Glu Gly Gly Gly Glu
            660                 665                 670

Glu Asp Thr Glu Ala Phe Asp Ile Ala Ala Met Trp Asn Pro Arg Glu
        675                 680                 685

Ala Gln Ala Gly Ala Ala Pro Lys Thr Arg Gln Asp Met Leu Pro Glu
    690                 695                 700

Ile Glu Ser Leu Ser Arg Tyr Val Pro Gln Thr Cys Ala Val Asn Ser
705                 710                 715                 720

Thr Val His Ser Tyr Val Leu Ala Lys Leu Tyr Glu Ala Asp Met Asp
```

725 730 735

Leu Trp Ala Pro Pro Phe Asp Ser Leu Gln Thr Tyr Met Phe Glu Gly
740 745 750

Asp Gly Ser Val Ala Gly Ser Leu Ser Ser Leu Gln Ser Ala Thr Ser
755 760 765

Asp Ser Glu Gln Ser Phe Asp Phe Leu Thr Asp Trp Gly Pro Arg Phe
770 775 780

Arg Lys Leu Ala Glu Leu Tyr Gly Ala Ser Glu Gly Pro Ala Pro Leu
785 790 795 800

Trp

<210> 10363
<211> 828
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2075; "

<220>
<221> source
<223> /note="Gene Symbol: CDH22; "

<220>
<221> source
<223> /note="Gene Name: cadherin 22, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UJ99; "

<220>
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<400> 10363
Met Arg Pro Arg Pro Glu Gly Arg Gly Leu Arg Ala Gly Val Ala Leu
1 5 10 15

Ser Pro Ala Leu Leu Leu Leu Leu Leu Leu Pro Pro Pro Pro Thr Leu
20 25 30

```
Leu Gly Arg Leu Trp Ala Ala Gly Thr Pro Ser Pro Ser Ala Pro Gly
        35                  40                  45

Ala Arg Gln Asp Gly Ala Leu Gly Ala Gly Arg Val Lys Arg Gly Trp
    50                  55                  60

Val Trp Asn Gln Phe Phe Val Val Glu Glu Tyr Thr Gly Thr Glu Pro
65                  70                  75                  80

Leu Tyr Val Gly Lys Ile His Ser Asp Ser Asp Glu Gly Asp Gly Ala
                85                  90                  95

Ile Lys Tyr Thr Ile Ser Gly Glu Gly Ala Gly Thr Ile Phe Leu Ile
            100                 105                 110

Asp Glu Leu Thr Gly Asp Ile His Ala Met Glu Arg Leu Asp Arg Glu
        115                 120                 125

Gln Lys Thr Phe Tyr Thr Leu Arg Ala Gln Ala Arg Asp Arg Ala Thr
    130                 135                 140

Asn Arg Leu Leu Glu Pro Glu Ser Glu Phe Ile Ile Lys Val Gln Asp
145                 150                 155                 160

Ile Asn Asp Ser Glu Pro Arg Phe Leu His Gly Pro Tyr Ile Gly Ser
                165                 170                 175

Val Ala Glu Leu Ser Pro Thr Gly Thr Ser Val Met Gln Val Met Ala
            180                 185                 190

Ser Asp Ala Asp Asp Pro Thr Tyr Gly Ser Ser Ala Arg Leu Val Tyr
        195                 200                 205

Ser Val Leu Asp Gly Glu His His Phe Thr Val Asp Pro Lys Thr Gly
    210                 215                 220

Val Ile Arg Thr Ala Val Pro Asp Leu Asp Arg Glu Ser Gln Glu Arg
225                 230                 235                 240

Tyr Glu Val Val Ile Gln Ala Thr Asp Met Ala Gly Gln Leu Gly Gly
                245                 250                 255

Leu Ser Gly Ser Thr Thr Val Thr Ile Val Val Thr Asp Val Asn Asp
```

```
            260                 265                 270

Asn Pro Pro Arg Phe Pro Gln Lys Met Tyr Gln Phe Ser Ile Gln Glu
        275                 280                 285

Ser Ala Pro Ile Gly Thr Ala Val Gly Arg Val Lys Ala Glu Asp Ser
    290                 295                 300

Asp Val Gly Glu Asn Thr Asp Met Thr Tyr His Leu Lys Asp Glu Ser
305                 310                 315                 320

Ser Ser Gly Gly Asp Val Phe Lys Val Thr Thr Asp Ser Asp Thr Gln
                325                 330                 335

Glu Ala Ile Ile Val Val Gln Lys Arg Leu Asp Phe Glu Ser Gln Pro
            340                 345                 350

Val His Thr Val Ile Leu Glu Ala Leu Asn Lys Phe Val Asp Pro Arg
        355                 360                 365

Phe Ala Asp Leu Gly Thr Phe Arg Asp Gln Ala Ile Val Arg Val Ala
    370                 375                 380

Val Thr Asp Val Asp Glu Pro Pro Glu Phe Arg Pro Pro Ser Gly Leu
385                 390                 395                 400

Leu Glu Val Gln Glu Asp Ala Gln Val Gly Ser Leu Val Gly Val Val
                405                 410                 415

Thr Ala Arg Asp Pro Asp Ala Ala Asn Arg Pro Val Arg Tyr Ala Ile
            420                 425                 430

Asp Arg Glu Ser Asp Leu Asp Gln Ile Phe Asp Ile Asp Ala Asp Thr
        435                 440                 445

Gly Ala Ile Val Thr Gly Lys Gly Leu Asp Arg Glu Thr Ala Gly Trp
    450                 455                 460

His Asn Ile Thr Val Leu Ala Met Glu Ala Asp Asn His Ala Gln Leu
465                 470                 475                 480

Ser Arg Ala Ser Leu Arg Ile Arg Ile Leu Asp Val Asn Asp Asn Pro
                485                 490                 495
```

```
Pro Glu Leu Ala Thr Pro Tyr Glu Ala Ala Val Cys Glu Asp Ala Lys
            500                 505                 510

Pro Gly Gln Leu Ile Gln Thr Ile Ser Val Val Asp Arg Asp Glu Pro
        515                 520                 525

Gln Gly Gly His Arg Phe Tyr Phe Arg Leu Val Pro Glu Ala Pro Ser
    530                 535                 540

Asn Pro His Phe Ser Leu Leu Asp Ile Gln Asp Asn Thr Ala Ala Val
545                 550                 555                 560

His Thr Gln His Val Gly Phe Asn Arg Gln Glu Gln Asp Val Phe Phe
                565                 570                 575

Leu Pro Ile Leu Val Val Asp Ser Gly Pro Pro Thr Leu Ser Ser Thr
            580                 585                 590

Gly Thr Leu Thr Ile Arg Ile Cys Gly Cys Asp Ser Ser Gly Thr Ile
        595                 600                 605

Gln Ser Cys Asn Thr Thr Ala Phe Val Met Ala Ala Ser Leu Ser Pro
    610                 615                 620

Gly Ala Leu Ile Ala Leu Leu Val Cys Val Leu Ile Leu Val Val Leu
625                 630                 635                 640

Val Leu Leu Ile Leu Thr Leu Arg Arg His His Lys Ser His Leu Ser
                645                 650                 655

Ser Asp Glu Asp Glu Asp Met Arg Asp Asn Val Ile Lys Tyr Asn Asp
            660                 665                 670

Glu Gly Gly Gly Glu Gln Asp Thr Glu Ala Tyr Asp Met Ser Ala Leu
        675                 680                 685

Arg Ser Leu Tyr Asp Phe Gly Glu Leu Lys Gly Gly Asp Gly Gly Gly
    690                 695                 700

Ser Ala Gly Gly Gly Ala Gly Gly Gly Ser Gly Gly Gly Ala Gly Ser
705                 710                 715                 720
```

```
Pro Pro Gln Ala His Leu Pro Ser Glu Arg His Ser Leu Pro Gln Gly
                725                 730                 735

Pro Pro Ser Pro Glu Pro Asp Phe Ser Val Phe Arg Asp Phe Ile Ser
            740                 745                 750

Arg Lys Val Ala Leu Ala Asp Gly Asp Leu Ser Val Pro Pro Tyr Asp
        755                 760                 765

Ala Phe Gln Thr Tyr Ala Phe Glu Gly Ala Asp Ser Pro Ala Ala Ser
    770                 775                 780

Leu Ser Ser Leu His Ser Gly Ser Ser Gly Ser Glu Gln Asp Phe Ala
785                 790                 795                 800

Tyr Leu Ser Ser Trp Gly Pro Arg Phe Arg Pro Leu Ala Ala Leu Tyr
                805                 810                 815

Ala Gly His Arg Gly Asp Asp Glu Ala Gln Ala Ser
            820                 825
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<210> 10364
<211> 828
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2075; "

<220>
<221> source
<223> /note="Gene Symbol: CDH22; "

<220>
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<223> /note="Gene Name: cadherin 22, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UJ99; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000437790"

<400> 10364

```
Met Arg Pro Arg Pro Glu Gly Arg Gly Leu Arg Ala Gly Val Ala Leu
1               5                   10                  15
```

```
Ser Pro Ala Leu Leu Leu Leu Leu Leu Leu Pro Pro Pro Pro Thr Leu
            20                  25                  30

Leu Gly Arg Leu Trp Ala Ala Gly Thr Pro Ser Pro Ser Ala Pro Gly
        35                  40                  45

Ala Arg Gln Asp Gly Ala Leu Gly Ala Gly Arg Val Lys Arg Gly Trp
    50                  55                  60

Val Trp Asn Gln Phe Phe Val Val Glu Glu Tyr Thr Gly Thr Glu Pro
65                  70                  75                  80

Leu Tyr Val Gly Lys Ile His Ser Asp Ser Asp Glu Gly Asp Gly Ala
                85                  90                  95

Ile Lys Tyr Thr Ile Ser Gly Glu Gly Ala Gly Thr Ile Phe Leu Ile
            100                 105                 110

Asp Glu Leu Thr Gly Asp Ile His Ala Met Glu Arg Leu Asp Arg Glu
        115                 120                 125

Gln Lys Thr Phe Tyr Thr Leu Arg Ala Gln Ala Arg Asp Arg Ala Thr
    130                 135                 140

Asn Arg Leu Leu Glu Pro Glu Ser Glu Phe Ile Ile Lys Val Gln Asp
145                 150                 155                 160

Ile Asn Asp Ser Glu Pro Arg Phe Leu His Gly Pro Tyr Ile Gly Ser
                165                 170                 175

Val Ala Glu Leu Ser Pro Thr Gly Thr Ser Val Met Gln Val Met Ala
            180                 185                 190

Ser Asp Ala Asp Asp Pro Thr Tyr Gly Ser Ser Ala Arg Leu Val Tyr
        195                 200                 205

Ser Val Leu Asp Gly Glu His His Phe Thr Val Asp Pro Lys Thr Gly
    210                 215                 220

Val Ile Arg Thr Ala Val Pro Asp Leu Asp Arg Glu Ser Gln Glu Arg
225                 230                 235                 240
```

```
Tyr Glu Val Val Ile Gln Ala Thr Asp Met Ala Gly Gln Leu Gly Gly
                245                 250                 255

Leu Ser Gly Ser Thr Thr Val Thr Ile Val Val Thr Asp Val Asn Asp
            260                 265                 270

Asn Pro Pro Arg Phe Pro Gln Lys Met Tyr Gln Phe Ser Ile Gln Glu
        275                 280                 285

Ser Ala Pro Ile Gly Thr Ala Val Gly Arg Val Lys Ala Glu Asp Ser
    290                 295                 300

Asp Val Gly Glu Asn Thr Asp Met Thr Tyr His Leu Lys Asp Glu Ser
305                 310                 315                 320

Ser Ser Gly Gly Asp Val Phe Lys Val Thr Thr Asp Ser Asp Thr Gln
                325                 330                 335

Glu Ala Ile Ile Val Val Gln Lys Arg Leu Asp Phe Glu Ser Gln Pro
            340                 345                 350

Val His Thr Val Ile Leu Glu Ala Leu Asn Lys Phe Val Asp Pro Arg
        355                 360                 365

Phe Ala Asp Leu Gly Thr Phe Arg Asp Gln Ala Ile Val Arg Val Ala
    370                 375                 380

Val Thr Asp Val Asp Glu Pro Pro Glu Phe Arg Pro Pro Ser Gly Leu
385                 390                 395                 400

Leu Glu Val Gln Glu Asp Ala Gln Val Gly Ser Leu Val Gly Val Val
                405                 410                 415

Thr Ala Arg Asp Pro Asp Ala Ala Asn Arg Pro Val Arg Tyr Ala Ile
            420                 425                 430

Asp Arg Glu Ser Asp Leu Asp Gln Ile Phe Asp Ile Asp Ala Asp Thr
        435                 440                 445

Gly Ala Ile Val Thr Gly Lys Gly Leu Asp Arg Glu Thr Ala Gly Trp
    450                 455                 460
```

```
His Asn Ile Thr Val Leu Ala Met Glu Ala Asp Asn His Ala Gln Leu
465                 470                 475                 480

Ser Arg Ala Ser Leu Arg Ile Arg Ile Leu Asp Val Asn Asp Asn Pro
                485                 490                 495

Pro Glu Leu Ala Thr Pro Tyr Glu Ala Ala Val Cys Glu Asp Ala Lys
            500                 505                 510

Pro Gly Gln Leu Ile Gln Thr Ile Ser Val Val Asp Arg Asp Glu Pro
        515                 520                 525

Gln Gly Gly His Arg Phe Tyr Phe Arg Leu Val Pro Glu Ala Pro Ser
    530                 535                 540

Asn Pro His Phe Ser Leu Leu Asp Ile Gln Asp Asn Thr Ala Ala Val
545                 550                 555                 560

His Thr Gln His Val Gly Phe Asn Arg Gln Glu Gln Asp Val Phe Phe
                565                 570                 575

Leu Pro Ile Leu Val Val Asp Ser Gly Pro Pro Thr Leu Ser Ser Thr
            580                 585                 590

Gly Thr Leu Thr Ile Arg Ile Cys Gly Cys Asp Ser Ser Gly Thr Ile
        595                 600                 605

Gln Ser Cys Asn Thr Thr Ala Phe Val Met Ala Ala Ser Leu Ser Pro
    610                 615                 620

Gly Ala Leu Ile Ala Leu Leu Val Cys Val Leu Ile Leu Val Val Leu
625                 630                 635                 640

Val Leu Leu Ile Leu Thr Leu Arg Arg His His Lys Ser His Leu Ser
                645                 650                 655

Ser Asp Glu Asp Glu Asp Met Arg Asp Asn Val Ile Lys Tyr Asn Asp
            660                 665                 670

Glu Gly Gly Gly Glu Gln Asp Thr Glu Ala Tyr Asp Met Ser Ala Leu
        675                 680                 685

Arg Ser Leu Tyr Asp Phe Gly Glu Leu Lys Gly Gly Asp Gly Gly Gly
```

690 695 700

Ser Ala Gly Gly Gly Ala Gly Gly Gly Ser Gly Gly Gly Ala Gly Ser
705 710 715 720

Pro Pro Gln Ala His Leu Pro Ser Glu Arg His Ser Leu Pro Gln Gly
725 730 735

Pro Pro Ser Pro Glu Pro Asp Phe Ser Val Phe Arg Asp Phe Ile Ser
740 745 750

Arg Lys Val Ala Leu Ala Asp Gly Asp Leu Ser Val Pro Pro Tyr Asp
755 760 765

Ala Phe Gln Thr Tyr Ala Phe Glu Gly Ala Asp Ser Pro Ala Ala Ser
770 775 780

Leu Ser Ser Leu His Ser Gly Ser Ser Gly Ser Glu Gln Asp Phe Ala
785 790 795 800

Tyr Leu Ser Ser Trp Gly Pro Arg Phe Arg Pro Leu Ala Ala Leu Tyr
805 810 815

Ala Gly His Arg Gly Asp Asp Glu Ala Gln Ala Ser
820 825

<210> 10365
<211> 819
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2076; "

<220>
<221> source
<223> /note="Gene Symbol: CDH24; "

<220>
<221> source
<223> /note="Gene Name: cadherin 24, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86UP0; "

<220>

<221> source
<223> /note="ENSP ID: ENSP00000267383"

<400> 10365
Met Trp Gly Leu Val Arg Leu Leu Leu Ala Trp Leu Gly Gly Trp Gly
1 5 10 15

Cys Met Gly Arg Leu Ala Ala Pro Ala Arg Ala Trp Ala Gly Ser Arg
20 25 30

Glu His Pro Gly Pro Ala Leu Leu Arg Thr Arg Arg Ser Trp Val Trp
35 40 45

Asn Gln Phe Phe Val Ile Glu Glu Tyr Ala Gly Pro Glu Pro Val Leu
50 55 60

Ile Gly Lys Leu His Ser Asp Val Asp Arg Gly Glu Gly Arg Thr Lys
65 70 75 80

Tyr Leu Leu Thr Gly Glu Gly Ala Gly Thr Val Phe Val Ile Asp Glu
85 90 95

Ala Thr Gly Asn Ile His Val Thr Lys Ser Leu Asp Arg Glu Glu Lys
100 105 110

Ala Gln Tyr Val Leu Leu Ala Gln Ala Val Asp Arg Ala Ser Asn Arg
115 120 125

Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile Asn
130 135 140

Asp Asn Pro Pro Ile Phe Pro Leu Gly Pro Tyr His Ala Thr Val Pro
145 150 155 160

Glu Met Ser Asn Val Gly Thr Ser Val Ile Gln Val Thr Ala His Asp
165 170 175

Ala Asp Asp Pro Ser Tyr Gly Asn Ser Ala Lys Leu Val Tyr Thr Val
180 185 190

Leu Asp Gly Leu Pro Phe Phe Ser Val Asp Pro Gln Thr Gly Val Val
195 200 205

Arg Thr Ala Ile Pro Asn Met Asp Arg Glu Thr Gln Glu Glu Phe Leu

210 215 220

Val Val Ile Gln Ala Lys Asp Met Gly Gly His Met Gly Gly Leu Ser
225 230 235 240

Gly Ser Thr Thr Val Thr Val Thr Leu Ser Asp Val Asn Asp Asn Pro
245 250 255

Pro Lys Phe Pro Gln Ser Leu Tyr Gln Phe Ser Val Val Glu Thr Ala
260 265 270

Gly Pro Gly Thr Leu Val Gly Arg Leu Arg Ala Gln Asp Pro Asp Leu
275 280 285

Gly Asp Asn Ala Leu Met Ala Tyr Ser Ile Leu Asp Gly Glu Gly Ser
290 295 300

Glu Ala Phe Ser Ile Ser Thr Asp Leu Gln Gly Arg Asp Gly Leu Leu
305 310 315 320

Thr Val Arg Lys Pro Leu Asp Phe Glu Ser Gln Arg Ser Tyr Ser Phe
325 330 335

Arg Val Glu Ala Thr Asn Thr Leu Ile Asp Pro Ala Tyr Leu Arg Arg
340 345 350

Gly Pro Phe Lys Asp Val Ala Ser Val Arg Val Ala Val Gln Asp Ala
355 360 365

Pro Glu Pro Pro Ala Phe Thr Gln Ala Ala Tyr His Leu Thr Val Pro
370 375 380

Glu Asn Lys Ala Pro Gly Thr Leu Val Gly Gln Ile Ser Ala Ala Asp
385 390 395 400

Leu Asp Ser Pro Ala Ser Pro Ile Arg Tyr Ser Ile Leu Pro His Ser
405 410 415

Asp Pro Glu Arg Cys Phe Ser Ile Gln Pro Glu Glu Gly Thr Ile His
420 425 430

Thr Ala Ala Pro Leu Asp Arg Glu Ala Arg Ala Trp His Asn Leu Thr
435 440 445

```
Val Leu Ala Thr Glu Leu Gly Trp Ser Trp Gly Pro Glu Arg Gly Trp
    450                 455                 460

Val Pro Leu Leu Val Ala Glu Trp Ser Ala Pro Ala Ala Pro Pro Gln
465                 470                 475                 480

Arg Ser Pro Val Gly Ser Ala Val Gly Ile Pro Gln Asp Ser Ser Ala
                485                 490                 495

Gln Ala Ser Arg Val Gln Val Ala Ile Gln Thr Leu Asp Glu Asn Asp
            500                 505                 510

Asn Ala Pro Gln Leu Ala Glu Pro Tyr Asp Thr Phe Val Cys Asp Ser
        515                 520                 525

Ala Ala Pro Gly Gln Leu Ile Gln Val Ile Arg Ala Leu Asp Arg Asp
    530                 535                 540

Glu Val Gly Asn Ser Ser His Val Ser Phe Gln Gly Pro Leu Gly Pro
545                 550                 555                 560

Asp Ala Asn Phe Thr Val Gln Asp Asn Arg Asp Gly Ser Ala Ser Leu
                565                 570                 575

Leu Leu Pro Ser Arg Pro Ala Pro Pro Arg His Ala Pro Tyr Leu Val
            580                 585                 590

Pro Ile Glu Leu Trp Asp Trp Gly Gln Pro Ala Leu Ser Ser Thr Ala
        595                 600                 605

Thr Val Thr Val Ser Val Cys Arg Cys Gln Pro Asp Gly Ser Val Ala
    610                 615                 620

Ser Cys Trp Pro Glu Ala His Leu Ser Ala Ala Gly Leu Ser Thr Gly
625                 630                 635                 640

Ala Leu Leu Ala Ile Ile Thr Cys Val Gly Ala Leu Leu Ala Leu Val
                645                 650                 655

Val Leu Phe Val Ala Leu Arg Arg Gln Lys Gln Glu Ala Leu Met Val
            660                 665                 670
```

```
Leu Glu Glu Glu Asp Val Arg Glu Asn Ile Ile Thr Tyr Asp Asp Glu
        675                 680                 685

Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp Ile Thr Ala Leu Gln
    690                 695                 700

Asn Pro Asp Gly Ala Ala Pro Pro Ala Pro Gly Pro Pro Ala Arg Arg
705                 710                 715                 720

Asp Val Leu Pro Arg Ala Arg Val Ser Arg Gln Pro Arg Pro Pro Gly
                725                 730                 735

Pro Ala Asp Val Ala Gln Leu Leu Ala Leu Arg Leu Arg Glu Ala Asp
            740                 745                 750

Glu Asp Pro Gly Val Pro Pro Tyr Asp Ser Val Gln Val Tyr Gly Tyr
        755                 760                 765

Glu Gly Arg Gly Ser Ser Cys Gly Ser Leu Ser Ser Leu Gly Ser Gly
    770                 775                 780

Ser Glu Ala Gly Gly Ala Pro Gly Pro Ala Glu Pro Leu Asp Asp Trp
785                 790                 795                 800

Gly Pro Leu Phe Arg Thr Leu Ala Glu Leu Tyr Gly Ala Lys Glu Pro
                805                 810                 815

Pro Ala Pro
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<210> 10366
<211> 819
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2076; "

<220>
<221> source
<223> /note="Gene Symbol: CDH24; "

<220>
<221> source
<223> /note="Gene Name: cadherin 24, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86UP0; "

<220>
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<223> /note="ENSP ID: ENSP00000380517"

<400> 10366
Met Trp Gly Leu Val Arg Leu Leu Leu Ala Trp Leu Gly Gly Trp Gly
1   5   10   15

Cys Met Gly Arg Leu Ala Ala Pro Ala Arg Ala Trp Ala Gly Ser Arg
            20   25   30

Glu His Pro Gly Pro Ala Leu Leu Arg Thr Arg Arg Ser Trp Val Trp
        35   40   45

Asn Gln Phe Phe Val Ile Glu Glu Tyr Ala Gly Pro Glu Pro Val Leu
    50   55   60

Ile Gly Lys Leu His Ser Asp Val Asp Arg Gly Glu Gly Arg Thr Lys
65   70   75   80

Tyr Leu Leu Thr Gly Glu Gly Ala Gly Thr Val Phe Val Ile Asp Glu
                85   90   95

Ala Thr Gly Asn Ile His Val Thr Lys Ser Leu Asp Arg Glu Glu Lys
            100   105   110

Ala Gln Tyr Val Leu Leu Ala Gln Ala Val Asp Arg Ala Ser Asn Arg
        115   120   125

Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile Asn
    130   135   140

Asp Asn Pro Pro Ile Phe Pro Leu Gly Pro Tyr His Ala Thr Val Pro
145   150   155   160

Glu Met Ser Asn Val Gly Thr Ser Val Ile Gln Val Thr Ala His Asp
                165   170   175

Ala Asp Asp Pro Ser Tyr Gly Asn Ser Ala Lys Leu Val Tyr Thr Val
            180   185   190

```
Leu Asp Gly Leu Pro Phe Phe Ser Val Asp Pro Gln Thr Gly Val Val
        195                 200                 205

Arg Thr Ala Ile Pro Asn Met Asp Arg Glu Thr Gln Glu Glu Phe Leu
    210                 215                 220

Val Val Ile Gln Ala Lys Asp Met Gly Gly His Met Gly Gly Leu Ser
225                 230                 235                 240

Gly Ser Thr Thr Val Thr Val Thr Leu Ser Asp Val Asn Asp Asn Pro
                245                 250                 255

Pro Lys Phe Pro Gln Ser Leu Tyr Gln Phe Ser Val Val Glu Thr Ala
            260                 265                 270

Gly Pro Gly Thr Leu Val Gly Arg Leu Arg Ala Gln Asp Pro Asp Leu
        275                 280                 285

Gly Asp Asn Ala Leu Met Ala Tyr Ser Ile Leu Asp Gly Glu Gly Ser
    290                 295                 300

Glu Ala Phe Ser Ile Ser Thr Asp Leu Gln Gly Arg Asp Gly Leu Leu
305                 310                 315                 320

Thr Val Arg Lys Pro Leu Asp Phe Glu Ser Gln Arg Ser Tyr Ser Phe
                325                 330                 335

Arg Val Glu Ala Thr Asn Thr Leu Ile Asp Pro Ala Tyr Leu Arg Arg
            340                 345                 350

Gly Pro Phe Lys Asp Val Ala Ser Val Arg Val Ala Val Gln Asp Ala
        355                 360                 365

Pro Glu Pro Pro Ala Phe Thr Gln Ala Ala Tyr His Leu Thr Val Pro
    370                 375                 380

Glu Asn Lys Ala Pro Gly Thr Leu Val Gly Gln Ile Ser Ala Ala Asp
385                 390                 395                 400

Leu Asp Ser Pro Ala Ser Pro Ile Arg Tyr Ser Ile Leu Pro His Ser
                405                 410                 415
```

```
Asp Pro Glu Arg Cys Phe Ser Ile Gln Pro Glu Glu Gly Thr Ile His
            420                 425                 430

Thr Ala Ala Pro Leu Asp Arg Glu Ala Arg Ala Trp His Asn Leu Thr
        435                 440                 445

Val Leu Ala Thr Glu Leu Gly Trp Ser Trp Gly Pro Glu Arg Gly Trp
    450                 455                 460

Val Pro Leu Leu Val Ala Glu Trp Ser Ala Pro Ala Ala Pro Pro Gln
465                 470                 475                 480

Arg Ser Pro Val Gly Ser Ala Val Gly Ile Pro Gln Asp Ser Ser Ala
                485                 490                 495

Gln Ala Ser Arg Val Gln Val Ala Ile Gln Thr Leu Asp Glu Asn Asp
            500                 505                 510

Asn Ala Pro Gln Leu Ala Glu Pro Tyr Asp Thr Phe Val Cys Asp Ser
        515                 520                 525

Ala Ala Pro Gly Gln Leu Ile Gln Val Ile Arg Ala Leu Asp Arg Asp
    530                 535                 540

Glu Val Gly Asn Ser Ser His Val Ser Phe Gln Gly Pro Leu Gly Pro
545                 550                 555                 560

Asp Ala Asn Phe Thr Val Gln Asp Asn Arg Asp Gly Ser Ala Ser Leu
                565                 570                 575

Leu Leu Pro Ser Arg Pro Ala Pro Pro Arg His Ala Pro Tyr Leu Val
            580                 585                 590

Pro Ile Glu Leu Trp Asp Trp Gly Gln Pro Ala Leu Ser Ser Thr Ala
        595                 600                 605

Thr Val Thr Val Ser Val Cys Arg Cys Gln Pro Asp Gly Ser Val Ala
    610                 615                 620

Ser Cys Trp Pro Glu Ala His Leu Ser Ala Ala Gly Leu Ser Thr Gly
625                 630                 635                 640

Ala Leu Leu Ala Ile Ile Thr Cys Val Gly Ala Leu Leu Ala Leu Val
```

645 650 655

Val Leu Phe Val Ala Leu Arg Arg Gln Lys Gln Glu Ala Leu Met Val
660 665 670

Leu Glu Glu Glu Asp Val Arg Glu Asn Ile Ile Thr Tyr Asp Asp Glu
675 680 685

Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp Ile Thr Ala Leu Gln
690 695 700

Asn Pro Asp Gly Ala Ala Pro Pro Ala Pro Gly Pro Pro Ala Arg Arg
705 710 715 720

Asp Val Leu Pro Arg Ala Arg Val Ser Arg Gln Pro Arg Pro Pro Gly
725 730 735

Pro Ala Asp Val Ala Gln Leu Leu Ala Leu Arg Leu Arg Glu Ala Asp
740 745 750

Glu Asp Pro Gly Val Pro Pro Tyr Asp Ser Val Gln Val Tyr Gly Tyr
755 760 765

Glu Gly Arg Gly Ser Ser Cys Gly Ser Leu Ser Ser Leu Gly Ser Gly
770 775 780

Ser Glu Ala Gly Gly Ala Pro Gly Pro Ala Glu Pro Leu Asp Asp Trp
785 790 795 800

Gly Pro Leu Phe Arg Thr Leu Ala Glu Leu Tyr Gly Ala Lys Glu Pro
805 810 815

Pro Ala Pro

<210> 10367
<211> 781
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: cadherin 24, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q86UP0; "

<220>
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<223> /note="ENSP ID: ENSP00000434821"

<400> 10367
Met Trp Gly Leu Val Arg Leu Leu Leu Ala Trp Leu Gly Gly Trp Gly
1   5   10   15

Cys Met Gly Arg Leu Ala Ala Pro Ala Arg Ala Trp Ala Gly Ser Arg
            20   25   30

Glu His Pro Gly Pro Ala Leu Leu Arg Thr Arg Arg Ser Trp Val Trp
        35   40   45

Asn Gln Phe Phe Val Ile Glu Glu Tyr Ala Gly Pro Glu Pro Val Leu
    50   55   60

Ile Gly Lys Leu His Ser Asp Val Asp Arg Gly Glu Gly Arg Thr Lys
65   70   75   80

Tyr Leu Leu Thr Gly Glu Gly Ala Gly Thr Val Phe Val Ile Asp Glu
                85   90   95

Ala Thr Gly Asn Ile His Val Thr Lys Ser Leu Asp Arg Glu Glu Lys
            100   105   110

Ala Gln Tyr Val Leu Leu Ala Gln Ala Val Asp Arg Ala Ser Asn Arg
        115   120   125

Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile Asn
    130   135   140

Asp Asn Pro Pro Ile Phe Pro Leu Gly Pro Tyr His Ala Thr Val Pro
145   150   155   160

Glu Met Ser Asn Val Gly Thr Ser Val Ile Gln Val Thr Ala His Asp

```
                165                 170                 175

Ala Asp Asp Pro Ser Tyr Gly Asn Ser Ala Lys Leu Val Tyr Thr Val
            180                 185                 190

Leu Asp Gly Leu Pro Phe Phe Ser Val Asp Pro Gln Thr Gly Val Val
        195                 200                 205

Arg Thr Ala Ile Pro Asn Met Asp Arg Glu Thr Gln Glu Glu Phe Leu
    210                 215                 220

Val Val Ile Gln Ala Lys Asp Met Gly Gly His Met Gly Gly Leu Ser
225                 230                 235                 240

Gly Ser Thr Thr Val Thr Val Thr Leu Ser Asp Val Asn Asp Asn Pro
                245                 250                 255

Pro Lys Phe Pro Gln Ser Leu Tyr Gln Phe Ser Val Val Glu Thr Ala
            260                 265                 270

Gly Pro Gly Thr Leu Val Gly Arg Leu Arg Ala Gln Asp Pro Asp Leu
        275                 280                 285

Gly Asp Asn Ala Leu Met Ala Tyr Ser Ile Leu Asp Gly Glu Gly Ser
    290                 295                 300

Glu Ala Phe Ser Ile Ser Thr Asp Leu Gln Gly Arg Asp Gly Leu Leu
305                 310                 315                 320

Thr Val Arg Lys Pro Leu Asp Phe Glu Ser Gln Arg Ser Tyr Ser Phe
                325                 330                 335

Arg Val Glu Ala Thr Asn Thr Leu Ile Asp Pro Ala Tyr Leu Arg Arg
            340                 345                 350

Gly Pro Phe Lys Asp Val Ala Ser Val Arg Val Ala Val Gln Asp Ala
        355                 360                 365

Pro Glu Pro Pro Ala Phe Thr Gln Ala Ala Tyr His Leu Thr Val Pro
    370                 375                 380

Glu Asn Lys Ala Pro Gly Thr Leu Val Gly Gln Ile Ser Ala Ala Asp
385                 390                 395                 400
```

```
Leu Asp Ser Pro Ala Ser Pro Ile Arg Tyr Ser Ile Leu Pro His Ser
                405                 410                 415

Asp Pro Glu Arg Cys Phe Ser Ile Gln Pro Glu Glu Gly Thr Ile His
            420                 425                 430

Thr Ala Ala Pro Leu Asp Arg Glu Ala Arg Ala Trp His Asn Leu Thr
        435                 440                 445

Val Leu Ala Thr Glu Leu Asp Ser Ser Ala Gln Ala Ser Arg Val Gln
    450                 455                 460

Val Ala Ile Gln Thr Leu Asp Glu Asn Asp Asn Ala Pro Gln Leu Ala
465                 470                 475                 480

Glu Pro Tyr Asp Thr Phe Val Cys Asp Ser Ala Ala Pro Gly Gln Leu
                485                 490                 495

Ile Gln Val Ile Arg Ala Leu Asp Arg Asp Glu Val Gly Asn Ser Ser
            500                 505                 510

His Val Ser Phe Gln Gly Pro Leu Gly Pro Asp Ala Asn Phe Thr Val
        515                 520                 525

Gln Asp Asn Arg Asp Gly Ser Ala Ser Leu Leu Leu Pro Ser Arg Pro
    530                 535                 540

Ala Pro Pro Arg His Ala Pro Tyr Leu Val Pro Ile Glu Leu Trp Asp
545                 550                 555                 560

Trp Gly Gln Pro Ala Leu Ser Ser Thr Ala Thr Val Thr Val Ser Val
                565                 570                 575

Cys Arg Cys Gln Pro Asp Gly Ser Val Ala Ser Cys Trp Pro Glu Ala
            580                 585                 590

His Leu Ser Ala Ala Gly Leu Ser Thr Gly Ala Leu Leu Ala Ile Ile
        595                 600                 605

Thr Cys Val Gly Ala Leu Leu Ala Leu Val Val Leu Phe Val Ala Leu
    610                 615                 620
```

```
Arg Arg Gln Lys Gln Glu Ala Leu Met Val Leu Glu Glu Glu Asp Val
625                 630                 635                 640

Arg Glu Asn Ile Ile Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp
                645                 650                 655

Thr Glu Ala Phe Asp Ile Thr Ala Leu Gln Asn Pro Asp Gly Ala Ala
            660                 665                 670

Pro Pro Ala Pro Gly Pro Pro Ala Arg Arg Asp Val Leu Pro Arg Ala
        675                 680                 685

Arg Val Ser Arg Gln Pro Arg Pro Pro Gly Pro Ala Asp Val Ala Gln
    690                 695                 700

Leu Leu Ala Leu Arg Leu Arg Glu Ala Asp Glu Asp Pro Gly Val Pro
705                 710                 715                 720

Pro Tyr Asp Ser Val Gln Val Tyr Gly Tyr Glu Gly Arg Gly Ser Ser
                725                 730                 735

Cys Gly Ser Leu Ser Ser Leu Gly Ser Gly Ser Glu Ala Gly Gly Ala
            740                 745                 750

Pro Gly Pro Ala Glu Pro Leu Asp Asp Trp Gly Pro Leu Phe Arg Thr
        755                 760                 765

Leu Ala Glu Leu Tyr Gly Ala Lys Glu Pro Pro Ala Pro
    770                 775                 780


<210> 10368
<211> 781
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2076; "

<220>
<221> source
<223> /note="Gene Symbol: CDH24; "

<220>
<221> source
<223> /note="Gene Name: cadherin 24, type 2; "
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<220>
<221> source
<223> /note="Uniprot ID: Q86UP0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452493"

<400> 10368
Met Trp Gly Leu Val Arg Leu Leu Leu Ala Trp Leu Gly Gly Trp Gly
1   5   10   15

Cys Met Gly Arg Leu Ala Ala Pro Ala Arg Ala Trp Ala Gly Ser Arg
            20   25   30

Glu His Pro Gly Pro Ala Leu Leu Arg Thr Arg Arg Ser Trp Val Trp
        35   40   45

Asn Gln Phe Phe Val Ile Glu Glu Tyr Ala Gly Pro Glu Pro Val Leu
    50   55   60

Ile Gly Lys Leu His Ser Asp Val Asp Arg Gly Glu Gly Arg Thr Lys
65   70   75   80

Tyr Leu Leu Thr Gly Glu Gly Ala Gly Thr Val Phe Val Ile Asp Glu
                85   90   95

Ala Thr Gly Asn Ile His Val Thr Lys Ser Leu Asp Arg Glu Glu Lys
            100   105   110

Ala Gln Tyr Val Leu Leu Ala Gln Ala Val Asp Arg Ala Ser Asn Arg
        115   120   125

Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile Asn
    130   135   140

Asp Asn Pro Pro Ile Phe Pro Leu Gly Pro Tyr His Ala Thr Val Pro
145   150   155   160

Glu Met Ser Asn Val Gly Thr Ser Val Ile Gln Val Thr Ala His Asp
                165   170   175

Ala Asp Asp Pro Ser Tyr Gly Asn Ser Ala Lys Leu Val Tyr Thr Val
            180   185   190

```
Leu Asp Gly Leu Pro Phe Phe Ser Val Asp Pro Gln Thr Gly Val Val
        195                 200                 205

Arg Thr Ala Ile Pro Asn Met Asp Arg Glu Thr Gln Glu Glu Phe Leu
    210                 215                 220

Val Val Ile Gln Ala Lys Asp Met Gly Gly His Met Gly Gly Leu Ser
225                 230                 235                 240

Gly Ser Thr Thr Val Thr Val Thr Leu Ser Asp Val Asn Asp Asn Pro
                245                 250                 255

Pro Lys Phe Pro Gln Ser Leu Tyr Gln Phe Ser Val Val Glu Thr Ala
            260                 265                 270

Gly Pro Gly Thr Leu Val Gly Arg Leu Arg Ala Gln Asp Pro Asp Leu
        275                 280                 285

Gly Asp Asn Ala Leu Met Ala Tyr Ser Ile Leu Asp Gly Glu Gly Ser
    290                 295                 300

Glu Ala Phe Ser Ile Ser Thr Asp Leu Gln Gly Arg Asp Gly Leu Leu
305                 310                 315                 320

Thr Val Arg Lys Pro Leu Asp Phe Glu Ser Gln Arg Ser Tyr Ser Phe
                325                 330                 335

Arg Val Glu Ala Thr Asn Thr Leu Ile Asp Pro Ala Tyr Leu Arg Arg
            340                 345                 350

Gly Pro Phe Lys Asp Val Ala Ser Val Arg Val Ala Val Gln Asp Ala
        355                 360                 365

Pro Glu Pro Pro Ala Phe Thr Gln Ala Ala Tyr His Leu Thr Val Pro
    370                 375                 380

Glu Asn Lys Ala Pro Gly Thr Leu Val Gly Gln Ile Ser Ala Ala Asp
385                 390                 395                 400

Leu Asp Ser Pro Ala Ser Pro Ile Arg Tyr Ser Ile Leu Pro His Ser
                405                 410                 415
```

```
Asp Pro Glu Arg Cys Phe Ser Ile Gln Pro Glu Glu Gly Thr Ile His
            420                 425                 430

Thr Ala Ala Pro Leu Asp Arg Glu Ala Arg Ala Trp His Asn Leu Thr
        435                 440                 445

Val Leu Ala Thr Glu Leu Asp Ser Ser Ala Gln Ala Ser Arg Val Gln
    450                 455                 460

Val Ala Ile Gln Thr Leu Asp Glu Asn Asp Asn Ala Pro Gln Leu Ala
465                 470                 475                 480

Glu Pro Tyr Asp Thr Phe Val Cys Asp Ser Ala Ala Pro Gly Gln Leu
                485                 490                 495

Ile Gln Val Ile Arg Ala Leu Asp Arg Asp Glu Val Gly Asn Ser Ser
            500                 505                 510

His Val Ser Phe Gln Gly Pro Leu Gly Pro Asp Ala Asn Phe Thr Val
        515                 520                 525

Gln Asp Asn Arg Asp Gly Ser Ala Ser Leu Leu Leu Pro Ser Arg Pro
    530                 535                 540

Ala Pro Pro Arg His Ala Pro Tyr Leu Val Pro Ile Glu Leu Trp Asp
545                 550                 555                 560

Trp Gly Gln Pro Ala Leu Ser Ser Thr Ala Thr Val Thr Val Ser Val
                565                 570                 575

Cys Arg Cys Gln Pro Asp Gly Ser Val Ala Ser Cys Trp Pro Glu Ala
            580                 585                 590

His Leu Ser Ala Ala Gly Leu Ser Thr Gly Ala Leu Leu Ala Ile Ile
        595                 600                 605

Thr Cys Val Gly Ala Leu Leu Ala Leu Val Val Leu Phe Val Ala Leu
    610                 615                 620

Arg Arg Gln Lys Gln Glu Ala Leu Met Val Leu Glu Glu Glu Asp Val
625                 630                 635                 640

Arg Glu Asn Ile Ile Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp
```

645 650 655

Thr Glu Ala Phe Asp Ile Thr Ala Leu Gln Asn Pro Asp Gly Ala Ala
660 665 670

Pro Pro Ala Pro Gly Pro Pro Ala Arg Arg Asp Val Leu Pro Arg Ala
675 680 685

Arg Val Ser Arg Gln Pro Arg Pro Pro Gly Pro Ala Asp Val Ala Gln
690 695 700

Leu Leu Ala Leu Arg Leu Arg Glu Ala Asp Glu Asp Pro Gly Val Pro
705 710 715 720

Pro Tyr Asp Ser Val Gln Val Tyr Gly Tyr Glu Gly Arg Gly Ser Ser
725 730 735

Cys Gly Ser Leu Ser Ser Leu Gly Ser Gly Ser Glu Ala Gly Gly Ala
740 745 750

Pro Gly Pro Ala Glu Pro Leu Asp Asp Trp Gly Pro Leu Phe Arg Thr
755 760 765

Leu Ala Glu Leu Tyr Gly Ala Lys Glu Pro Pro Ala Pro
770 775 780

<210> 10369
<211> 314
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2076; "

<220>
<221> source
<223> /note="Gene Symbol: CDH24; "

<220>
<221> source
<223> /note="Gene Name: cadherin 24, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478078"

<400> 10369

```
Met Trp Gly Leu Val Arg Leu Leu Leu Ala Trp Leu Gly Gly Trp Gly
1               5                  10                  15

Cys Met Gly Arg Leu Ala Ala Pro Ala Arg Ala Trp Ala Gly Ser Arg
            20                  25                  30

Glu His Pro Gly Pro Ala Leu Leu Arg Thr Arg Arg Ser Trp Val Trp
        35                  40                  45

Asn Gln Phe Phe Val Ile Glu Glu Tyr Ala Gly Pro Glu Pro Val Leu
    50                  55                  60

Ile Gly Lys Leu His Ser Asp Val Asp Arg Gly Glu Gly Arg Thr Lys
65                  70                  75                  80

Tyr Leu Leu Thr Gly Glu Gly Ala Gly Thr Val Phe Val Ile Asp Glu
                85                  90                  95

Ala Thr Gly Asn Ile His Val Thr Lys Ser Leu Asp Arg Glu Glu Lys
            100                 105                 110

Ala Gln Tyr Val Leu Leu Ala Gln Ala Val Asp Arg Ala Ser Asn Arg
        115                 120                 125

Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Ile Ile Thr Cys Val
    130                 135                 140

Gly Ala Leu Leu Ala Leu Val Val Leu Phe Val Ala Leu Arg Arg Gln
145                 150                 155                 160

Lys Gln Glu Ala Leu Met Val Leu Glu Glu Glu Asp Val Arg Glu Asn
                165                 170                 175

Ile Ile Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr Glu Ala
            180                 185                 190

Phe Asp Ile Thr Ala Leu Gln Asn Pro Asp Gly Ala Ala Pro Pro Ala
        195                 200                 205

Pro Gly Pro Pro Ala Arg Arg Asp Val Leu Pro Arg Ala Arg Val Ser
    210                 215                 220

Arg Gln Pro Arg Pro Pro Gly Pro Ala Asp Val Ala Gln Leu Leu Ala
```

225 230 235 240

Leu Arg Leu Arg Glu Ala Asp Glu Asp Pro Gly Val Pro Pro Tyr Asp
245 250 255

Ser Val Gln Val Tyr Gly Tyr Glu Gly Arg Gly Ser Ser Cys Gly Ser
260 265 270

Leu Ser Ser Leu Gly Ser Gly Ser Glu Ala Gly Gly Ala Pro Gly Pro
275 280 285

Ala Glu Pro Leu Asp Asp Trp Gly Pro Leu Phe Arg Thr Leu Ala Glu
290 295 300

Leu Tyr Gly Ala Lys Glu Pro Pro Ala Pro
305 310

<210> 10370
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2077; "

<220>
<221> source
<223> /note="Gene Symbol: CDH26; "

<220>
<221> source
<223> /note="Gene Name: cadherin 26; "

<220>
<221> source
<223> /note="Uniprot ID: Q8IXH8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000244049"

<400> 10370
Met Lys Pro Leu Ile Trp Thr Trp Ser Asp Val Glu Gly Gln Arg Pro
1 5 10 15

Ala Leu Leu Ile Cys Thr Ala Ala Ala Gly Pro Thr Gln Gly Val Lys
20 25 30

```
Ala Tyr Pro Asp Ala Thr Met His Arg Gln Leu Leu Ala Pro Val Glu
        35                  40                  45

Gly Arg Met Ala Glu Thr Leu Asn Gln Lys Leu His Val Ala Asn Val
    50                  55                  60

Leu Glu Asp Asp Pro Gly Tyr Leu Pro His Val Tyr Ser Glu Glu Gly
65                  70                  75                  80

Glu Cys Gly Gly Ala Pro Ser Leu Ser Ser Leu Ala Ser Leu Glu Gln
                85                  90                  95

Glu Leu Gln Pro Asp Leu Leu Asp Ser Leu Gly Ser Lys Ala Thr Pro
            100                 105                 110

Phe Glu Glu Ile Tyr Ser Glu Ser Gly Val Pro Ser
        115                 120


<210> 10371
<211> 165
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2077; "

<220>
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<223> /note="Gene Symbol: CDH26; "

<220>
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<223> /note="Gene Name: cadherin 26; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8IXH8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000310845"

<400> 10371
Met Lys Pro Leu Ile Trp Thr Trp Ser Asp Val Glu Gly Gln Arg Pro
1               5                   10                  15

Ala Leu Leu Ile Cys Thr Ala Ala Ala Gly Pro Thr Gln Gly Val Lys
            20                  25                  30
```

```
Asp Leu Glu Glu Val Pro Pro Ser Ala Ala Ser Gln Ser Ala Gln Ala
        35                  40                  45

Arg Cys Ala Leu Gly Ser Trp Gly Tyr Gly Lys Pro Phe Glu Pro Arg
    50                  55                  60

Ser Val Lys Asn Ile His Ser Thr Pro Ala Tyr Pro Asp Ala Thr Met
65                  70                  75                  80

His Arg Gln Leu Leu Ala Pro Val Glu Gly Arg Met Ala Glu Thr Leu
                85                  90                  95

Asn Gln Lys Leu His Val Ala Asn Val Leu Glu Asp Asp Pro Gly Tyr
            100                 105                 110

Leu Pro His Val Tyr Ser Glu Glu Gly Glu Cys Gly Gly Ala Pro Ser
        115                 120                 125

Leu Ser Ser Leu Ala Ser Leu Glu Gln Glu Leu Gln Pro Asp Leu Leu
    130                 135                 140

Asp Ser Leu Gly Ser Lys Ala Thr Pro Phe Glu Glu Ile Tyr Ser Glu
145                 150                 155                 160

Ser Gly Val Pro Ser
                165


<210> 10372
<211> 832
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2077; "

<220>
<221> source
<223> /note="Gene Symbol: CDH26; "

<220>
<221> source
<223> /note="Gene Name: cadherin 26; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8IXH8; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000339390"

<400> 10372
Met Ala Met Arg Ser Gly Arg His Pro Ser Leu Leu Leu Leu Leu Val
1 5 10 15

Leu Leu Leu Trp Leu Leu Gln Val Ser Ile Ile Asp Ser Val Gln Gln
20 25 30

Glu Thr Asp Asp Leu Thr Lys Gln Thr Lys Glu Lys Ile Tyr Gln Pro
35 40 45

Leu Arg Arg Ser Lys Arg Arg Trp Val Ile Thr Thr Leu Glu Leu Glu
50 55 60

Glu Glu Asp Pro Gly Pro Phe Pro Lys Leu Ile Gly Glu Leu Phe Asn
65 70 75 80

Asn Met Ser Tyr Asn Met Ser Leu Met Tyr Leu Ile Ser Gly Pro Gly
85 90 95

Val Asp Glu Tyr Pro Glu Ile Gly Leu Phe Ser Leu Glu Asp His Glu
100 105 110

Asn Gly Arg Ile Tyr Val His Arg Pro Val Asp Arg Glu Met Thr Pro
115 120 125

Ser Phe Thr Val Tyr Phe Asp Val Val Glu Arg Ser Thr Gly Lys Ile
130 135 140

Val Asp Thr Ser Leu Ile Phe Asn Ile Arg Ile Ser Asp Val Asn Asp
145 150 155 160

His Ala Pro Gln Phe Pro Glu Lys Glu Phe Asn Ile Thr Val Gln Glu
165 170 175

Asn Gln Ser Ala Gly Gln Pro Ile Phe Gln Met Leu Ala Val Asp Leu
180 185 190

Asp Glu Glu Asn Thr Pro Asn Ser Gln Val Leu Tyr Phe Leu Ile Ser
195 200 205

```
Gln Thr Pro Leu Leu Lys Glu Ser Gly Phe Arg Val Asp Arg Leu Ser
    210                 215                 220

Gly Glu Ile Arg Leu Ser Gly Cys Leu Asp Tyr Glu Thr Ala Pro Gln
225                 230                 235                 240

Phe Thr Leu Leu Ile Arg Ala Arg Asp Cys Gly Glu Pro Ser Leu Ser
                245                 250                 255

Ser Thr Thr Thr Val His Val Asp Val Gln Glu Gly Asn Asn His Arg
            260                 265                 270

Pro Ala Phe Thr Gln Glu Asn Tyr Lys Val Gln Ile Pro Glu Gly Arg
        275                 280                 285

Ala Ser Gln Gly Val Leu Arg Leu Leu Val Gln Asp Arg Asp Ser Pro
    290                 295                 300

Phe Thr Ser Ala Trp Arg Ala Lys Phe Asn Ile Leu His Gly Asn Glu
305                 310                 315                 320

Glu Gly His Phe Asp Ile Ser Thr Asp Pro Glu Thr Asn Glu Gly Ile
                325                 330                 335

Leu Asn Val Ile Lys Pro Leu Asp Tyr Glu Thr Arg Pro Ala Gln Ser
            340                 345                 350

Leu Ile Ile Val Val Glu Asn Glu Glu Arg Leu Val Phe Cys Glu Arg
        355                 360                 365

Gly Lys Leu Gln Pro Pro Arg Lys Ala Ala Ala Ser Ala Thr Val Ser
    370                 375                 380

Val Gln Val Thr Asp Ala Asn Asp Pro Pro Ala Phe His Pro Gln Ser
385                 390                 395                 400

Phe Ile Val Asn Lys Glu Glu Gly Ala Arg Pro Gly Thr Leu Leu Gly
                405                 410                 415

Thr Phe Asn Ala Met Asp Pro Asp Ser Gln Ile Arg Tyr Glu Leu Val
            420                 425                 430
```

```
His Asp Pro Ala Asn Trp Val Ser Val Asp Lys Asn Ser Gly Val Val
        435                 440                 445

Ile Thr Val Glu Pro Ile Asp Arg Glu Ser Pro His Val Asn Asn Ser
    450                 455                 460

Phe Tyr Val Ile Ile Ile His Ala Val Asp Asp Gly Phe Pro Pro Gln
465                 470                 475                 480

Thr Ala Thr Gly Thr Leu Met Leu Phe Leu Ser Asp Ile Asn Asp Asn
                485                 490                 495

Val Pro Thr Leu Arg Pro Arg Ser Arg Tyr Met Glu Val Cys Glu Ser
            500                 505                 510

Ala Val His Glu Pro Leu His Ile Glu Ala Glu Asp Pro Asp Leu Glu
        515                 520                 525

Pro Phe Ser Asp Pro Phe Thr Phe Glu Leu Asp Asn Thr Trp Gly Asn
    530                 535                 540

Ala Glu Asp Thr Trp Lys Leu Gly Arg Asn Trp Gly Gln Ser Val Glu
545                 550                 555                 560

Leu Leu Thr Leu Arg Ser Leu Pro Arg Gly Asn Tyr Leu Val Pro Leu
                565                 570                 575

Phe Ile Gly Asp Lys Gln Gly Leu Ser Gln Lys Gln Thr Val His Val
            580                 585                 590

Arg Ile Cys Pro Cys Ala Ser Gly Leu Thr Cys Val Glu Leu Ala Asp
        595                 600                 605

Ala Glu Val Gly Leu His Val Gly Ala Leu Phe Pro Val Cys Ala Ala
    610                 615                 620

Phe Val Ala Leu Ala Val Ala Leu Leu Phe Leu Leu Arg Cys Tyr Phe
625                 630                 635                 640

Val Leu Glu Pro Lys Arg His Gly Cys Ser Val Ser Asn Asp Glu Gly
                645                 650                 655

His Gln Thr Leu Val Met Tyr Asn Ala Glu Ser Lys Gly Thr Ser Ala
```

```
            660                 665                 670

Gln Thr Trp Ser Asp Val Glu Gly Gln Arg Pro Ala Leu Leu Ile Cys
        675                 680                 685

Thr Ala Ala Ala Gly Pro Thr Gln Gly Val Lys Asp Leu Glu Glu Val
    690                 695                 700

Pro Pro Ser Ala Ala Ser Gln Ser Ala Gln Ala Arg Cys Ala Leu Gly
705                 710                 715                 720

Ser Trp Gly Tyr Gly Lys Pro Phe Glu Pro Arg Ser Val Lys Asn Ile
                725                 730                 735

His Ser Thr Pro Ala Tyr Pro Asp Ala Thr Met His Arg Gln Leu Leu
            740                 745                 750

Ala Pro Val Glu Gly Arg Met Ala Glu Thr Leu Asn Gln Lys Leu His
        755                 760                 765

Val Ala Asn Val Leu Glu Asp Asp Pro Gly Tyr Leu Pro His Val Tyr
    770                 775                 780

Ser Glu Glu Gly Glu Cys Gly Gly Ala Pro Ser Leu Ser Ser Leu Ala
785                 790                 795                 800

Ser Leu Glu Gln Glu Leu Gln Pro Asp Leu Leu Asp Ser Leu Gly Ser
                805                 810                 815

Lys Ala Thr Pro Phe Glu Glu Ile Tyr Ser Glu Ser Gly Val Pro Ser
            820                 825                 830


<210> 10373
<211> 444
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2077; "

<220>
<221> source
<223> /note="Gene Symbol: CDH26; "

<220>
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<221> source
<223> /note="Gene Name: cadherin 26; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000360030"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10373
Xaa Arg Pro Gly Thr Leu Leu Gly Thr Phe Asn Ala Met Asp Pro Asp
1 5 10 15

Ser Gln Ile Arg Tyr Glu Leu Val His Asp Pro Ala Asn Trp Val Ser
20 25 30

Val Asp Lys Asn Ser Gly Val Val Ile Thr Val Glu Pro Ile Asp Arg
35 40 45

Glu Ser Pro His Val Asn Asn Ser Phe Tyr Val Ile Ile Ile His Ala
50 55 60

Val Asp Asp Gly Phe Pro Pro Gln Thr Ala Thr Gly Thr Leu Met Leu
65 70 75 80

Phe Leu Ser Asp Ile Asn Asp Asn Val Pro Thr Leu Arg Pro Arg Ser
85 90 95

Arg Tyr Met Glu Val Cys Glu Ser Ala Val His Glu Pro Leu His Ile
100 105 110

Glu Ala Glu Asp Pro Asp Leu Glu Pro Phe Ser Asp Pro Phe Thr Phe
115 120 125

Glu Leu Asp Asn Thr Trp Gly Asn Ala Glu Asp Thr Trp Lys Leu Gly
130 135 140

Arg Asn Trp Gly Gln Ser Val Glu Leu Leu Thr Leu Arg Ser Leu Pro
145 150 155 160

Arg Gly Asn Tyr Leu Val Pro Leu Phe Ile Gly Asp Lys Gln Gly Leu
165 170 175

```
Ser Gln Lys Gln Thr Val His Val Arg Ile Cys Pro Cys Ala Ser Gly
            180                 185                 190

Leu Thr Cys Val Glu Leu Ala Asp Ala Glu Val Gly Leu His Val Gly
        195                 200                 205

Ala Leu Phe Pro Val Cys Ala Ala Phe Val Ala Leu Ala Val Ala Leu
    210                 215                 220

Leu Phe Leu Leu Arg Cys Tyr Phe Val Leu Glu Pro Lys Arg His Gly
225                 230                 235                 240

Cys Ser Val Ser Asn Asp Glu Gly His Gln Thr Leu Val Met Tyr Asn
                245                 250                 255

Ala Glu Ser Lys Gly Thr Ser Ala Gln Thr Trp Ser Asp Val Glu Gly
            260                 265                 270

Gln Arg Pro Ala Leu Leu Ile Cys Thr Ala Ala Ala Gly Pro Thr Gln
        275                 280                 285

Gly Val Lys Ala Tyr Pro Asp Ala Thr Met His Arg Gln Leu Leu Ala
    290                 295                 300

Pro Val Glu Gly Arg Met Ala Glu Thr Leu Asn Gln Ser Lys Glu Arg
305                 310                 315                 320

Asn Arg Phe Ser Leu Ser Arg Gly Cys Ile Ile Pro Gln Gly Arg Ala
                325                 330                 335

Thr Ala Gly Arg Gly Leu Pro Gln Asp Ile Tyr Lys Glu Met Met Pro
            340                 345                 350

Arg Arg Leu Thr Gln Thr Gly Lys Arg Lys His Gly Ala Leu Ala Arg
        355                 360                 365

Thr Pro Ser Phe Lys Lys Val Val Tyr Asp His Lys Glu Asp Glu Glu
    370                 375                 380

Asn Lys Ala Gly Arg Lys Gln Arg Ser His Leu Phe Lys Val Met Gln
385                 390                 395                 400
```

```
Leu Arg Asn Glu Gln Gly Gly Val Arg Val Gln Ser Ala His Ser Pro
                405                 410                 415

Ser Pro Leu Asn Lys Lys Ala Cys Phe Pro Gly Asp Tyr Arg Gly Glu
            420                 425                 430

Ser Ala Gly Gly His Asn Cys Arg Ala Val Ser Gly
        435                 440


<210> 10374
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2077; "

<220>
<221> source
<223> /note="Gene Symbol: CDH26; "

<220>
<221> source
<223> /note="Gene Name: cadherin 26; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407939"

<400> 10374
Met Lys Pro Leu Ile Trp Thr Trp Ser Asp Val Glu Gly Gln Arg Pro
1               5                   10                  15

Ala Leu Leu Ile Cys Thr Ala Ala Ala Gly Pro Thr Gln Gly Val Lys
            20                  25                  30

Gly Tyr Gly Lys Pro Phe Glu Pro Arg Ser Val Lys Asn Ile His Ser
        35                  40                  45

Thr Pro Ala Tyr Pro Asp Ala Thr Met His Arg Gln Leu Leu Ala Pro
    50                  55                  60

Val Glu Gly Arg Met Ala Glu Thr Leu Asn Gln Lys Leu His Val Ala
65                  70                  75                  80


<210> 10375
<211> 829
<212> PRT
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<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin
(placental); "

<220>
<221> source
<223> /note="Uniprot ID: P22223; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000264012"

<400> 10375
Met Gly Leu Pro Arg Gly Pro Leu Ala Ser Leu Leu Leu Leu Gln Val
1   5   10   15

Cys Trp Leu Gln Cys Ala Ala Ser Glu Pro Cys Arg Ala Val Phe Arg
            20   25   30

Glu Ala Glu Val Thr Leu Glu Ala Gly Gly Ala Glu Gln Glu Pro Gly
        35   40   45

Gln Ala Leu Gly Lys Val Phe Met Gly Cys Pro Gly Gln Glu Pro Ala
    50   55   60

Leu Phe Ser Thr Asp Asn Asp Asp Phe Thr Val Arg Asn Gly Glu Thr
65   70   75   80

Val Gln Glu Arg Arg Ser Leu Lys Glu Arg Asn Pro Leu Lys Ile Phe
                85   90   95

Pro Ser Lys Arg Ile Leu Arg Arg His Lys Arg Asp Trp Val Val Ala
            100   105   110

Pro Ile Ser Val Pro Glu Asn Gly Lys Gly Pro Phe Pro Gln Arg Leu
        115   120   125

Asn Gln Leu Lys Ser Asn Lys Asp Arg Asp Thr Lys Ile Phe Tyr Ser

130 135 140

Ile Thr Gly Pro Gly Ala Asp Ser Pro Pro Glu Gly Val Phe Ala Val
145 150 155 160

Glu Lys Glu Thr Gly Trp Leu Leu Leu Asn Lys Pro Leu Asp Arg Glu
165 170 175

Glu Ile Ala Lys Tyr Glu Leu Phe Gly His Ala Val Ser Glu Asn Gly
180 185 190

Ala Ser Val Glu Asp Pro Met Asn Ile Ser Ile Ile Val Thr Asp Gln
195 200 205

Asn Asp His Lys Pro Lys Phe Thr Gln Asp Thr Phe Arg Gly Ser Val
210 215 220

Leu Glu Gly Val Leu Pro Gly Thr Ser Val Met Gln Val Thr Ala Thr
225 230 235 240

Asp Glu Asp Asp Ala Ile Tyr Thr Tyr Asn Gly Val Val Ala Tyr Ser
245 250 255

Ile His Ser Gln Glu Pro Lys Asp Pro His Asp Leu Met Phe Thr Ile
260 265 270

His Arg Ser Thr Gly Thr Ile Ser Val Ile Ser Ser Gly Leu Asp Arg
275 280 285

Glu Lys Val Pro Glu Tyr Thr Leu Thr Ile Gln Ala Thr Asp Met Asp
290 295 300

Gly Asp Gly Ser Thr Thr Thr Ala Val Ala Val Val Glu Ile Leu Asp
305 310 315 320

Ala Asn Asp Asn Ala Pro Met Phe Asp Pro Gln Lys Tyr Glu Ala His
325 330 335

Val Pro Glu Asn Ala Val Gly His Glu Val Gln Arg Leu Thr Val Thr
340 345 350

Asp Leu Asp Ala Pro Asn Ser Pro Ala Trp Arg Ala Thr Tyr Leu Ile
355 360 365

```
Met Gly Gly Asp Asp Gly Asp His Phe Thr Ile Thr Thr His Pro Glu
    370                 375                 380

Ser Asn Gln Gly Ile Leu Thr Thr Arg Lys Gly Leu Asp Phe Glu Ala
385                 390                 395                 400

Lys Asn Gln His Thr Leu Tyr Val Glu Val Thr Asn Glu Ala Pro Phe
                405                 410                 415

Val Leu Lys Leu Pro Thr Ser Thr Ala Thr Ile Val Val His Val Glu
            420                 425                 430

Asp Val Asn Glu Ala Pro Val Phe Val Pro Pro Ser Lys Val Val Glu
        435                 440                 445

Val Gln Glu Gly Ile Pro Thr Gly Glu Pro Val Cys Val Tyr Thr Ala
    450                 455                 460

Glu Asp Pro Asp Lys Glu Asn Gln Lys Ile Ser Tyr Arg Ile Leu Arg
465                 470                 475                 480

Asp Pro Ala Gly Trp Leu Ala Met Asp Pro Asp Ser Gly Gln Val Thr
                485                 490                 495

Ala Val Gly Thr Leu Asp Arg Glu Asp Glu Gln Phe Val Arg Asn Asn
            500                 505                 510

Ile Tyr Glu Val Met Val Leu Ala Met Asp Asn Gly Ser Pro Pro Thr
        515                 520                 525

Thr Gly Thr Gly Thr Leu Leu Leu Thr Leu Ile Asp Val Asn Asp His
    530                 535                 540

Gly Pro Val Pro Glu Pro Arg Gln Ile Thr Ile Cys Asn Gln Ser Pro
545                 550                 555                 560

Val Arg Gln Val Leu Asn Ile Thr Asp Lys Asp Leu Ser Pro His Thr
                565                 570                 575

Ser Pro Phe Gln Ala Gln Leu Thr Asp Asp Ser Asp Ile Tyr Trp Thr
            580                 585                 590
```

```
Ala Glu Val Asn Glu Glu Gly Asp Thr Val Val Leu Ser Leu Lys Lys
        595                 600                 605

Phe Leu Lys Gln Asp Thr Tyr Asp Val His Leu Ser Leu Ser Asp His
    610                 615                 620

Gly Asn Lys Glu Gln Leu Thr Val Ile Arg Ala Thr Val Cys Asp Cys
625                 630                 635                 640

His Gly His Val Glu Thr Cys Pro Gly Pro Trp Lys Gly Gly Phe Ile
                645                 650                 655

Leu Pro Val Leu Gly Ala Val Leu Ala Leu Leu Phe Leu Leu Leu Val
            660                 665                 670

Leu Leu Leu Leu Val Arg Lys Lys Arg Lys Ile Lys Glu Pro Leu Leu
        675                 680                 685

Leu Pro Glu Asp Asp Thr Arg Asp Asn Val Phe Tyr Tyr Gly Glu Glu
    690                 695                 700

Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Ile Thr Gln Leu His Arg
705                 710                 715                 720

Gly Leu Glu Ala Arg Pro Glu Val Val Leu Arg Asn Asp Val Ala Pro
                725                 730                 735

Thr Ile Ile Pro Thr Pro Met Tyr Arg Pro Arg Pro Ala Asn Pro Asp
            740                 745                 750

Glu Ile Gly Asn Phe Ile Ile Glu Asn Leu Lys Ala Ala Asn Thr Asp
        755                 760                 765

Pro Thr Ala Pro Pro Tyr Asp Thr Leu Leu Val Phe Asp Tyr Glu Gly
    770                 775                 780

Ser Gly Ser Asp Ala Ala Ser Leu Ser Ser Leu Thr Ser Ser Ala Ser
785                 790                 795                 800

Asp Gln Asp Gln Asp Tyr Asp Tyr Leu Asn Glu Trp Gly Ser Arg Phe
                805                 810                 815
```

Lys Lys Leu Ala Asp Met Tyr Gly Gly Gly Glu Asp Asp
820 825

<210> 10376
<211> 784
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin (placental); "

<220>
<221> source
<223> /note="Uniprot ID: P22223; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398485"

<400> 10376
Met Gly Leu Pro Arg Gly Pro Leu Ala Ser Leu Leu Leu Leu Gln Val
1 5 10 15

Cys Trp Leu Gln Cys Ala Ala Ser Glu Pro Cys Arg Ala Val Phe Arg
20 25 30

Glu Ala Glu Val Thr Leu Glu Ala Gly Gly Ala Glu Gln Glu Pro Gly
35 40 45

Gln Ala Leu Gly Lys Val Phe Met Gly Cys Pro Gly Gln Glu Pro Ala
50 55 60

Leu Phe Ser Thr Asp Asn Asp Asp Phe Thr Val Arg Asn Gly Glu Thr
65 70 75 80

Val Gln Glu Arg Arg Ser Leu Lys Glu Arg Asn Pro Leu Lys Ile Phe
85 90 95

Pro Ser Lys Arg Ile Leu Arg Arg His Lys Arg Asp Trp Val Val Ala
100 105 110

```
Pro Ile Ser Val Pro Glu Asn Gly Lys Gly Pro Phe Pro Gln Arg Leu
        115                 120                 125

Asn Gln Leu Lys Ser Asn Lys Asp Arg Asp Thr Lys Ile Phe Tyr Ser
    130                 135                 140

Ile Thr Gly Pro Gly Ala Asp Ser Pro Pro Glu Gly Val Phe Ala Val
145                 150                 155                 160

Glu Lys Glu Thr Gly Trp Leu Leu Leu Asn Lys Pro Leu Asp Arg Glu
                165                 170                 175

Glu Ile Ala Lys Tyr Glu Leu Phe Gly His Ala Val Ser Glu Asn Gly
            180                 185                 190

Ala Ser Val Glu Asp Pro Met Asn Ile Ser Ile Ile Val Thr Asp Gln
        195                 200                 205

Asn Asp His Lys Pro Lys Phe Thr Gln Asp Thr Phe Arg Gly Ser Val
    210                 215                 220

Leu Glu Gly Val Leu Pro Gly Thr Ser Val Met Gln Val Thr Ala Thr
225                 230                 235                 240

Asp Glu Asp Asp Ala Ile Tyr Thr Tyr Asn Gly Val Val Ala Tyr Ser
                245                 250                 255

Ile His Ser Gln Glu Pro Lys Asp Pro His Asp Leu Met Phe Thr Ile
            260                 265                 270

His Arg Ser Thr Gly Thr Ile Ser Val Ile Ser Ser Gly Leu Asp Arg
        275                 280                 285

Glu Lys Val Pro Glu Tyr Thr Leu Thr Ile Gln Ala Thr Asp Met Asp
    290                 295                 300

Gly Asp Gly Ser Thr Thr Thr Ala Val Ala Val Val Glu Ile Leu Asp
305                 310                 315                 320

Ala Asn Asp Asn Ala Pro Met Phe Asp Pro Gln Lys Tyr Glu Ala His
                325                 330                 335
```

```
Val Pro Glu Asn Ala Val Gly His Glu Val Gln Arg Leu Thr Val Thr
            340                 345                 350

Asp Leu Asp Ala Pro Asn Ser Pro Ala Trp Arg Ala Thr Tyr Leu Ile
        355                 360                 365

Met Gly Gly Asp Asp Gly Asp His Phe Thr Ile Thr Thr His Pro Glu
    370                 375                 380

Ser Asn Gln Gly Ile Leu Thr Thr Arg Lys Gly Leu Asp Phe Glu Ala
385                 390                 395                 400

Lys Asn Gln His Thr Leu Tyr Val Glu Val Thr Asn Glu Ala Pro Phe
                405                 410                 415

Val Leu Lys Leu Pro Thr Ser Thr Ala Thr Ile Val Val His Val Glu
            420                 425                 430

Asp Val Asn Glu Ala Pro Val Phe Val Pro Pro Ser Lys Val Val Glu
        435                 440                 445

Val Gln Glu Gly Ile Pro Thr Gly Glu Pro Val Cys Val Tyr Thr Ala
    450                 455                 460

Glu Asp Pro Asp Lys Glu Asn Gln Lys Ile Ser Tyr Arg Ile Leu Arg
465                 470                 475                 480

Asp Pro Ala Gly Trp Leu Ala Met Asp Pro Asp Ser Gly Gln Val Thr
                485                 490                 495

Ala Val Gly Thr Leu Asp Arg Glu Asp Glu Gln Phe Val Arg Asn Asn
            500                 505                 510

Ile Tyr Glu Val Met Val Leu Ala Met Asp Asn Gly Ser Pro Pro Thr
        515                 520                 525

Thr Gly Thr Gly Thr Leu Leu Leu Thr Leu Ile Asp Val Asn Asp His
    530                 535                 540

Gly Pro Val Pro Glu Pro Arg Gln Ile Thr Ile Cys Asn Gln Ser Pro
545                 550                 555                 560
```

Val Arg Gln Val Leu Asn Ile Thr Asp Lys Asp Leu Ser Pro His Thr
565 570 575

Ser Pro Phe Gln Ala Gln Leu Thr Asp Asp Ser Asp Ile Tyr Trp Thr
580 585 590

Ala Glu Val Asn Glu Glu Gly Asp Thr Val Val Leu Ser Leu Lys Lys
595 600 605

Phe Leu Lys Gln Asp Thr Tyr Asp Val His Leu Ser Leu Ser Asp His
610 615 620

Gly Asn Lys Glu Gln Leu Thr Val Ile Arg Ala Thr Val Cys Asp Cys
625 630 635 640

His Gly His Val Glu Thr Cys Pro Gly Pro Trp Lys Gly Gly Phe Ile
645 650 655

Leu Pro Val Leu Gly Ala Val Leu Ala Leu Leu Phe Leu Leu Leu Val
660 665 670

Leu Leu Leu Leu Val Arg Lys Lys Arg Lys Ile Lys Glu Pro Leu Leu
675 680 685

Leu Pro Glu Asp Asp Thr Arg Asp Asn Val Phe Tyr Tyr Gly Glu Glu
690 695 700

Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Ile Thr Gln Leu His Arg
705 710 715 720

Gly Leu Glu Ala Arg Pro Glu Val Val Leu Arg Asn Asp Val Ala Pro
725 730 735

Thr Ile Ile Pro Thr Pro Met Tyr Arg Pro Arg Pro Ala Asn Pro Asp
740 745 750

Glu Ile Gly Asn Phe Ile Ile Glu Gly Arg Gly Glu Arg Gly Ser Gln
755 760 765

Arg Gly Asn Gly Gly Leu Gln Leu Ala Arg Gly Arg Thr Arg Arg Ser
770 775 780

<210> 10377

<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin
(placental); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462111"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10377
Xaa Cys Trp Leu Gln Cys Ala Ala Ser Glu Pro Cys Arg Ala Val Phe
1 5 10 15

Arg Glu Ala Glu Val Thr Leu Glu Ala Gly Gly Ala Glu Gln Glu Pro
20 25 30

Gly Gln Ala Leu Gly Lys Gly Lys Lys Val Thr Glu Gly Lys Glu Ser
35 40 45

Ile Glu Asp Leu Pro Ile Gln Thr Tyr Leu Thr Lys Thr Gln Glu Arg
50 55 60

Leu Gly Gly Cys Ser Asn Ile Cys Pro
65 70

<210> 10378
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin
(placental); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463267"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10378
Xaa Val Arg Gln Val Leu Asn Ile Thr Asp Lys Asp Leu Ser Pro His
1   5   10   15

Thr Ser Pro Phe Gln Ala Gln Leu Thr Asp Asp Ser Asp Ile Tyr Trp
            20   25   30

Thr Ala Glu Val Asn Glu Glu Gly Thr
        35   40

<210> 10379
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin
(placental); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463364"

<220>
<221> MOD_RES

<222> (1)..(1)
<223> Any amino acid

<400> 10379
Xaa Gly His Val Glu Thr Cys Pro Gly Pro Trp Lys Gly Gly Phe Ile
1 5 10 15

Leu Pro Val Leu Gly Ala Val Leu Ala Leu Leu Phe Leu Leu Leu Val
20 25 30

Leu Leu Leu Leu Val Arg Lys Lys Arg Lys Ile Lys Glu Pro Leu Leu
35 40 45

Leu Pro Glu Asp Asp Thr Arg Asp Asn Val Phe Tyr Tyr Gly Glu Glu
50 55 60

Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Ile Thr Gln Leu His Arg
65 70 75 80

Gly Leu Glu Ala Arg Pro Glu Val Val Leu Arg Asn Asp Val Ala Pro
85 90 95

Thr Ile Ile Pro Thr Pro Met Tyr Arg Pro Arg Pro Ala Asn Pro Asp
100 105 110

Glu Ile Gly Asn Phe Ile Ile Glu Val Arg Arg Gly Arg Pro Val Glu
115 120 125

Gly His Pro Leu Phe Lys Pro Ser Thr Ser His Thr Gly Glu Gln Ala
130 135 140

Trp Ala Trp Ser Leu Gly Ser Gly Phe Lys Phe
145 150 155

<210> 10380
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin
(placental); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463415"

<400> 10380
Val Val Leu Arg Asn Asp Val Ala Pro Thr Ile Ile Pro Thr Pro Met
1   5   10   15

Tyr Arg Pro Arg Pro Ala Asn Pro Asp Glu Ile Gly Asn Phe Ile Ile
            20   25   30

Glu Val Leu Leu Leu Cys Arg Ser Pro Pro Trp Gln Glu Ala Leu Ala
        35   40   45

Thr Gly Tyr Ser Leu Asp Pro Ala Trp Pro Val Pro Pro Phe Pro Pro
    50   55   60

Thr Thr Pro Gly Lys Thr Lys Thr Gln Pro Phe His Lys Tyr Met Ser
65   70   75   80

Thr

<210> 10381
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin
(placental); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464021"

<400> 10381

```
Met Gly Leu Pro Arg Gly Pro Leu Ala Ser Leu Leu Leu Leu Gln Tyr
1               5                   10                  15

Ser Trp Ala Ala Leu Gly Lys Ser Gln Leu Cys Leu Ala Leu Ile Met
            20                  25                  30

Met Thr Ser Leu Cys Gly Met Ala Arg Gln Ser Arg Lys Glu Gly His
        35                  40                  45


<210> 10382
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2078; "

<220>
<221> source
<223> /note="Gene Symbol: CDH3; "

<220>
<221> source
<223> /note="Gene Name: cadherin 3, type 1, P-cadherin
(placental); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464058"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10382
Xaa Leu Asn Gln Leu Lys Ser Asn Lys Asp Arg Asp Thr Lys Ile Phe
1               5                   10                  15

Tyr Ser Ile Thr Gly Pro Gly Ala Asp Ser Pro Pro Glu Gly Val Phe
            20                  25                  30

Ala Val Glu Lys Glu Thr Gly Trp Leu Leu Leu Asn Lys Pro Leu Asp
        35                  40                  45

Arg Glu Glu Ile Ala Lys Tyr Glu Val Leu Leu
    50                  55
```

<210> 10383
<211> 842
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2079; "

<220>
<221> source
<223> /note="Gene Symbol: CDH4; "

<220>
<221> source
<223> /note="Gene Name: cadherin 4, type 1, R-cadherin
(retinal); "

<220>
<221> source
<223> /note="Uniprot ID: P55283; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443301"

<400> 10383
Met Asp Phe Lys Val Gly Ala Asp Gly Thr Val Phe Ala Thr Arg Glu
1   5   10   15

Leu Gln Val Pro Ser Glu Gln Val Ala Phe Thr Val Thr Ala Trp Asp
            20   25   30

Ser Gln Thr Ala Glu Lys Trp Asp Ala Val Val Arg Leu Leu Val Ala
        35   40   45

Gln Thr Ser Ser Pro His Ser Gly His Lys Pro Gln Lys Gly Lys Lys
    50   55   60

Val Val Ala Leu Asp Pro Ser Pro Pro Pro Lys Asp Thr Leu Leu Pro
65   70   75   80

Trp Pro Gln His Gln Asn Ala Asn Gly Leu Arg Arg Arg Lys Arg Asp
                85   90   95

Trp Val Ile Pro Pro Ile Asn Val Pro Glu Asn Ser Arg Gly Pro Phe
            100   105   110

Pro Gln Gln Leu Val Arg Ile Arg Ser Asp Lys Asp Asn Asp Ile Pro
        115   120   125

```
Ile Arg Tyr Ser Ile Thr Gly Val Gly Ala Asp Gln Pro Pro Met Glu
    130                 135                 140

Val Phe Ser Ile Asp Ser Met Ser Gly Arg Met Tyr Val Thr Arg Pro
145                 150                 155                 160

Met Asp Arg Glu Glu His Ala Ser Tyr His Leu Arg Ala His Ala Val
                165                 170                 175

Asp Met Asn Gly Asn Lys Val Glu Asn Pro Ile Asp Leu Tyr Ile Tyr
            180                 185                 190

Val Ile Asp Met Asn Asp Asn Arg Pro Glu Phe Ile Asn Gln Val Tyr
        195                 200                 205

Asn Gly Ser Val Asp Glu Gly Ser Lys Pro Gly Thr Tyr Val Met Thr
    210                 215                 220

Val Thr Ala Asn Asp Ala Asp Asp Ser Thr Thr Ala Asn Gly Met Val
225                 230                 235                 240

Arg Tyr Arg Ile Val Thr Gln Thr Pro Gln Ser Pro Ser Gln Asn Met
                245                 250                 255

Phe Thr Ile Asn Ser Glu Thr Gly Asp Ile Val Thr Val Ala Ala Gly
            260                 265                 270

Leu Asp Arg Glu Lys Val Gln Gln Tyr Thr Val Ile Val Gln Ala Thr
        275                 280                 285

Asp Met Glu Gly Asn Leu Asn Tyr Gly Leu Ser Asn Thr Ala Thr Ala
    290                 295                 300

Ile Ile Thr Val Thr Asp Val Asn Asp Asn Pro Pro Glu Phe Thr Ala
305                 310                 315                 320

Ser Thr Phe Ala Gly Glu Val Pro Glu Asn Arg Val Glu Thr Val Val
                325                 330                 335

Ala Asn Leu Thr Val Met Asp Arg Asp Gln Pro His Ser Pro Asn Trp
            340                 345                 350
```

```
Asn Ala Val Tyr Arg Ile Ile Ser Gly Asp Pro Ser Gly His Phe Ser
        355                 360                 365

Val Arg Thr Asp Pro Val Thr Asn Glu Gly Met Val Thr Val Val Lys
    370                 375                 380

Ala Val Asp Tyr Glu Leu Asn Arg Ala Phe Met Leu Thr Val Met Val
385                 390                 395                 400

Ser Asn Gln Ala Pro Leu Ala Ser Gly Ile Gln Met Ser Phe Gln Ser
                405                 410                 415

Thr Ala Gly Val Thr Ile Ser Ile Met Asp Ile Asn Glu Ala Pro Tyr
            420                 425                 430

Phe Pro Ser Asn His Lys Leu Ile Arg Leu Glu Glu Gly Val Pro Pro
        435                 440                 445

Gly Thr Val Leu Thr Thr Phe Ser Ala Val Asp Pro Asp Arg Phe Met
    450                 455                 460

Gln Gln Ala Val Arg Tyr Ser Lys Leu Ser Asp Pro Ala Ser Trp Leu
465                 470                 475                 480

His Ile Asn Ala Thr Asn Gly Gln Ile Thr Thr Ala Ala Val Leu Asp
                485                 490                 495

Arg Glu Ser Leu Tyr Thr Lys Asn Asn Val Tyr Glu Ala Thr Phe Leu
            500                 505                 510

Ala Ala Asp Asn Gly Ile Pro Pro Ala Ser Gly Thr Gly Thr Leu Gln
        515                 520                 525

Ile Tyr Leu Ile Asp Ile Asn Asp Asn Ala Pro Glu Leu Leu Pro Lys
    530                 535                 540

Glu Ala Gln Ile Cys Glu Lys Pro Asn Leu Asn Ala Ile Asn Ile Thr
545                 550                 555                 560

Ala Ala Asp Ala Asp Val Asp Pro Asn Ile Gly Pro Tyr Val Phe Glu
                565                 570                 575
```

```
Leu Pro Phe Val Pro Ala Ala Val Arg Lys Asn Trp Thr Ile Thr Arg
            580                 585                 590

Leu Asn Gly Asp Tyr Ala Gln Leu Ser Leu Arg Ile Leu Tyr Leu Glu
        595                 600                 605

Ala Gly Met Tyr Asp Val Pro Ile Ile Val Thr Asp Ser Gly Asn Pro
    610                 615                 620

Pro Leu Ser Asn Thr Ser Ile Ile Lys Val Lys Val Cys Pro Cys Asp
625                 630                 635                 640

Asp Asn Gly Asp Cys Thr Thr Ile Gly Ala Val Ala Ala Ala Gly Leu
                645                 650                 655

Gly Thr Gly Ala Ile Val Ala Ile Leu Ile Cys Ile Leu Ile Leu Leu
            660                 665                 670

Thr Met Val Leu Leu Phe Val Met Trp Met Lys Arg Arg Glu Lys Glu
        675                 680                 685

Arg His Thr Lys Gln Leu Leu Ile Asp Pro Glu Asp Asp Val Arg Asp
    690                 695                 700

Asn Ile Leu Lys Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp
705                 710                 715                 720

Tyr Asp Leu Ser Gln Leu Gln Gln Pro Glu Ala Met Gly His Val Pro
                725                 730                 735

Ser Lys Ala Pro Gly Val Arg Arg Val Asp Glu Arg Pro Val Gly Ala
            740                 745                 750

Glu Pro Gln Tyr Pro Ile Arg Pro Met Val Pro His Pro Gly Asp Ile
        755                 760                 765

Gly Asp Phe Ile Asn Glu Gly Leu Arg Ala Ala Asp Asn Asp Pro Thr
    770                 775                 780

Ala Pro Pro Tyr Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly
785                 790                 795                 800

Ser Thr Ala Gly Ser Val Ser Ser Leu Asn Ser Ser Ser Ser Gly Asp
```

805 810 815

Gln Asp Tyr Asp Tyr Leu Asn Asp Trp Gly Pro Arg Phe Lys Lys Leu
820 825 830

Ala Asp Met Tyr Gly Gly Gly Glu Glu Asp
835 840

<210> 10384
<211> 822
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2079; "

<220>
<221> source
<223> /note="Gene Symbol: CDH4; "

<220>
<221> source
<223> /note="Gene Name: cadherin 4, type 1, R-cadherin
(retinal); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480844"

<400> 10384
Met Pro Lys Ser Thr Gly Met Leu His Gly Gly Arg Glu Asn Ala Gly
1 5 10 15

Val Lys Phe Ser Ser Cys Val Gly Thr Lys Gly Thr Gln Tyr Glu Thr
20 25 30

Asn Ser Met Asp Phe Lys Pro Gln Lys Gly Lys Lys Val Val Ala Leu
35 40 45

Asp Pro Ser Pro Pro Pro Lys Asp Thr Leu Leu Pro Trp Pro Gln His
50 55 60

Gln Asn Ala Asn Gly Leu Arg Arg Arg Lys Arg Asp Trp Val Ile Pro
65 70 75 80

Pro Ile Asn Val Pro Glu Asn Ser Arg Gly Pro Phe Pro Gln Gln Leu
85 90 95

```
Val Arg Ile Arg Ser Asp Lys Asp Asn Asp Ile Pro Ile Arg Tyr Ser
            100                 105                 110

Ile Thr Gly Val Gly Ala Asp Gln Pro Pro Met Glu Val Phe Ser Ile
        115                 120                 125

Asp Ser Met Ser Gly Arg Met Tyr Val Thr Arg Pro Met Asp Arg Glu
    130                 135                 140

Glu His Ala Ser Tyr His Leu Arg Ala His Ala Val Asp Met Asn Gly
145                 150                 155                 160

Asn Lys Val Glu Asn Pro Ile Asp Leu Tyr Ile Tyr Val Ile Asp Met
                165                 170                 175

Asn Asp Asn Arg Pro Glu Phe Ile Asn Gln Val Tyr Asn Gly Ser Val
            180                 185                 190

Asp Glu Gly Ser Lys Pro Gly Thr Tyr Val Met Thr Val Thr Ala Asn
        195                 200                 205

Asp Ala Asp Asp Ser Thr Thr Ala Asn Gly Met Val Arg Tyr Arg Ile
    210                 215                 220

Val Thr Gln Thr Pro Gln Ser Pro Ser Gln Asn Met Phe Thr Ile Asn
225                 230                 235                 240

Ser Glu Thr Gly Asp Ile Val Thr Val Ala Ala Gly Leu Asp Arg Glu
                245                 250                 255

Lys Val Gln Gln Tyr Thr Val Ile Val Gln Ala Thr Asp Met Glu Gly
            260                 265                 270

Asn Leu Asn Tyr Gly Leu Ser Asn Thr Ala Thr Ala Ile Ile Thr Val
        275                 280                 285

Thr Asp Val Asn Asp Asn Pro Pro Glu Phe Thr Ala Ser Thr Phe Ala
    290                 295                 300

Gly Glu Val Pro Glu Asn Arg Val Glu Thr Val Val Ala Asn Leu Thr
305                 310                 315                 320
```

```
Val Met Asp Arg Asp Gln Pro His Ser Pro Asn Trp Asn Ala Val Tyr
                325                 330                 335

Arg Ile Ile Ser Gly Asp Pro Ser Gly His Phe Ser Val Arg Thr Asp
            340                 345                 350

Pro Val Thr Asn Glu Gly Met Val Thr Val Val Lys Ala Val Asp Tyr
        355                 360                 365

Glu Leu Asn Arg Ala Phe Met Leu Thr Val Met Val Ser Asn Gln Ala
    370                 375                 380

Pro Leu Ala Ser Gly Ile Gln Met Ser Phe Gln Ser Thr Ala Gly Val
385                 390                 395                 400

Thr Ile Ser Ile Met Asp Ile Asn Glu Ala Pro Tyr Phe Pro Ser Asn
                405                 410                 415

His Lys Leu Ile Arg Leu Glu Glu Gly Val Pro Pro Gly Thr Val Leu
            420                 425                 430

Thr Thr Phe Ser Ala Val Asp Pro Asp Arg Phe Met Gln Gln Ala Val
        435                 440                 445

Arg Tyr Ser Lys Leu Ser Asp Pro Ala Ser Trp Leu His Ile Asn Ala
    450                 455                 460

Thr Asn Gly Gln Ile Thr Thr Ala Ala Val Leu Asp Arg Glu Ser Leu
465                 470                 475                 480

Tyr Thr Lys Asn Asn Val Tyr Glu Ala Thr Phe Leu Ala Ala Asp Asn
                485                 490                 495

Gly Ile Pro Pro Ala Ser Gly Thr Gly Thr Leu Gln Ile Tyr Leu Ile
            500                 505                 510

Asp Ile Asn Asp Asn Ala Pro Glu Leu Leu Pro Lys Glu Ala Gln Ile
        515                 520                 525

Cys Glu Lys Pro Asn Leu Asn Ala Ile Asn Ile Thr Ala Ala Asp Ala
    530                 535                 540

Asp Val Asp Pro Asn Ile Gly Pro Tyr Val Phe Glu Leu Pro Phe Val
```

545 550 555 560

Pro Ala Ala Val Arg Lys Asn Trp Thr Ile Thr Arg Leu Asn Gly Asp
565 570 575

Tyr Ala Gln Leu Ser Leu Arg Ile Leu Tyr Leu Glu Ala Gly Met Tyr
580 585 590

Asp Val Pro Ile Ile Val Thr Asp Ser Gly Asn Pro Pro Leu Ser Asn
595 600 605

Thr Ser Ile Ile Lys Val Lys Val Cys Pro Cys Asp Asp Asn Gly Asp
610 615 620

Cys Thr Thr Ile Gly Ala Val Ala Ala Ala Gly Leu Gly Thr Gly Ala
625 630 635 640

Ile Val Ala Ile Leu Ile Cys Ile Leu Ile Leu Leu Thr Met Val Leu
645 650 655

Leu Phe Val Met Trp Met Lys Arg Arg Glu Lys Glu Arg His Thr Lys
660 665 670

Gln Leu Leu Ile Asp Pro Glu Asp Asp Val Arg Asp Asn Ile Leu Lys
675 680 685

Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Leu Ser
690 695 700

Gln Leu Gln Gln Pro Glu Ala Met Gly His Val Pro Ser Lys Ala Pro
705 710 715 720

Gly Val Arg Arg Val Asp Glu Arg Pro Val Gly Ala Glu Pro Gln Tyr
725 730 735

Pro Ile Arg Pro Met Val Pro His Pro Gly Asp Ile Gly Asp Phe Ile
740 745 750

Asn Glu Gly Leu Arg Ala Ala Asp Asn Asp Pro Thr Ala Pro Pro Tyr
755 760 765

Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly Ser Thr Ala Gly
770 775 780

Ser Val Ser Ser Leu Asn Ser Ser Ser Ser Gly Asp Gln Asp Tyr Asp
785 790 795 800

Tyr Leu Asn Asp Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Met Tyr
805 810 815

Gly Gly Gly Glu Glu Asp
820

<210> 10385
<211> 916
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2079; "

<220>
<221> source
<223> /note="Gene Symbol: CDH4; "

<220>
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<223> /note="Gene Name: cadherin 4, type 1, R-cadherin
(retinal); "

<220>
<221> source
<223> /note="Uniprot ID: P55283; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000484928"

<400> 10385
Met Thr Ala Gly Ala Gly Val Leu Leu Leu Leu Leu Ser Leu Ser Gly
1 5 10 15

Ala Leu Arg Ala His Asn Glu Asp Leu Thr Thr Arg Glu Thr Cys Lys
20 25 30

Ala Gly Phe Ser Glu Asp Asp Tyr Thr Ala Leu Ile Ser Gln Asn Ile
35 40 45

Leu Glu Gly Glu Lys Leu Leu Gln Val Lys Phe Ser Ser Cys Val Gly
50 55 60

```
Thr Lys Gly Thr Gln Tyr Glu Thr Asn Ser Met Asp Phe Lys Val Gly
65                  70                  75                  80

Ala Asp Gly Thr Val Phe Ala Thr Arg Glu Leu Gln Val Pro Ser Glu
                85                  90                  95

Gln Val Ala Phe Thr Val Thr Ala Trp Asp Ser Gln Thr Ala Glu Lys
            100                 105                 110

Trp Asp Ala Val Val Arg Leu Leu Val Ala Gln Thr Ser Ser Pro His
        115                 120                 125

Ser Gly His Lys Pro Gln Lys Gly Lys Lys Val Val Ala Leu Asp Pro
    130                 135                 140

Ser Pro Pro Pro Lys Asp Thr Leu Leu Pro Trp Pro Gln His Gln Asn
145                 150                 155                 160

Ala Asn Gly Leu Arg Arg Arg Lys Arg Asp Trp Val Ile Pro Pro Ile
                165                 170                 175

Asn Val Pro Glu Asn Ser Arg Gly Pro Phe Pro Gln Gln Leu Val Arg
            180                 185                 190

Ile Arg Ser Asp Lys Asp Asn Asp Ile Pro Ile Arg Tyr Ser Ile Thr
        195                 200                 205

Gly Val Gly Ala Asp Gln Pro Pro Met Glu Val Phe Ser Ile Asp Ser
    210                 215                 220

Met Ser Gly Arg Met Tyr Val Thr Arg Pro Met Asp Arg Glu Glu His
225                 230                 235                 240

Ala Ser Tyr His Leu Arg Ala His Ala Val Asp Met Asn Gly Asn Lys
                245                 250                 255

Val Glu Asn Pro Ile Asp Leu Tyr Ile Tyr Val Ile Asp Met Asn Asp
            260                 265                 270

Asn Arg Pro Glu Phe Ile Asn Gln Val Tyr Asn Gly Ser Val Asp Glu
        275                 280                 285

Gly Ser Lys Pro Gly Thr Tyr Val Met Thr Val Thr Ala Asn Asp Ala
```

290 295 300

Asp Asp Ser Thr Thr Ala Asn Gly Met Val Arg Tyr Arg Ile Val Thr
305 310 315 320

Gln Thr Pro Gln Ser Pro Ser Gln Asn Met Phe Thr Ile Asn Ser Glu
325 330 335

Thr Gly Asp Ile Val Thr Val Ala Ala Gly Leu Asp Arg Glu Lys Val
340 345 350

Gln Gln Tyr Thr Val Ile Val Gln Ala Thr Asp Met Glu Gly Asn Leu
355 360 365

Asn Tyr Gly Leu Ser Asn Thr Ala Thr Ala Ile Ile Thr Val Thr Asp
370 375 380

Val Asn Asp Asn Pro Pro Glu Phe Thr Ala Ser Thr Phe Ala Gly Glu
385 390 395 400

Val Pro Glu Asn Arg Val Glu Thr Val Val Ala Asn Leu Thr Val Met
405 410 415

Asp Arg Asp Gln Pro His Ser Pro Asn Trp Asn Ala Val Tyr Arg Ile
420 425 430

Ile Ser Gly Asp Pro Ser Gly His Phe Ser Val Arg Thr Asp Pro Val
435 440 445

Thr Asn Glu Gly Met Val Thr Val Val Lys Ala Val Asp Tyr Glu Leu
450 455 460

Asn Arg Ala Phe Met Leu Thr Val Met Val Ser Asn Gln Ala Pro Leu
465 470 475 480

Ala Ser Gly Ile Gln Met Ser Phe Gln Ser Thr Ala Gly Val Thr Ile
485 490 495

Ser Ile Met Asp Ile Asn Glu Ala Pro Tyr Phe Pro Ser Asn His Lys
500 505 510

Leu Ile Arg Leu Glu Glu Gly Val Pro Pro Gly Thr Val Leu Thr Thr
515 520 525

```
Phe Ser Ala Val Asp Pro Asp Arg Phe Met Gln Gln Ala Val Arg Tyr
    530                 535                 540

Ser Lys Leu Ser Asp Pro Ala Ser Trp Leu His Ile Asn Ala Thr Asn
545                 550                 555                 560

Gly Gln Ile Thr Thr Ala Ala Val Leu Asp Arg Glu Ser Leu Tyr Thr
                565                 570                 575

Lys Asn Asn Val Tyr Glu Ala Thr Phe Leu Ala Ala Asp Asn Gly Ile
            580                 585                 590

Pro Pro Ala Ser Gly Thr Gly Thr Leu Gln Ile Tyr Leu Ile Asp Ile
        595                 600                 605

Asn Asp Asn Ala Pro Glu Leu Leu Pro Lys Glu Ala Gln Ile Cys Glu
    610                 615                 620

Lys Pro Asn Leu Asn Ala Ile Asn Ile Thr Ala Ala Asp Ala Asp Val
625                 630                 635                 640

Asp Pro Asn Ile Gly Pro Tyr Val Phe Glu Leu Pro Phe Val Pro Ala
                645                 650                 655

Ala Val Arg Lys Asn Trp Thr Ile Thr Arg Leu Asn Gly Asp Tyr Ala
            660                 665                 670

Gln Leu Ser Leu Arg Ile Leu Tyr Leu Glu Ala Gly Met Tyr Asp Val
        675                 680                 685

Pro Ile Ile Val Thr Asp Ser Gly Asn Pro Pro Leu Ser Asn Thr Ser
    690                 695                 700

Ile Ile Lys Val Lys Val Cys Pro Cys Asp Asp Asn Gly Asp Cys Thr
705                 710                 715                 720

Thr Ile Gly Ala Val Ala Ala Ala Gly Leu Gly Thr Gly Ala Ile Val
                725                 730                 735

Ala Ile Leu Ile Cys Ile Leu Ile Leu Leu Thr Met Val Leu Leu Phe
            740                 745                 750
```

```
Val Met Trp Met Lys Arg Arg Glu Lys Glu Arg His Thr Lys Gln Leu
        755                 760                 765

Leu Ile Asp Pro Glu Asp Asp Val Arg Asp Asn Ile Leu Lys Tyr Asp
    770                 775                 780

Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Leu Ser Gln Leu
785                 790                 795                 800

Gln Gln Pro Glu Ala Met Gly His Val Pro Ser Lys Ala Pro Gly Val
                805                 810                 815

Arg Arg Val Asp Glu Arg Pro Val Gly Ala Glu Pro Gln Tyr Pro Ile
            820                 825                 830

Arg Pro Met Val Pro His Pro Gly Asp Ile Gly Asp Phe Ile Asn Glu
        835                 840                 845

Gly Leu Arg Ala Ala Asp Asn Asp Pro Thr Ala Pro Pro Tyr Asp Ser
    850                 855                 860

Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly Ser Thr Ala Gly Ser Val
865                 870                 875                 880

Ser Ser Leu Asn Ser Ser Ser Ser Gly Asp Gln Asp Tyr Asp Tyr Leu
                885                 890                 895

Asn Asp Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Met Tyr Gly Gly
            900                 905                 910

Gly Glu Glu Asp
        915


<210> 10386
<211> 566
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2079; "

<220>
<221> source
<223> /note="Gene Symbol: CDH4; "
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<220>
<221> source
<223> /note="Gene Name: cadherin 4, type 1, R-cadherin
(retinal); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486568"

<400> 10386
Lys Val Gln Gln Tyr Thr Val Ile Val Gln Ala Thr Asp Met Glu Gly
1   5   10   15

Asn Leu Asn Tyr Gly Leu Ser Asn Thr Ala Thr Ala Ile Ile Thr Val
            20   25   30

Thr Asp Val Asn Asp Asn Pro Pro Glu Phe Thr Ala Ser Thr Phe Ala
        35   40   45

Gly Glu Val Pro Glu Asn Arg Val Glu Thr Val Val Ala Asn Leu Thr
    50   55   60

Val Met Asp Arg Asp Gln Pro His Ser Pro Asn Trp Asn Ala Val Tyr
65   70   75   80

Arg Ile Ile Ser Gly Asp Pro Ser Gly His Phe Ser Val Arg Thr Asp
                85   90   95

Pro Val Thr Asn Glu Gly Met Val Thr Val Val Lys Ala Val Asp Tyr
            100   105   110

Glu Leu Asn Arg Ala Phe Met Leu Thr Val Met Val Ser Asn Gln Ala
        115   120   125

Pro Leu Ala Ser Gly Ile Gln Met Ser Phe Gln Ser Thr Ala Gly Val
    130   135   140

Thr Ile Ser Ile Met Asp Ile Asn Glu Ala Pro Tyr Phe Pro Ser Asn
145   150   155   160

His Lys Leu Ile Arg Leu Glu Glu Gly Val Pro Pro Gly Thr Val Leu
                165   170   175

Thr Thr Phe Ser Ala Val Asp Pro Asp Arg Phe Met Gln Gln Ala Val
            180   185   190

```
Arg Tyr Ser Lys Leu Ser Asp Pro Ala Ser Trp Leu His Ile Asn Ala
        195                 200                 205

Thr Asn Gly Gln Ile Thr Thr Ala Ala Val Leu Asp Arg Glu Ser Leu
    210                 215                 220

Tyr Thr Lys Asn Asn Val Tyr Glu Ala Thr Phe Leu Ala Ala Asp Asn
225                 230                 235                 240

Gly Ile Pro Pro Ala Ser Gly Thr Gly Thr Leu Gln Ile Tyr Leu Ile
                245                 250                 255

Asp Ile Asn Asp Asn Ala Pro Glu Leu Leu Pro Lys Glu Ala Gln Ile
            260                 265                 270

Cys Glu Arg Pro Asn Leu Asn Ala Ile Asn Ile Thr Ala Ala Asp Ala
        275                 280                 285

Asp Val Asp Pro Asn Ile Gly Pro Tyr Val Phe Glu Leu Pro Phe Val
    290                 295                 300

Pro Ala Ala Val Arg Lys Asn Trp Thr Ile Thr Arg Leu Asn Gly Asp
305                 310                 315                 320

Tyr Ala Gln Leu Ser Leu Arg Ile Leu Tyr Leu Glu Ala Gly Met Tyr
                325                 330                 335

Asp Val Pro Ile Ile Val Thr Asp Ser Gly Asn Pro Pro Leu Ser Asn
            340                 345                 350

Thr Ser Ile Ile Lys Val Lys Val Cys Pro Cys Asp Asp Asn Gly Asp
        355                 360                 365

Cys Thr Thr Ile Gly Ala Val Ala Ala Ala Gly Leu Gly Thr Gly Ala
    370                 375                 380

Ile Val Ala Ile Leu Ile Cys Ile Leu Ile Leu Leu Thr Met Val Leu
385                 390                 395                 400

Leu Phe Val Met Trp Met Lys Arg Arg Glu Lys Glu Arg His Thr Lys
                405                 410                 415
```

```
Gln Leu Leu Ile Asp Pro Glu Asp Asp Val Arg Asp Asn Ile Leu Lys
            420                 425                 430

Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Leu Ser
        435                 440                 445

Gln Leu Gln Gln Pro Glu Ala Met Gly His Val Pro Ser Lys Ala Pro
    450                 455                 460

Gly Val Arg Arg Val Asp Glu Arg Pro Val Gly Ala Glu Pro Gln Tyr
465                 470                 475                 480

Pro Ile Arg Pro Met Val Pro His Pro Gly Asp Ile Gly Asp Phe Ile
                485                 490                 495

Asn Glu Gly Leu Arg Ala Ala Asp Asn Asp Pro Thr Ala Pro Pro Tyr
            500                 505                 510

Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly Ser Thr Ala Gly
        515                 520                 525

Ser Val Ser Ser Leu Asn Ser Ser Ser Ser Gly Asp Gln Asp Tyr Asp
    530                 535                 540

Tyr Leu Asn Asp Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Met Tyr
545                 550                 555                 560

Gly Gly Gly Glu Glu Asp
                565
```

<210> 10387
<211> 566
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2079; "

<220>
<221> source
<223> /note="Gene Symbol: CDH4; "

<220>
<221> source
<223> /note="Gene Name: cadherin 4, type 1, R-cadherin

(retinal); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486680"

<400> 10387
Lys Val Gln Gln Tyr Thr Val Ile Val Gln Ala Thr Asp Met Glu Gly
1   5   10   15

Asn Leu Asn Tyr Gly Leu Ser Asn Thr Ala Thr Ala Ile Ile Thr Val
            20   25   30

Thr Asp Val Asn Asp Asn Pro Pro Glu Phe Thr Ala Ser Thr Phe Ala
        35   40   45

Gly Glu Val Pro Glu Asn Arg Val Glu Thr Val Val Ala Asn Leu Thr
    50   55   60

Val Met Asp Arg Asp Gln Pro His Ser Pro Asn Trp Asn Ala Val Tyr
65   70   75   80

Arg Ile Ile Ser Gly Asp Pro Ser Gly His Phe Ser Val Arg Thr Asp
                85   90   95

Pro Val Thr Asn Glu Gly Met Val Thr Val Val Lys Ala Val Asp Tyr
            100   105   110

Glu Leu Asn Arg Ala Phe Met Leu Thr Val Met Val Ser Asn Gln Ala
        115   120   125

Pro Leu Ala Ser Gly Ile Gln Met Ser Phe Gln Ser Thr Ala Gly Val
    130   135   140

Thr Ile Ser Ile Met Asp Ile Asn Glu Ala Pro Tyr Phe Pro Ser Asn
145   150   155   160

His Lys Leu Ile Arg Leu Glu Glu Gly Val Pro Pro Gly Thr Val Leu
                165   170   175

Thr Thr Phe Ser Ala Val Asp Pro Asp Arg Phe Met Gln Gln Ala Val
            180   185   190

Arg Tyr Ser Lys Leu Ser Asp Pro Ala Ser Trp Leu His Ile Asn Ala
        195   200   205

```
Thr Asn Gly Gln Ile Thr Thr Ala Ala Val Leu Asp Arg Glu Ser Leu
    210                 215                 220

Tyr Thr Lys Asn Asn Val Tyr Glu Ala Thr Phe Leu Ala Ala Asp Asn
225                 230                 235                 240

Gly Ile Pro Pro Ala Ser Gly Thr Gly Thr Leu Gln Ile Tyr Leu Ile
                245                 250                 255

Asp Ile Asn Asp Asn Ala Pro Glu Leu Leu Pro Lys Glu Ala Gln Ile
            260                 265                 270

Cys Glu Arg Pro Asn Leu Asn Ala Ile Asn Ile Thr Ala Ala Asp Ala
        275                 280                 285

Asp Val Asp Pro Asn Ile Gly Pro Tyr Val Phe Glu Leu Pro Phe Val
    290                 295                 300

Pro Ala Ala Val Arg Lys Asn Trp Thr Ile Thr Arg Leu Asn Gly Asp
305                 310                 315                 320

Tyr Ala Gln Leu Ser Leu Arg Ile Leu Tyr Leu Glu Ala Gly Met Tyr
                325                 330                 335

Asp Val Pro Ile Ile Val Thr Asp Ser Gly Asn Pro Pro Leu Ser Asn
            340                 345                 350

Thr Ser Ile Ile Lys Val Lys Val Cys Pro Cys Asp Asp Asn Gly Asp
        355                 360                 365

Cys Thr Thr Ile Gly Ala Val Ala Ala Ala Gly Leu Gly Thr Gly Ala
    370                 375                 380

Ile Val Ala Ile Leu Ile Cys Ile Leu Ile Leu Leu Thr Met Val Leu
385                 390                 395                 400

Leu Phe Val Met Trp Met Lys Arg Arg Glu Lys Glu Arg His Thr Lys
                405                 410                 415

Gln Leu Leu Ile Asp Pro Glu Asp Asp Val Arg Asp Asn Ile Leu Lys
            420                 425                 430
```

```
Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Leu Ser
        435                 440                 445

Gln Leu Gln Gln Pro Glu Ala Met Gly His Val Pro Ser Lys Ala Pro
    450                 455                 460

Gly Val Arg Arg Val Asp Glu Arg Pro Val Gly Ala Glu Pro Gln Tyr
465                 470                 475                 480

Pro Ile Arg Pro Met Val Pro His Pro Gly Asp Ile Gly Asp Phe Ile
                485                 490                 495

Asn Glu Gly Leu Arg Ala Ala Asp Asn Asp Pro Thr Ala Pro Pro Tyr
            500                 505                 510

Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly Ser Thr Ala Gly
        515                 520                 525

Ser Val Ser Ser Leu Asn Ser Ser Ser Ser Gly Asp Gln Asp Tyr Asp
    530                 535                 540

Tyr Leu Asn Asp Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Met Tyr
545                 550                 555                 560

Gly Gly Gly Glu Glu Asp
                565
```

<210> 10388
<211> 566
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2079; "

<220>
<221> source
<223> /note="Gene Symbol: CDH4; "

<220>
<221> source
<223> /note="Gene Name: cadherin 4, type 1, R-cadherin (retinal); "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000487355"

<400> 10388

```
Lys Val Gln Gln Tyr Thr Val Ile Val Gln Ala Thr Asp Met Glu Gly
1               5                  10                  15

Asn Leu Asn Tyr Gly Leu Ser Asn Thr Ala Thr Ala Ile Ile Thr Val
            20                  25                  30

Thr Asp Val Asn Asp Asn Pro Pro Glu Phe Thr Ala Ser Thr Phe Ala
        35                  40                  45

Gly Glu Val Pro Glu Asn Arg Val Glu Thr Val Val Ala Asn Leu Thr
    50                  55                  60

Val Met Asp Arg Asp Gln Pro His Ser Pro Asn Trp Asn Ala Val Tyr
65                  70                  75                  80

Arg Ile Ile Ser Gly Asp Pro Ser Gly His Phe Ser Val Arg Thr Asp
                85                  90                  95

Pro Val Thr Asn Glu Gly Met Val Thr Val Val Lys Ala Val Asp Tyr
            100                 105                 110

Glu Leu Asn Arg Ala Phe Met Leu Thr Val Met Val Ser Asn Gln Ala
        115                 120                 125

Pro Leu Ala Ser Gly Ile Gln Met Ser Phe Gln Ser Thr Ala Gly Val
    130                 135                 140

Thr Ile Ser Ile Met Asp Ile Asn Glu Ala Pro Tyr Phe Pro Ser Asn
145                 150                 155                 160

His Lys Leu Ile Arg Leu Glu Glu Gly Val Pro Pro Gly Thr Val Leu
                165                 170                 175

Thr Thr Phe Ser Ala Val Asp Pro Asp Arg Phe Met Gln Gln Ala Val
            180                 185                 190

Arg Tyr Ser Lys Leu Ser Asp Pro Ala Ser Trp Leu His Ile Asn Ala
        195                 200                 205

Thr Asn Gly Gln Ile Thr Thr Ala Ala Val Leu Asp Arg Glu Ser Leu
    210                 215                 220
```

```
Tyr Thr Lys Asn Asn Val Tyr Glu Ala Thr Phe Leu Ala Ala Asp Asn
225                 230                 235                 240

Gly Ile Pro Pro Ala Ser Gly Thr Gly Thr Leu Gln Ile Tyr Leu Ile
                245                 250                 255

Asp Ile Asn Asp Asn Ala Pro Glu Leu Leu Pro Lys Glu Ala Gln Ile
            260                 265                 270

Cys Glu Arg Pro Asn Leu Asn Ala Ile Asn Ile Thr Ala Ala Asp Ala
        275                 280                 285

Asp Val Asp Pro Asn Ile Gly Pro Tyr Val Phe Glu Leu Pro Phe Val
    290                 295                 300

Pro Ala Ala Val Arg Lys Asn Trp Thr Ile Thr Arg Leu Asn Gly Asp
305                 310                 315                 320

Tyr Ala Gln Leu Ser Leu Arg Ile Leu Tyr Leu Glu Ala Gly Met Tyr
                325                 330                 335

Asp Val Pro Ile Ile Val Thr Asp Ser Gly Asn Pro Pro Leu Ser Asn
            340                 345                 350

Thr Ser Ile Ile Lys Val Lys Val Cys Pro Cys Asp Asp Asn Gly Asp
        355                 360                 365

Cys Thr Thr Ile Gly Ala Val Ala Ala Ala Gly Leu Gly Thr Gly Ala
    370                 375                 380

Ile Val Ala Ile Leu Ile Cys Ile Leu Ile Leu Leu Thr Met Val Leu
385                 390                 395                 400

Leu Phe Val Met Trp Met Lys Arg Arg Glu Lys Glu Arg His Thr Lys
                405                 410                 415

Gln Leu Leu Ile Asp Pro Glu Asp Asp Val Arg Asp Asn Ile Leu Lys
            420                 425                 430

Tyr Asp Glu Glu Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Leu Ser
        435                 440                 445
```

```
Gln Leu Gln Gln Pro Glu Ala Met Gly His Val Pro Ser Lys Ala Pro
    450                 455                 460

Gly Val Arg Arg Val Asp Glu Arg Pro Val Gly Ala Glu Pro Gln Tyr
465                 470                 475                 480

Pro Ile Arg Pro Met Val Pro His Pro Gly Asp Ile Gly Asp Phe Ile
                485                 490                 495

Asn Glu Gly Leu Arg Ala Ala Asp Asn Asp Pro Thr Ala Pro Pro Tyr
            500                 505                 510

Asp Ser Leu Leu Val Phe Asp Tyr Glu Gly Ser Gly Ser Thr Ala Gly
        515                 520                 525

Ser Val Ser Ser Leu Asn Ser Ser Ser Ser Gly Asp Gln Asp Tyr Asp
    530                 535                 540

Tyr Leu Asn Asp Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Met Tyr
545                 550                 555                 560

Gly Gly Gly Glu Glu Asp
                565
```

<210> 10389
<211> 784
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2080; "

<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular
endothelium); "

<220>
<221> source
<223> /note="Uniprot ID: P33151; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000344115"

<400> 10389

```
Met Gln Arg Leu Met Met Leu Leu Ala Thr Ser Gly Ala Cys Leu Gly
1               5                  10                  15

Leu Leu Ala Val Ala Ala Val Ala Ala Ala Gly Ala Asn Pro Ala Gln
            20                  25                  30

Arg Asp Thr His Ser Leu Leu Pro Thr His Arg Arg Gln Lys Arg Asp
        35                  40                  45

Trp Ile Trp Asn Gln Met His Ile Asp Glu Glu Lys Asn Thr Ser Leu
    50                  55                  60

Pro His His Val Gly Lys Ile Lys Ser Ser Val Ser Arg Lys Asn Ala
65                  70                  75                  80

Lys Tyr Leu Leu Lys Gly Glu Tyr Val Gly Lys Val Phe Arg Val Asp
                85                  90                  95

Ala Glu Thr Gly Asp Val Phe Ala Ile Glu Arg Leu Asp Arg Glu Asn
            100                 105                 110

Ile Ser Glu Tyr His Leu Thr Ala Val Ile Val Asp Lys Asp Thr Gly
        115                 120                 125

Glu Asn Leu Glu Thr Pro Ser Ser Phe Thr Ile Lys Val His Asp Val
    130                 135                 140

Asn Asp Asn Trp Pro Val Phe Thr His Arg Leu Phe Asn Ala Ser Val
145                 150                 155                 160

Pro Glu Ser Ser Ala Val Gly Thr Ser Val Ile Ser Val Thr Ala Val
                165                 170                 175

Asp Ala Asp Asp Pro Thr Val Gly Asp His Ala Ser Val Met Tyr Gln
            180                 185                 190

Ile Leu Lys Gly Lys Glu Tyr Phe Ala Ile Asp Asn Ser Gly Arg Ile
        195                 200                 205

Ile Thr Ile Thr Lys Ser Leu Asp Arg Glu Lys Gln Ala Arg Tyr Glu
    210                 215                 220
```

```
Ile Val Val Glu Ala Arg Asp Ala Gln Gly Leu Arg Gly Asp Ser Gly
225                 230                 235                 240

Thr Ala Thr Val Leu Val Thr Leu Gln Asp Ile Asn Asp Asn Phe Pro
                245                 250                 255

Phe Phe Thr Gln Thr Lys Tyr Thr Phe Val Val Pro Glu Asp Thr Arg
            260                 265                 270

Val Gly Thr Ser Val Gly Ser Leu Phe Val Glu Asp Pro Asp Glu Pro
        275                 280                 285

Gln Asn Arg Met Thr Lys Tyr Ser Ile Leu Arg Gly Asp Tyr Gln Asp
    290                 295                 300

Ala Phe Thr Ile Glu Thr Asn Pro Ala His Asn Glu Gly Ile Ile Lys
305                 310                 315                 320

Pro Met Lys Pro Leu Asp Tyr Glu Tyr Ile Gln Gln Tyr Ser Phe Ile
                325                 330                 335

Val Glu Ala Thr Asp Pro Thr Ile Asp Leu Arg Tyr Met Ser Pro Pro
            340                 345                 350

Ala Gly Asn Arg Ala Gln Val Ile Ile Asn Ile Thr Asp Val Asp Glu
        355                 360                 365

Pro Pro Ile Phe Gln Gln Pro Phe Tyr His Phe Gln Leu Lys Glu Asn
    370                 375                 380

Gln Lys Lys Pro Leu Ile Gly Thr Val Leu Ala Met Asp Pro Asp Ala
385                 390                 395                 400

Ala Arg His Ser Ile Gly Tyr Ser Ile Arg Arg Thr Ser Asp Lys Gly
                405                 410                 415

Gln Phe Phe Arg Val Thr Lys Lys Gly Asp Ile Tyr Asn Glu Lys Glu
            420                 425                 430

Leu Asp Arg Glu Val Tyr Pro Trp Tyr Asn Leu Thr Val Glu Ala Lys
        435                 440                 445
```

```
Glu Leu Asp Ser Thr Gly Thr Pro Thr Gly Lys Glu Ser Ile Val Gln
    450                 455                 460

Val His Ile Glu Val Leu Asp Glu Asn Asp Asn Ala Pro Glu Phe Ala
465                 470                 475                 480

Lys Pro Tyr Gln Pro Lys Val Cys Glu Asn Ala Val His Gly Gln Leu
                485                 490                 495

Val Leu Gln Ile Ser Ala Ile Asp Lys Asp Ile Thr Pro Arg Asn Val
            500                 505                 510

Lys Phe Lys Phe Ile Leu Asn Thr Glu Asn Asn Phe Thr Leu Thr Asp
        515                 520                 525

Asn His Asp Asn Thr Ala Asn Ile Thr Val Lys Tyr Gly Gln Phe Asp
    530                 535                 540

Arg Glu His Thr Lys Val His Phe Leu Pro Val Val Ile Ser Asp Asn
545                 550                 555                 560

Gly Met Pro Ser Arg Thr Gly Thr Ser Thr Leu Thr Val Ala Val Cys
                565                 570                 575

Lys Cys Asn Glu Gln Gly Glu Phe Thr Phe Cys Glu Asp Met Ala Ala
            580                 585                 590

Gln Val Gly Val Ser Ile Gln Ala Val Val Ala Ile Leu Leu Cys Ile
        595                 600                 605

Leu Thr Ile Thr Val Ile Thr Leu Leu Ile Phe Leu Arg Arg Arg Leu
    610                 615                 620

Arg Lys Gln Ala Arg Ala His Gly Lys Ser Val Pro Glu Ile His Glu
625                 630                 635                 640

Gln Leu Val Thr Tyr Asp Glu Glu Gly Gly Gly Glu Met Asp Thr Thr
                645                 650                 655

Ser Tyr Asp Val Ser Val Leu Asn Ser Val Arg Arg Gly Gly Ala Lys
            660                 665                 670
```

```
Pro Pro Arg Pro Ala Leu Asp Ala Arg Pro Ser Leu Tyr Ala Gln Val
        675                 680                 685

Gln Lys Pro Pro Arg His Ala Pro Gly Ala His Gly Gly Pro Gly Glu
    690                 695                 700

Met Ala Ala Met Ile Glu Val Lys Lys Asp Glu Ala Asp His Asp Gly
705                 710                 715                 720

Asp Gly Pro Pro Tyr Asp Thr Leu His Ile Tyr Gly Tyr Glu Gly Ser
                725                 730                 735

Glu Ser Ile Ala Glu Ser Leu Ser Ser Leu Gly Thr Asp Ser Ser Asp
            740                 745                 750

Ser Asp Val Asp Tyr Asp Phe Leu Asn Asp Trp Gly Pro Arg Phe Lys
        755                 760                 765

Met Leu Ala Glu Leu Tyr Gly Ser Asp Pro Arg Glu Glu Leu Leu Tyr
    770                 775                 780


<210> 10390
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2080; "

<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular
      endothelium); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455302"

<400> 10390
Met Gln Arg Leu Met Met Leu Leu Ala Thr Ser Gly Ala Cys Leu Gly
1               5                   10                  15

Leu Leu Ala Val Ala Ala Val Ala Ala Ala Gly Ala Asn Pro Ala Gln
            20                  25                  30
```

```
Arg Asp Thr His Ser Leu Leu Pro Thr His Arg Arg Gln Lys Arg Asp
        35                  40                  45

Trp Ile Trp Asn Gln Met His Ile Asp Glu Glu Lys Asn Thr Ser Leu
    50                  55                  60

Pro His His Val Gly Lys Ile Lys Ser Ser Val Ser Arg Lys Asn Ala
65                  70                  75                  80

Lys Tyr Leu Leu Lys Gly Glu Tyr Val Gly Lys Val Phe Arg Val Asp
                85                  90                  95

Ala Glu Thr Gly Asp Val Phe Ala Ile Glu Arg Leu Asp Arg Glu Asn
            100                 105                 110

Ile Ser Glu Tyr His Leu Thr Ala Val Ile Val Asp Lys Asp Thr Gly
        115                 120                 125

Glu Asn Leu
    130


<210> 10391
<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2080; "

<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular
      endothelium); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455655"

<400> 10391
Met Gln Arg Leu Met Met Leu Leu Ala Thr Ser Gly Ala Cys Leu Gly
1               5                   10                  15
```

Leu

<210> 10392
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2080; "

<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular endothelium); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456028"

<400> 10392
Met Gln Arg Leu Met Met Leu Leu Ala Thr Ser Gly Ala Cys Leu Gly
1 5 10 15

Leu Leu Ala Val Ala Ala Val Ala Ala Ala Gly Ala Asn Pro Ala Gln
20 25 30

Arg Asp Thr His Ser Leu Leu Pro Thr His Arg Arg Gln Lys Arg Asp
35 40 45

Trp Ile Trp Asn Gln Met His Ile Asp Glu Glu Lys Asn Thr Ser Leu
50 55 60

Pro His His Val Gly Lys Ile Lys Ser Ser Val Ser Arg Lys Asn Ala
65 70 75 80

Lys Tyr Leu Leu Lys Gly Glu Tyr Val Gly Lys Val Phe Arg Val Asp
85 90 95

Ala Glu Thr Gly Asp Val Thr Gln Met Ser Pro Arg Thr Gly
100 105 110

<210> 10393
<211> 76

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2080; "

<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular
endothelium); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456093"

<400> 10393
Met Gln Arg Leu Met Met Leu Leu Ala Thr Ser Gly Ala Cys Leu Gly
1 5 10 15

Leu Leu Ala Val Ala Ala Val Ala Ala Ala Gly Ala Asn Pro Ala Gln
20 25 30

Arg Asp Thr His Ser Leu Leu Pro Thr His Arg Arg Gln Lys Arg Asp
35 40 45

Trp Ile Trp Asn Gln Met His Ile Asp Glu Glu Lys Asn Thr Ser Leu
50 55 60

Pro His His Val Gly Lys Ile Lys Ser Ser Val Ser
65 70 75

<210> 10394
<211> 406
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2080; "

<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular

endothelium); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000458878"

<400> 10394
Met Gln Arg Leu Met Met Leu Leu Ala Thr Ser Gly Ala Cys Leu Gly
1 5 10 15

Leu Leu Ala Val Ala Ala Val Ala Ala Ala Gly Ala Asn Pro Ala Gln
20 25 30

Arg Asp Thr His Ser Leu Leu Pro Thr His Arg Arg Gln Lys Arg Asp
35 40 45

Trp Ile Trp Asn Gln Met His Ile Asp Glu Glu Lys Asn Thr Ser Leu
50 55 60

Pro His His Val Gly Lys Ile Lys Ser Ser Val Ser Arg Lys Asn Ala
65 70 75 80

Lys Tyr Leu Leu Lys Gly Glu Tyr Val Gly Lys Val Phe Arg Val Asp
85 90 95

Ala Glu Thr Gly Asp Val Phe Ala Ile Glu Arg Leu Asp Arg Glu Asn
100 105 110

Ile Ser Glu Tyr His Leu Thr Ala Val Ile Val Asp Lys Asp Thr Gly
115 120 125

Glu Asn Leu Glu Thr Pro Ser Ser Phe Thr Ile Lys Val His Asp Val
130 135 140

Asn Asp Asn Trp Pro Val Phe Thr His Arg Leu Phe Asn Ala Ser Val
145 150 155 160

Pro Glu Ser Ser Ala Val Gly Thr Ser Val Ile Ser Val Thr Ala Val
165 170 175

Asp Ala Asp Asp Pro Thr Val Gly Asp His Ala Ser Val Met Tyr Gln
180 185 190

Ile Leu Lys Gly Lys Glu Tyr Phe Ala Ile Asp Asn Ser Gly Arg Ile
195 200 205

Ile Thr Ile Thr Lys Ser Leu Asp Arg Glu Lys Gln Ala Arg Tyr Glu
210 215 220

Ile Val Val Glu Ala Arg Asp Ala Gln Gly Leu Arg Gly Asp Ser Gly
225 230 235 240

Thr Ala Thr Val Leu Val Thr Leu Gln Asp Ile Asn Asp Asn Phe Pro
245 250 255

Phe Phe Thr Gln Thr Lys Tyr Thr Phe Val Val Pro Glu Asp Thr Arg
260 265 270

Val Gly Thr Ser Val Gly Ser Leu Phe Val Glu Asp Pro Asp Glu Pro
275 280 285

Gln Asn Arg Met Thr Lys Tyr Ser Ile Leu Arg Gly Asp Tyr Gln Asp
290 295 300

Ala Phe Thr Ile Glu Thr Asn Pro Ala His Asn Glu Gly Ile Ile Lys
305 310 315 320

Pro Met Lys Pro Leu Asp Tyr Glu Tyr Ile Gln Gln Tyr Ser Phe Ile
325 330 335

Val Glu Ala Thr Asp Pro Thr Ile Asp Leu Arg Tyr Met Ser Pro Pro
340 345 350

Ala Gly Asn Arg Ala Gln Val Ile Ile Asn Ile Thr Asp Val Asp Glu
355 360 365

Pro Pro Ile Phe Gln Gln Pro Phe Tyr His Phe Gln Leu Lys Glu Asn
370 375 380

Gln Lys Lys Pro Leu Ile Gly Thr Val Leu Ala Met Asp Pro Asp Ala
385 390 395 400

Ala Arg His Ser Ile Gly
405

<210> 10395
<211> 223
<212> PRT

<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular
endothelium); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461880"

<400> 10395
Met Pro Ser Arg Thr Gly Thr Ser Thr Leu Thr Val Ala Val Cys Lys
1 5 10 15

Cys Asn Glu Gln Gly Glu Phe Thr Phe Cys Glu Asp Met Ala Ala Gln
20 25 30

Val Gly Val Ser Ile Gln Ala Val Val Ala Ile Leu Leu Cys Ile Leu
35 40 45

Thr Ile Thr Val Ile Thr Leu Leu Ile Phe Leu Arg Arg Arg Leu Arg
50 55 60

Lys Gln Ala Arg Ala His Gly Lys Ser Val Pro Glu Ile His Glu Gln
65 70 75 80

Leu Val Thr Tyr Asp Glu Glu Gly Gly Gly Glu Met Asp Thr Thr Ser
85 90 95

Tyr Asp Val Ser Val Leu Asn Ser Val Arg Arg Gly Gly Ala Lys Pro
100 105 110

Pro Arg Pro Ala Leu Asp Ala Arg Pro Ser Leu Tyr Ala Gln Val Gln
115 120 125

Lys Pro Pro Arg His Ala Pro Gly Ala His Gly Gly Pro Gly Glu Met
130 135 140

Ala Ala Met Ile Glu Val Lys Lys Asp Glu Ala Asp His Asp Gly Asp

```
145                 150                 155                 160

Gly Pro Pro Tyr Asp Thr Leu His Ile Tyr Gly Tyr Glu Gly Ser Glu
                165                 170                 175

Ser Ile Ala Glu Ser Leu Ser Ser Leu Gly Thr Asp Ser Ser Asp Ser
            180                 185                 190

Asp Val Asp Tyr Asp Phe Leu Asn Asp Trp Gly Pro Arg Phe Lys Met
        195                 200                 205

Leu Ala Glu Leu Tyr Gly Ser Asp Pro Arg Glu Glu Leu Leu Tyr
    210                 215                 220


<210> 10396
<211> 669
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2080; "

<220>
<221> source
<223> /note="Gene Symbol: CDH5; "

<220>
<221> source
<223> /note="Gene Name: cadherin 5, type 2 (vascular
      endothelium); "

<220>
<221> source
<223> /note="Uniprot ID:  P33151; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479381"

<400> 10396
Met Gln Arg Leu Met Met Leu Leu Ala Thr Ser Gly Ala Cys Leu Gly
1               5                   10                  15

Leu Leu Ala Val Ala Ala Val Ala Ala Ala Gly Ala Asn Pro Ala Gln
            20                  25                  30

Arg Asp Thr His Ser Leu Leu Pro Thr His Arg Arg Gln Lys Arg Asp
        35                  40                  45
```

```
Trp Ile Trp Asn Gln Met His Ile Asp Glu Glu Lys Asn Thr Ser Leu
    50                  55                  60

Pro His His Val Gly Lys Ile Lys Ser Ser Val Ser Arg Lys Asn Ala
65                  70                  75                  80

Lys Tyr Leu Leu Lys Gly Glu Tyr Val Gly Lys Val Phe Arg Val Asp
                85                  90                  95

Ala Glu Thr Gly Asp Val Phe Ala Ile Glu Arg Leu Asp Arg Glu Asn
            100                 105                 110

Ile Ser Glu Tyr His Leu Thr Ala Val Ile Val Asp Lys Asp Thr Gly
        115                 120                 125

Glu Asn Leu Glu Thr Pro Ser Ser Phe Thr Ile Lys Val His Asp Val
    130                 135                 140

Asn Asp Asn Trp Pro Val Phe Thr His Arg Leu Phe Asn Ala Ser Val
145                 150                 155                 160

Pro Glu Ser Ser Ala Val Gly Thr Ser Val Ile Ser Val Thr Ala Val
                165                 170                 175

Asp Ala Asp Asp Pro Thr Val Gly Asp His Ala Ser Val Met Tyr Gln
            180                 185                 190

Ile Leu Lys Gly Lys Glu Tyr Phe Ala Ile Asp Asn Ser Gly Arg Ile
        195                 200                 205

Ile Thr Ile Thr Lys Ser Leu Asp Arg Glu Lys Gln Ala Arg Tyr Glu
    210                 215                 220

Ile Val Val Glu Ala Arg Asp Ala Gln Gly Leu Arg Gly Asp Ser Gly
225                 230                 235                 240

Thr Ala Thr Val Leu Val Thr Leu Gln Asp Ile Asn Asp Asn Phe Pro
                245                 250                 255

Phe Phe Thr Gln Thr Lys Tyr Thr Phe Val Val Pro Glu Asp Thr Arg
            260                 265                 270
```

```
Val Gly Thr Ser Val Gly Ser Leu Phe Val Glu Asp Pro Asp Glu Pro
        275                 280                 285

Gln Asn Arg Met Thr Lys Tyr Ser Ile Leu Arg Gly Asp Tyr Gln Asp
    290                 295                 300

Ala Phe Thr Ile Glu Thr Asn Pro Ala His Asn Glu Gly Ile Ile Lys
305                 310                 315                 320

Pro Met Lys Pro Leu Asp Tyr Glu Tyr Ile Gln Gln Tyr Ser Phe Ile
                325                 330                 335

Val Glu Ala Thr Asp Pro Thr Ile Asp Leu Arg Tyr Met Ser Pro Pro
            340                 345                 350

Ala Gly Asn Arg Ala Gln Val Ile Ile Asn Ile Thr Asp Val Asp Glu
        355                 360                 365

Pro Pro Ile Phe Gln Gln Pro Phe Tyr His Phe Gln Leu Val Leu Gln
    370                 375                 380

Ile Ser Ala Ile Asp Lys Asp Ile Thr Pro Arg Asn Val Lys Phe Lys
385                 390                 395                 400

Phe Ile Leu Asn Thr Glu Asn Asn Phe Thr Leu Thr Asp Asn His Asp
                405                 410                 415

Asn Thr Ala Asn Ile Thr Val Lys Tyr Gly Gln Phe Asp Arg Glu His
            420                 425                 430

Thr Lys Val His Phe Leu Pro Val Val Ile Ser Asp Asn Gly Met Pro
        435                 440                 445

Ser Arg Thr Gly Thr Ser Thr Leu Thr Val Ala Val Cys Lys Cys Asn
    450                 455                 460

Glu Gln Gly Glu Phe Thr Phe Cys Glu Asp Met Ala Ala Gln Val Gly
465                 470                 475                 480

Val Ser Ile Gln Ala Val Val Ala Ile Leu Leu Cys Ile Leu Thr Ile
                485                 490                 495

Thr Val Ile Thr Leu Leu Ile Phe Leu Arg Arg Arg Leu Arg Lys Gln
```

```
            500                 505                 510

Ala Arg Ala His Gly Lys Ser Val Pro Glu Ile His Glu Gln Leu Val
        515                 520                 525

Thr Tyr Asp Glu Glu Gly Gly Gly Glu Met Asp Thr Thr Ser Tyr Asp
    530                 535                 540

Val Ser Val Leu Asn Ser Val Arg Arg Gly Gly Ala Lys Pro Pro Arg
545                 550                 555                 560

Pro Ala Leu Asp Ala Arg Pro Ser Leu Tyr Ala Gln Val Gln Lys Pro
                565                 570                 575

Pro Arg His Ala Pro Gly Ala His Gly Gly Pro Gly Glu Met Ala Ala
            580                 585                 590

Met Ile Glu Val Lys Lys Asp Glu Ala Asp His Asp Gly Asp Gly Pro
        595                 600                 605

Pro Tyr Asp Thr Leu His Ile Tyr Gly Tyr Glu Gly Ser Glu Ser Ile
    610                 615                 620

Ala Glu Ser Leu Ser Ser Leu Gly Thr Asp Ser Ser Asp Ser Asp Val
625                 630                 635                 640

Asp Tyr Asp Phe Leu Asn Asp Trp Gly Pro Arg Phe Lys Met Leu Ala
                645                 650                 655

Glu Leu Tyr Gly Ser Asp Pro Arg Glu Glu Leu Leu Tyr
            660                 665


<210> 10397
<211> 790
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2081; "

<220>
<221> source
<223> /note="Gene Symbol: CDH6; "

<220>
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<221> source
<223> /note="Gene Name: cadherin 6, type 2, K-cadherin (fetal kidney); "

<220>
<221> source
<223> /note="Uniprot ID: P55285; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265071"

<400> 10397

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Met Arg Thr Tyr Arg Tyr Phe Leu Leu Leu Phe Trp Val Gly Gln Pro
1               5                  10                  15

Tyr Pro Thr Leu Ser Thr Pro Leu Ser Lys Arg Thr Ser Gly Phe Pro
            20                  25                  30

Ala Lys Lys Arg Ala Leu Glu Leu Ser Gly Asn Ser Lys Asn Glu Leu
        35                  40                  45

Asn Arg Ser Lys Arg Ser Trp Met Trp Asn Gln Phe Phe Leu Leu Glu
    50                  55                  60

Glu Tyr Thr Gly Ser Asp Tyr Gln Tyr Val Gly Lys Leu His Ser Asp
65                  70                  75                  80

Gln Asp Arg Gly Asp Gly Ser Leu Lys Tyr Ile Leu Ser Gly Asp Gly
                85                  90                  95

Ala Gly Asp Leu Phe Ile Ile Asn Glu Asn Thr Gly Asp Ile Gln Ala
            100                 105                 110

Thr Lys Arg Leu Asp Arg Glu Glu Lys Pro Val Tyr Ile Leu Arg Ala
        115                 120                 125

Gln Ala Ile Asn Arg Arg Thr Gly Arg Pro Val Glu Pro Glu Ser Glu
    130                 135                 140

Phe Ile Ile Lys Ile His Asp Ile Asn Asp Asn Glu Pro Ile Phe Thr
145                 150                 155                 160

Lys Glu Val Tyr Thr Ala Thr Val Pro Glu Met Ser Asp Val Gly Thr
                165                 170                 175
```

```
Phe Val Val Gln Val Thr Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly
            180                 185                 190

Asn Ser Ala Lys Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
        195                 200                 205

Ser Val Glu Ser Glu Thr Gly Ile Ile Lys Thr Ala Leu Leu Asn Met
    210                 215                 220

Asp Arg Glu Asn Arg Glu Gln Tyr Gln Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Gly Gly Gln Met Gly Gly Leu Ser Gly Thr Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Arg Phe Pro Gln Ser Thr
            260                 265                 270

Tyr Gln Phe Lys Thr Pro Glu Ser Ser Pro Pro Gly Thr Pro Ile Gly
        275                 280                 285

Arg Ile Lys Ala Ser Asp Ala Asp Val Gly Glu Asn Ala Glu Ile Glu
    290                 295                 300

Tyr Ser Ile Thr Asp Gly Glu Gly Leu Asp Met Phe Asp Val Ile Thr
305                 310                 315                 320

Asp Gln Glu Thr Gln Glu Gly Ile Ile Thr Val Lys Lys Leu Leu Asp
                325                 330                 335

Phe Glu Lys Lys Lys Val Tyr Thr Leu Lys Val Glu Ala Ser Asn Pro
            340                 345                 350

Tyr Val Glu Pro Arg Phe Leu Tyr Leu Gly Pro Phe Lys Asp Ser Ala
        355                 360                 365

Thr Val Arg Ile Val Val Glu Asp Val Asp Glu Pro Pro Val Phe Ser
    370                 375                 380

Lys Leu Ala Tyr Ile Leu Gln Ile Arg Glu Asp Ala Gln Ile Asn Thr
385                 390                 395                 400

Thr Ile Gly Ser Val Thr Ala Gln Asp Pro Asp Ala Ala Arg Asn Pro
```

405 410 415

Val Lys Tyr Ser Val Asp Arg His Thr Asp Met Asp Arg Ile Phe Asn
420 425 430

Ile Asp Ser Gly Asn Gly Ser Ile Phe Thr Ser Lys Leu Leu Asp Arg
435 440 445

Glu Thr Leu Leu Trp His Asn Ile Thr Val Ile Ala Thr Glu Ile Asn
450 455 460

Asn Pro Lys Gln Ser Ser Arg Val Pro Leu Tyr Ile Lys Val Leu Asp
465 470 475 480

Val Asn Asp Asn Ala Pro Glu Phe Ala Glu Phe Tyr Glu Thr Phe Val
485 490 495

Cys Glu Lys Ala Lys Ala Asp Gln Leu Ile Gln Thr Leu His Ala Val
500 505 510

Asp Lys Asp Asp Pro Tyr Ser Gly His Gln Phe Ser Phe Ser Leu Ala
515 520 525

Pro Glu Ala Ala Ser Gly Ser Asn Phe Thr Ile Gln Asp Asn Lys Asp
530 535 540

Asn Thr Ala Gly Ile Leu Thr Arg Lys Asn Gly Tyr Asn Arg His Glu
545 550 555 560

Met Ser Thr Tyr Leu Leu Pro Val Val Ile Ser Asp Asn Asp Tyr Pro
565 570 575

Val Gln Ser Ser Thr Gly Thr Val Thr Val Arg Val Cys Ala Cys Asp
580 585 590

His His Gly Asn Met Gln Ser Cys His Ala Glu Ala Leu Ile His Pro
595 600 605

Thr Gly Leu Ser Thr Gly Ala Leu Val Ala Ile Leu Leu Cys Ile Val
610 615 620

Ile Leu Leu Val Thr Val Val Leu Phe Ala Ala Leu Arg Arg Gln Arg
625 630 635 640

```
Lys Lys Glu Pro Leu Ile Ile Ser Lys Glu Asp Ile Arg Asp Asn Ile
                645                 650                 655

Val Ser Tyr Asn Asp Glu Gly Gly Gly Glu Glu Asp Thr Gln Ala Phe
            660                 665                 670

Asp Ile Gly Thr Leu Arg Asn Pro Glu Ala Ile Glu Asp Asn Lys Leu
        675                 680                 685

Arg Arg Asp Ile Val Pro Glu Ala Leu Phe Leu Pro Arg Arg Thr Pro
    690                 695                 700

Thr Ala Arg Asp Asn Thr Asp Val Arg Asp Phe Ile Asn Gln Arg Leu
705                 710                 715                 720

Lys Glu Asn Asp Thr Asp Pro Thr Ala Pro Pro Tyr Asp Ser Leu Ala
                725                 730                 735

Thr Tyr Ala Tyr Glu Gly Thr Gly Ser Val Ala Asp Ser Leu Ser Ser
            740                 745                 750

Leu Glu Ser Val Thr Thr Asp Ala Asp Gln Asp Tyr Asp Tyr Leu Ser
        755                 760                 765

Asp Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Met Tyr Gly Gly Val
    770                 775                 780

Asp Ser Asp Lys Asp Ser
785                 790


<210> 10398
<211> 608
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2081; "

<220>
<221> source
<223> /note="Gene Symbol: CDH6; "

<220>
<221> source
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<223> /note="Gene Name: cadherin 6, type 2, K-cadherin (fetal kidney); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424843"

<400> 10398

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Met Trp Asn Gln Phe Phe Leu Leu Glu Glu Tyr Thr Gly Ser Asp Tyr
1               5                  10                  15

Gln Tyr Val Gly Lys Leu His Ser Asp Gln Asp Arg Gly Asp Gly Ser
            20                  25                  30

Leu Lys Tyr Ile Leu Ser Gly Asp Gly Ala Gly Asp Leu Phe Ile Ile
        35                  40                  45

Asn Glu Asn Thr Gly Asp Ile Gln Ala Thr Lys Arg Leu Asp Arg Glu
    50                  55                  60

Glu Lys Pro Val Tyr Ile Leu Arg Ala Gln Ala Ile Asn Arg Arg Thr
65                  70                  75                  80

Gly Arg Pro Val Glu Pro Glu Ser Glu Phe Ile Ile Lys Ile His Asp
                85                  90                  95

Ile Asn Asp Asn Glu Pro Ile Phe Thr Lys Glu Val Tyr Thr Ala Thr
            100                 105                 110

Val Pro Glu Met Ser Asp Val Gly Thr Phe Val Val Gln Val Thr Ala
        115                 120                 125

Thr Asp Ala Asp Asp Pro Thr Tyr Gly Asn Ser Ala Lys Val Val Tyr
    130                 135                 140

Ser Ile Leu Gln Gly Gln Pro Tyr Phe Ser Val Glu Ser Glu Thr Gly
145                 150                 155                 160

Ile Ile Lys Thr Ala Leu Leu Asn Met Asp Arg Glu Asn Arg Glu Gln
                165                 170                 175

Tyr Gln Val Val Ile Gln Ala Lys Asp Met Gly Gly Gln Met Gly Gly
            180                 185                 190

Leu Ser Gly Thr Thr Thr Val Asn Ile Thr Leu Thr Asp Val Asn Asp
```

```
        195                 200                 205

Asn Pro Pro Arg Phe Pro Gln Ser Thr Tyr Gln Phe Lys Thr Pro Glu
    210                 215                 220

Ser Ser Pro Pro Gly Thr Pro Ile Gly Arg Ile Lys Ala Ser Asp Ala
225                 230                 235                 240

Asp Val Gly Glu Asn Ala Glu Ile Glu Tyr Ser Ile Thr Asp Gly Glu
                245                 250                 255

Gly Leu Asp Met Phe Asp Val Ile Thr Asp Gln Glu Thr Gln Glu Gly
            260                 265                 270

Ile Ile Thr Val Lys Lys Leu Leu Asp Phe Glu Lys Lys Lys Val Tyr
        275                 280                 285

Thr Leu Lys Val Glu Ala Ser Asn Pro Tyr Val Glu Pro Arg Phe Leu
    290                 295                 300

Tyr Leu Gly Pro Phe Lys Asp Ser Ala Thr Val Arg Ile Val Val Glu
305                 310                 315                 320

Asp Val Asp Glu Pro Pro Val Phe Ser Lys Leu Ala Tyr Ile Leu Gln
                325                 330                 335

Ile Arg Glu Asp Ala Gln Ile Asn Thr Thr Ile Gly Ser Val Thr Ala
            340                 345                 350

Gln Asp Pro Asp Ala Ala Arg Asn Pro Val Lys Tyr Ser Val Asp Arg
        355                 360                 365

His Thr Asp Met Asp Arg Ile Phe Asn Ile Asp Ser Gly Asn Gly Ser
    370                 375                 380

Ile Phe Thr Ser Lys Leu Leu Asp Arg Glu Thr Leu Leu Trp His Asn
385                 390                 395                 400

Ile Thr Val Ile Ala Thr Glu Ile Asn Asn Pro Lys Gln Ser Ser Arg
                405                 410                 415

Val Pro Leu Tyr Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu
            420                 425                 430
```

```
Phe Ala Glu Phe Tyr Glu Thr Phe Val Cys Glu Lys Ala Lys Ala Asp
        435                 440                 445

Gln Leu Ile Gln Thr Leu His Ala Val Asp Lys Asp Asp Pro Tyr Ser
    450                 455                 460

Gly His Gln Phe Ser Phe Ser Leu Ala Pro Glu Ala Ala Ser Gly Ser
465                 470                 475                 480

Asn Phe Thr Ile Gln Asp Asn Lys Asp Asn Thr Ala Gly Ile Leu Thr
                485                 490                 495

Arg Lys Asn Gly Tyr Asn Arg His Glu Met Ser Thr Tyr Leu Leu Pro
            500                 505                 510

Val Val Ile Ser Asp Asn Asp Tyr Pro Val Gln Ser Ser Thr Gly Thr
        515                 520                 525

Val Thr Val Arg Val Cys Ala Cys Asp His His Gly Asn Met Gln Ser
    530                 535                 540

Cys His Ala Glu Ala Leu Ile His Pro Thr Gly Leu Ser Thr Gly Ala
545                 550                 555                 560

Leu Val Ala Ile Leu Leu Cys Ile Val Ile Leu Leu Gly Lys Leu Val
                565                 570                 575

Leu Pro Ala Ser Tyr Leu Pro Met Val Arg Gly Ser His Cys Tyr Cys
            580                 585                 590

Asp Thr Leu Asp Leu Ser Ala Ser Pro Ile Lys Ala Tyr Ser Leu Ile
        595                 600                 605


<210> 10399
<211> 785
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2082; "

<220>
<221> source
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<223> /note="Gene Symbol: CDH7; "

<220>
<221> source
<223> /note="Gene Name: cadherin 7, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9ULB5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000319166"

<400> 10399
Met Lys Leu Gly Lys Val Glu Phe Cys His Phe Leu Gln Leu Ile Ala
1   5   10   15

Leu Phe Leu Cys Phe Ser Gly Met Ser Gln Ala Glu Leu Ser Arg Ser
            20   25   30

Arg Ser Lys Pro Tyr Phe Gln Ser Gly Arg Ser Arg Thr Lys Arg Ser
        35   40   45

Trp Val Trp Asn Gln Phe Phe Val Leu Glu Glu Tyr Met Gly Ser Asp
    50   55   60

Pro Leu Tyr Val Gly Lys Leu His Ser Asp Val Asp Lys Gly Asp Gly
65   70   75   80

Ser Ile Lys Tyr Ile Leu Ser Gly Glu Gly Ala Ser Ser Ile Phe Ile
                85   90   95

Ile Asp Glu Asn Thr Gly Asp Ile His Ala Thr Lys Arg Leu Asp Arg
            100   105   110

Glu Glu Gln Ala Tyr Tyr Thr Leu Arg Ala Gln Ala Leu Asp Arg Leu
        115   120   125

Thr Asn Lys Pro Val Glu Pro Glu Ser Glu Phe Val Ile Lys Ile Gln
    130   135   140

Asp Ile Asn Asp Asn Glu Pro Lys Phe Leu Asp Gly Pro Tyr Thr Ala
145   150   155   160

Gly Val Pro Glu Met Ser Pro Val Gly Thr Ser Val Val Gln Val Thr
                165   170   175

```
Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly Asn Ser Ala Arg Val Val
            180                 185                 190

Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe Ser Val Glu Pro Lys Thr
        195                 200                 205

Gly Val Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Asp
    210                 215                 220

Gln Tyr Leu Leu Val Ile Gln Ala Lys Asp Met Val Gly Gln Asn Gly
225                 230                 235                 240

Gly Leu Ser Gly Thr Thr Ser Val Thr Val Thr Leu Thr Asp Val Asn
                245                 250                 255

Asp Asn Pro Pro Arg Phe Pro Arg Arg Ser Tyr Gln Tyr Asn Val Pro
            260                 265                 270

Glu Ser Leu Pro Val Ala Ser Val Val Ala Arg Ile Lys Ala Ala Asp
        275                 280                 285

Ala Asp Ile Gly Ala Asn Ala Glu Met Glu Tyr Lys Ile Val Asp Gly
    290                 295                 300

Asp Gly Leu Gly Ile Phe Lys Ile Ser Val Asp Lys Glu Thr Gln Glu
305                 310                 315                 320

Gly Ile Ile Thr Ile Gln Lys Glu Leu Asp Phe Glu Ala Lys Thr Ser
                325                 330                 335

Tyr Thr Leu Arg Ile Glu Ala Ala Asn Lys Asp Ala Asp Pro Arg Phe
            340                 345                 350

Leu Ser Leu Gly Pro Phe Ser Asp Thr Thr Thr Val Lys Ile Ile Val
        355                 360                 365

Glu Asp Val Asp Glu Pro Pro Val Phe Ser Ser Pro Leu Tyr Pro Met
    370                 375                 380

Glu Val Ser Glu Ala Thr Gln Val Gly Asn Ile Ile Gly Thr Val Ala
385                 390                 395                 400
```

```
Ala His Asp Pro Asp Ser Ser Asn Ser Pro Val Arg Tyr Ser Ile Asp
                405                 410                 415

Arg Asn Thr Asp Leu Glu Arg Tyr Phe Asn Ile Asp Ala Asn Ser Gly
            420                 425                 430

Val Ile Thr Thr Ala Lys Ser Leu Asp Arg Glu Thr Asn Ala Ile His
        435                 440                 445

Asn Ile Thr Val Leu Ala Met Glu Ser Gln Asn Pro Ser Gln Val Gly
    450                 455                 460

Arg Gly Tyr Val Ala Ile Thr Ile Leu Asp Ile Asn Asp Asn Ala Pro
465                 470                 475                 480

Glu Phe Ala Met Asp Tyr Glu Thr Thr Val Cys Glu Asn Ala Gln Pro
                485                 490                 495

Gly Gln Val Ile Gln Lys Ile Ser Ala Val Asp Lys Asp Glu Pro Ser
            500                 505                 510

Asn Gly His Gln Phe Tyr Phe Ser Leu Thr Thr Asp Ala Thr Asn Asn
        515                 520                 525

His Asn Phe Ser Leu Lys Asp Asn Lys Asp Asn Thr Ala Ser Ile Leu
    530                 535                 540

Thr Arg Arg Asn Gly Phe Arg Arg Gln Glu Gln Ser Val Tyr Tyr Leu
545                 550                 555                 560

Pro Ile Phe Ile Val Asp Ser Gly Ser Pro Ser Leu Ser Ser Thr Asn
                565                 570                 575

Thr Leu Thr Ile Arg Val Cys Asp Cys Asp Ala Asp Gly Val Ala Gln
            580                 585                 590

Thr Cys Asn Ala Glu Ala Tyr Val Leu Pro Ala Gly Leu Ser Thr Gly
        595                 600                 605

Ala Leu Ile Ala Ile Leu Ala Cys Val Leu Thr Leu Leu Val Leu Ile
    610                 615                 620
```

```
Leu Leu Ile Val Thr Met Arg Arg Arg Lys Lys Glu Pro Leu Ile Phe
625                 630                 635                 640

Asp Glu Glu Arg Asp Ile Arg Glu Asn Ile Val Arg Tyr Asp Asp Glu
                645                 650                 655

Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp Met Ala Ala Leu Arg
            660                 665                 670

Asn Leu Asn Val Ile Arg Asp Thr Lys Thr Arg Arg Asp Val Thr Pro
        675                 680                 685

Glu Ile Gln Phe Leu Ser Arg Pro Ala Phe Lys Ser Ile Pro Asp Asn
    690                 695                 700

Val Ile Phe Arg Glu Phe Ile Trp Glu Arg Leu Lys Glu Ala Asp Val
705                 710                 715                 720

Asp Pro Gly Ala Pro Pro Tyr Asp Ser Leu Gln Thr Tyr Ala Phe Glu
                725                 730                 735

Gly Asn Gly Ser Val Ala Glu Ser Leu Ser Ser Leu Asp Ser Ile Ser
            740                 745                 750

Ser Asn Ser Asp Gln Asn Tyr Asp Tyr Leu Ser Asp Trp Gly Pro Arg
        755                 760                 765

Phe Lys Arg Leu Ala Asp Met Tyr Gly Thr Gly Gln Glu Ser Leu Tyr
    770                 775                 780

Ser
785


<210> 10400
<211> 785
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2082; "

<220>
<221> source
<223> /note="Gene Symbol: CDH7; "
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<220>
<221> source
<223> /note="Gene Name: cadherin 7, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9ULB5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381058"

<400> 10400
Met Lys Leu Gly Lys Val Glu Phe Cys His Phe Leu Gln Leu Ile Ala
1   5   10   15

Leu Phe Leu Cys Phe Ser Gly Met Ser Gln Ala Glu Leu Ser Arg Ser
            20   25   30

Arg Ser Lys Pro Tyr Phe Gln Ser Gly Arg Ser Arg Thr Lys Arg Ser
        35   40   45

Trp Val Trp Asn Gln Phe Phe Val Leu Glu Glu Tyr Met Gly Ser Asp
    50   55   60

Pro Leu Tyr Val Gly Lys Leu His Ser Asp Val Asp Lys Gly Asp Gly
65   70   75   80

Ser Ile Lys Tyr Ile Leu Ser Gly Glu Gly Ala Ser Ser Ile Phe Ile
                85   90   95

Ile Asp Glu Asn Thr Gly Asp Ile His Ala Thr Lys Arg Leu Asp Arg
            100   105   110

Glu Glu Gln Ala Tyr Tyr Thr Leu Arg Ala Gln Ala Leu Asp Arg Leu
        115   120   125

Thr Asn Lys Pro Val Glu Pro Glu Ser Glu Phe Val Ile Lys Ile Gln
    130   135   140

Asp Ile Asn Asp Asn Glu Pro Lys Phe Leu Asp Gly Pro Tyr Thr Ala
145   150   155   160

Gly Val Pro Glu Met Ser Pro Val Gly Thr Ser Val Val Gln Val Thr
                165   170   175

```
Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly Asn Ser Ala Arg Val Val
            180                 185                 190

Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe Ser Val Glu Pro Lys Thr
        195                 200                 205

Gly Val Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Asp
    210                 215                 220

Gln Tyr Leu Leu Val Ile Gln Ala Lys Asp Met Val Gly Gln Asn Gly
225                 230                 235                 240

Gly Leu Ser Gly Thr Thr Ser Val Thr Val Thr Leu Thr Asp Val Asn
                245                 250                 255

Asp Asn Pro Pro Arg Phe Pro Arg Arg Ser Tyr Gln Tyr Asn Val Pro
            260                 265                 270

Glu Ser Leu Pro Val Ala Ser Val Val Ala Arg Ile Lys Ala Ala Asp
        275                 280                 285

Ala Asp Ile Gly Ala Asn Ala Glu Met Glu Tyr Lys Ile Val Asp Gly
    290                 295                 300

Asp Gly Leu Gly Ile Phe Lys Ile Ser Val Asp Lys Glu Thr Gln Glu
305                 310                 315                 320

Gly Ile Ile Thr Ile Gln Lys Glu Leu Asp Phe Glu Ala Lys Thr Ser
                325                 330                 335

Tyr Thr Leu Arg Ile Glu Ala Ala Asn Lys Asp Ala Asp Pro Arg Phe
            340                 345                 350

Leu Ser Leu Gly Pro Phe Ser Asp Thr Thr Thr Val Lys Ile Ile Val
        355                 360                 365

Glu Asp Val Asp Glu Pro Pro Val Phe Ser Ser Pro Leu Tyr Pro Met
    370                 375                 380

Glu Val Ser Glu Ala Thr Gln Val Gly Asn Ile Ile Gly Thr Val Ala
385                 390                 395                 400

Ala His Asp Pro Asp Ser Ser Asn Ser Pro Val Arg Tyr Ser Ile Asp
```

```
                405                 410                 415

Arg Asn Thr Asp Leu Glu Arg Tyr Phe Asn Ile Asp Ala Asn Ser Gly
            420                 425                 430

Val Ile Thr Thr Ala Lys Ser Leu Asp Arg Glu Thr Asn Ala Ile His
        435                 440                 445

Asn Ile Thr Val Leu Ala Met Glu Ser Gln Asn Pro Ser Gln Val Gly
    450                 455                 460

Arg Gly Tyr Val Ala Ile Thr Ile Leu Asp Ile Asn Asp Asn Ala Pro
465                 470                 475                 480

Glu Phe Ala Met Asp Tyr Glu Thr Thr Val Cys Glu Asn Ala Gln Pro
                485                 490                 495

Gly Gln Val Ile Gln Lys Ile Ser Ala Val Asp Lys Asp Glu Pro Ser
            500                 505                 510

Asn Gly His Gln Phe Tyr Phe Ser Leu Thr Thr Asp Ala Thr Asn Asn
        515                 520                 525

His Asn Phe Ser Leu Lys Asp Asn Lys Asp Asn Thr Ala Ser Ile Leu
    530                 535                 540

Thr Arg Arg Asn Gly Phe Arg Arg Gln Glu Gln Ser Val Tyr Tyr Leu
545                 550                 555                 560

Pro Ile Phe Ile Val Asp Ser Gly Ser Pro Ser Leu Ser Ser Thr Asn
                565                 570                 575

Thr Leu Thr Ile Arg Val Cys Asp Cys Asp Ala Asp Gly Val Ala Gln
            580                 585                 590

Thr Cys Asn Ala Glu Ala Tyr Val Leu Pro Ala Gly Leu Ser Thr Gly
        595                 600                 605

Ala Leu Ile Ala Ile Leu Ala Cys Val Leu Thr Leu Leu Val Leu Ile
    610                 615                 620

Leu Leu Ile Val Thr Met Arg Arg Arg Lys Lys Glu Pro Leu Ile Phe
625                 630                 635                 640
```

```
Asp Glu Glu Arg Asp Ile Arg Glu Asn Ile Val Arg Tyr Asp Asp Glu
                645                 650                 655

Gly Gly Gly Glu Glu Asp Thr Glu Ala Phe Asp Met Ala Ala Leu Arg
            660                 665                 670

Asn Leu Asn Val Ile Arg Asp Thr Lys Thr Arg Arg Asp Val Thr Pro
        675                 680                 685

Glu Ile Gln Phe Leu Ser Arg Pro Ala Phe Lys Ser Ile Pro Asp Asn
    690                 695                 700

Val Ile Phe Arg Glu Phe Ile Trp Glu Arg Leu Lys Glu Ala Asp Val
705                 710                 715                 720

Asp Pro Gly Ala Pro Pro Tyr Asp Ser Leu Gln Thr Tyr Ala Phe Glu
                725                 730                 735

Gly Asn Gly Ser Val Ala Glu Ser Leu Ser Ser Leu Asp Ser Ile Ser
            740                 745                 750

Ser Asn Ser Asp Gln Asn Tyr Asp Tyr Leu Ser Asp Trp Gly Pro Arg
        755                 760                 765

Phe Lys Arg Leu Ala Asp Met Tyr Gly Thr Gly Gln Glu Ser Leu Tyr
    770                 775                 780

Ser
785
```

<210> 10401
<211> 630
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2082; "

<220>
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<223> /note="Gene Symbol: CDH7; "

<220>
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<223> /note="Gene Name: cadherin 7, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443030"

<400> 10401

```
Met Lys Leu Gly Lys Val Glu Phe Cys His Phe Leu Gln Leu Ile Ala
1               5                  10                  15

Leu Phe Leu Cys Phe Ser Gly Met Ser Gln Ala Glu Leu Ser Arg Ser
            20                  25                  30

Arg Ser Lys Pro Tyr Phe Gln Ser Gly Arg Ser Arg Thr Lys Arg Ser
        35                  40                  45

Trp Val Trp Asn Gln Phe Phe Val Leu Glu Glu Tyr Met Gly Ser Asp
    50                  55                  60

Pro Leu Tyr Val Gly Lys Leu His Ser Asp Val Asp Lys Gly Asp Gly
65                  70                  75                  80

Ser Ile Lys Tyr Ile Leu Ser Gly Glu Gly Ala Ser Ser Ile Phe Ile
                85                  90                  95

Ile Asp Glu Asn Thr Gly Asp Ile His Ala Thr Lys Arg Leu Asp Arg
            100                 105                 110

Glu Glu Gln Ala Tyr Tyr Thr Leu Arg Ala Gln Ala Leu Asp Arg Leu
        115                 120                 125

Thr Asn Lys Pro Val Glu Pro Glu Ser Glu Phe Val Ile Lys Ile Gln
    130                 135                 140

Asp Ile Asn Asp Asn Glu Pro Lys Phe Leu Asp Gly Pro Tyr Thr Ala
145                 150                 155                 160

Gly Val Pro Glu Met Ser Pro Val Gly Thr Ser Val Val Gln Val Thr
                165                 170                 175

Ala Thr Asp Ala Asp Asp Pro Thr Tyr Gly Asn Ser Ala Arg Val Val
            180                 185                 190

Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe Ser Val Glu Pro Lys Thr
        195                 200                 205
```

```
Gly Val Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Asp
    210                 215                 220

Gln Tyr Leu Leu Val Ile Gln Ala Lys Asp Met Val Gly Gln Asn Gly
225                 230                 235                 240

Gly Leu Ser Gly Thr Thr Ser Val Thr Val Thr Leu Thr Asp Val Asn
                245                 250                 255

Asp Asn Pro Pro Arg Phe Pro Arg Arg Ser Tyr Gln Tyr Asn Val Pro
            260                 265                 270

Glu Ser Leu Pro Val Ala Ser Val Val Ala Arg Ile Lys Ala Ala Asp
        275                 280                 285

Ala Asp Ile Gly Ala Asn Ala Glu Met Glu Tyr Lys Ile Val Asp Gly
    290                 295                 300

Asp Gly Leu Gly Ile Phe Lys Ile Ser Val Asp Lys Glu Thr Gln Glu
305                 310                 315                 320

Gly Ile Ile Thr Ile Gln Lys Glu Leu Asp Phe Glu Ala Lys Thr Ser
                325                 330                 335

Tyr Thr Leu Arg Ile Glu Ala Ala Asn Lys Asp Ala Asp Pro Arg Phe
            340                 345                 350

Leu Ser Leu Gly Pro Phe Ser Asp Thr Thr Thr Val Lys Ile Ile Val
        355                 360                 365

Glu Asp Val Asp Glu Pro Pro Val Phe Ser Ser Pro Leu Tyr Pro Met
    370                 375                 380

Glu Val Ser Glu Ala Thr Gln Val Gly Asn Ile Ile Gly Thr Val Ala
385                 390                 395                 400

Ala His Asp Pro Asp Ser Ser Asn Ser Pro Val Arg Tyr Ser Ile Asp
                405                 410                 415

Arg Asn Thr Asp Leu Glu Arg Tyr Phe Asn Ile Asp Ala Asn Ser Gly
            420                 425                 430
```

```
Val Ile Thr Thr Ala Lys Ser Leu Asp Arg Glu Thr Asn Ala Ile His
        435                 440                 445

Asn Ile Thr Val Leu Ala Met Glu Ser Gln Asn Pro Ser Gln Val Gly
    450                 455                 460

Arg Gly Tyr Val Ala Ile Thr Ile Leu Asp Ile Asn Asp Asn Ala Pro
465                 470                 475                 480

Glu Phe Ala Met Asp Tyr Glu Thr Thr Val Cys Glu Asn Ala Gln Pro
                485                 490                 495

Gly Gln Val Ile Gln Lys Ile Ser Ala Val Asp Lys Asp Glu Pro Ser
            500                 505                 510

Asn Gly His Gln Phe Tyr Phe Ser Leu Thr Thr Asp Ala Thr Asn Asn
        515                 520                 525

His Asn Phe Ser Leu Lys Asp Asn Lys Asp Asn Thr Ala Ser Ile Leu
    530                 535                 540

Thr Arg Arg Asn Gly Phe Arg Arg Gln Glu Gln Ser Val Tyr Tyr Leu
545                 550                 555                 560

Pro Ile Phe Ile Val Asp Ser Gly Ser Pro Ser Leu Ser Ser Thr Asn
                565                 570                 575

Thr Leu Thr Ile Arg Val Cys Asp Cys Asp Ala Asp Gly Val Ala Gln
            580                 585                 590

Thr Cys Asn Ala Glu Ala Tyr Val Leu Pro Ala Gly Leu Ser Thr Gly
        595                 600                 605

Ala Leu Ile Ala Ile Leu Ala Cys Val Leu Thr Leu Leu Gly Arg Tyr
    610                 615                 620

Cys Phe Gln Gly Leu Leu
625                 630
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<210> 10402
<211> 745
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2083; "

<220>
<221> source
<223> /note="Gene Symbol: CDH8; "

<220>
<221> source
<223> /note="Gene Name: cadherin 8, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000299345"

<400> 10402
Met Pro Glu Arg Leu Ala Glu Met Leu Leu Asp Leu Trp Thr Pro Leu
1   5   10   15

Ile Ile Leu Trp Ile Thr Leu Pro Pro Cys Ile Tyr Met Ala Pro Met
            20   25   30

Asn Gln Ser Gln Val Leu Met Ser Gly Ser Pro Leu Glu Leu Asn Ser
        35   40   45

Leu Gly Glu Glu Gln Arg Ile Leu Asn Arg Ser Lys Arg Gly Trp Val
    50   55   60

Trp Asn Gln Met Phe Val Leu Glu Glu Phe Ser Gly Pro Glu Pro Ile
65   70   75   80

Leu Val Gly Arg Leu His Thr Asp Leu Asp Pro Gly Ser Lys Lys Ile
                85   90   95

Lys Tyr Ile Leu Ser Gly Asp Gly Ala Gly Thr Ile Phe Gln Ile Asn
            100   105   110

Asp Val Thr Gly Asp Ile His Ala Ile Lys Arg Leu Asp Arg Glu Glu
        115   120   125

Lys Ala Glu Tyr Thr Leu Thr Ala Gln Ala Val Asp Trp Glu Thr Ser
    130   135   140

Lys Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile
145   150   155   160

```
Asn Asp Asn Ala Pro Glu Phe Leu Asn Gly Pro Tyr His Ala Thr Val
                165                 170                 175

Pro Glu Met Ser Ile Leu Gly Thr Ser Val Thr Asn Val Thr Ala Thr
            180                 185                 190

Asp Ala Asp Asp Pro Val Tyr Gly Asn Ser Ala Lys Leu Val Tyr Ser
        195                 200                 205

Ile Leu Glu Gly Gln Pro Tyr Phe Ser Ile Glu Pro Glu Thr Ala Ile
    210                 215                 220

Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Glu Glu Tyr
225                 230                 235                 240

Leu Val Val Ile Gln Ala Lys Asp Met Gly Gly His Ser Gly Gly Leu
                245                 250                 255

Ser Gly Thr Thr Thr Leu Thr Val Thr Leu Thr Asp Val Asn Asp Asn
            260                 265                 270

Pro Pro Lys Phe Ala Gln Ser Leu Tyr His Phe Ser Val Pro Glu Asp
        275                 280                 285

Val Val Leu Gly Thr Ala Ile Gly Arg Val Lys Ala Asn Asp Gln Asp
    290                 295                 300

Ile Gly Glu Asn Ala Gln Ser Ser Tyr Asp Ile Ile Asp Gly Asp Gly
305                 310                 315                 320

Thr Ala Leu Phe Glu Ile Thr Ser Asp Ala Gln Ala Gln Asp Gly Ile
                325                 330                 335

Ile Arg Leu Arg Lys Pro Leu Asp Phe Glu Thr Lys Lys Ser Tyr Thr
            340                 345                 350

Leu Lys Val Glu Ala Ala Asn Val His Ile Asp Pro Arg Phe Ser Gly
        355                 360                 365

Arg Gly Pro Phe Lys Asp Thr Ala Thr Val Lys Ile Val Val Glu Asp
    370                 375                 380
```

```
Ala Asp Glu Pro Pro Val Phe Ser Ser Pro Thr Tyr Leu Leu Glu Val
385                 390                 395                 400

His Glu Asn Ala Ala Leu Asn Ser Val Ile Gly Gln Val Thr Ala Arg
                405                 410                 415

Asp Pro Asp Ile Thr Ser Ser Pro Ile Arg Phe Ser Ile Asp Arg His
            420                 425                 430

Thr Asp Leu Glu Arg Gln Phe Asn Ile Asn Ala Asp Asp Gly Lys Ile
        435                 440                 445

Thr Leu Ala Thr Pro Leu Asp Arg Glu Leu Ser Val Trp His Asn Ile
    450                 455                 460

Thr Ile Ile Ala Thr Glu Ile Arg Asn His Ser Gln Ile Ser Arg Val
465                 470                 475                 480

Pro Val Ala Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe
                485                 490                 495

Ala Ser Glu Tyr Glu Ala Phe Leu Cys Glu Asn Gly Lys Pro Gly Gln
            500                 505                 510

Val Ile Gln Thr Val Ser Ala Met Asp Lys Asp Asp Pro Lys Asn Gly
        515                 520                 525

His Tyr Phe Leu Tyr Ser Leu Leu Pro Glu Met Val Asn Asn Pro Asn
    530                 535                 540

Phe Thr Ile Lys Lys Asn Glu Asp Asn Ser Leu Ser Ile Leu Ala Lys
545                 550                 555                 560

His Asn Gly Phe Asn Arg Gln Lys Gln Glu Val Tyr Leu Leu Pro Ile
                565                 570                 575

Ile Ile Ser Asp Ser Gly Asn Pro Pro Leu Ser Ser Thr Ser Thr Leu
            580                 585                 590

Thr Ile Arg Val Cys Gly Cys Ser Asn Asp Gly Val Val Gln Ser Cys
        595                 600                 605

Asn Val Glu Ala Tyr Val Leu Pro Ile Gly Leu Ser Met Gly Ala Leu
```

610 615 620

Ile Ala Ile Leu Ala Cys Ile Ile Leu Leu Leu Val Ile Val Val Leu
625 630 635 640

Phe Val Thr Leu Arg Arg His Lys Asn Glu Pro Leu Ile Ile Lys Asp
645 650 655

Asp Glu Asp Val Arg Glu Asn Ile Ile Arg Tyr Asp Asp Glu Gly Gly
660 665 670

Gly Glu Glu Asp Thr Glu Ala Phe Asp Ile Ala Thr Leu Gln Asn Pro
675 680 685

Asp Gly Ile Asn Gly Phe Leu Pro Arg Lys Asp Ile Lys Pro Asp Leu
690 695 700

Gln Phe Met Pro Arg Leu Gln Lys Arg Val Ala Arg Arg Asn Ile Thr
705 710 715 720

Arg Cys Cys Leu Lys Arg Lys Thr Val Glu Asn His Gly Phe Asn Glu
725 730 735

Leu Arg Gly Gln Asp Gln Lys Arg Lys
740 745

<210> 10403
<211> 744
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2083; "

<220>
<221> source
<223> /note="Gene Symbol: CDH8; "

<220>
<221> source
<223> /note="Gene Name: cadherin 8, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462018"

<400> 10403

```
Met Pro Glu Arg Leu Ala Glu Met Leu Leu Asp Leu Trp Thr Pro Leu
1               5                  10                  15

Ile Ile Leu Trp Ile Thr Leu Pro Pro Cys Ile Tyr Met Ala Pro Met
            20                  25                  30

Asn Gln Ser Gln Val Leu Met Ser Gly Ser Pro Leu Glu Leu Asn Ser
        35                  40                  45

Leu Gly Glu Glu Gln Arg Ile Leu Asn Arg Ser Lys Arg Gly Trp Val
    50                  55                  60

Trp Asn Gln Met Phe Val Leu Glu Glu Phe Ser Gly Pro Glu Pro Ile
65                  70                  75                  80

Leu Val Gly Arg Leu His Thr Asp Leu Asp Pro Gly Ser Lys Lys Ile
                85                  90                  95

Lys Tyr Ile Leu Ser Gly Asp Gly Ala Gly Thr Ile Phe Gln Ile Asn
            100                 105                 110

Asp Val Thr Gly Asp Ile His Ala Ile Lys Arg Leu Asp Arg Glu Glu
        115                 120                 125

Lys Ala Glu Tyr Thr Leu Thr Ala Gln Ala Val Asp Trp Glu Thr Ser
    130                 135                 140

Lys Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile
145                 150                 155                 160

Asn Asp Asn Ala Pro Glu Phe Leu Asn Gly Pro Tyr His Ala Thr Val
                165                 170                 175

Pro Glu Met Ser Ile Leu Gly Thr Ser Val Thr Asn Val Thr Ala Thr
            180                 185                 190

Asp Ala Asp Asp Pro Val Tyr Gly Asn Ser Ala Lys Leu Val Tyr Ser
        195                 200                 205

Ile Leu Glu Gly Gln Pro Tyr Phe Ser Ile Glu Pro Glu Thr Ala Ile
    210                 215                 220

Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Glu Glu Tyr
```

225 230 235 240

Leu Val Val Ile Gln Ala Lys Asp Met Gly Gly His Ser Gly Gly Leu
245 250 255

Ser Gly Thr Thr Thr Leu Thr Val Thr Leu Thr Asp Val Asn Asp Asn
260 265 270

Pro Pro Lys Phe Ala Gln Ser Leu Tyr His Phe Ser Val Pro Glu Asp
275 280 285

Val Val Leu Gly Thr Ala Ile Gly Arg Val Lys Ala Asn Asp Gln Asp
290 295 300

Ile Gly Glu Asn Ala Gln Ser Ser Tyr Asp Ile Ile Asp Gly Asp Gly
305 310 315 320

Thr Ala Leu Phe Glu Ile Thr Ser Asp Ala Gln Ala Gln Asp Gly Ile
325 330 335

Ile Arg Leu Arg Lys Pro Leu Asp Phe Glu Thr Lys Lys Ser Tyr Thr
340 345 350

Leu Lys Val Glu Ala Ala Asn Val His Ile Asp Pro Arg Phe Ser Gly
355 360 365

Arg Gly Pro Phe Lys Asp Thr Ala Thr Val Lys Ile Val Val Glu Asp
370 375 380

Ala Asp Glu Pro Pro Val Phe Ser Ser Pro Thr Tyr Leu Leu Glu Val
385 390 395 400

His Glu Asn Ala Ala Leu Asn Ser Val Ile Gly Gln Val Thr Ala Arg
405 410 415

Asp Pro Asp Ile Thr Ser Ser Pro Ile Arg Phe Ser Ile Asp Arg His
420 425 430

Thr Asp Leu Glu Arg Gln Phe Asn Ile Asn Ala Asp Asp Gly Lys Ile
435 440 445

Thr Leu Ala Thr Pro Leu Asp Arg Glu Leu Ser Val Trp His Asn Ile
450 455 460

```
Thr Ile Ile Ala Thr Glu Ile Arg Asn His Ser Gln Ile Ser Arg Val
465                 470                 475                 480

Pro Val Ala Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe
                485                 490                 495

Ala Ser Glu Tyr Glu Ala Phe Leu Cys Glu Asn Gly Lys Pro Gly Gln
            500                 505                 510

Val Ile Gln Thr Val Ser Ala Met Asp Lys Asp Asp Pro Lys Asn Gly
        515                 520                 525

His Tyr Phe Leu Tyr Ser Leu Leu Pro Glu Met Val Asn Asn Pro Asn
    530                 535                 540

Phe Thr Ile Lys Lys Asn Glu Asp Asn Ser Leu Ser Ile Leu Ala Lys
545                 550                 555                 560

His Asn Gly Phe Asn Arg Gln Lys Gln Glu Val Tyr Leu Leu Pro Ile
                565                 570                 575

Ile Ile Ser Asp Ser Gly Asn Pro Pro Leu Ser Ser Thr Ser Thr Leu
            580                 585                 590

Thr Ile Arg Val Cys Gly Cys Ser Asn Asp Gly Val Val Gln Ser Cys
        595                 600                 605

Asn Val Glu Ala Tyr Val Leu Pro Ile Gly Leu Ser Met Gly Ala Leu
    610                 615                 620

Ile Ala Ile Leu Ala Cys Ile Ile Leu Leu Leu Val Ile Val Val Leu
625                 630                 635                 640

Phe Val Thr Leu Arg Arg His Lys Asn Glu Pro Leu Ile Ile Lys Asp
                645                 650                 655

Asp Glu Asp Val Arg Glu Asn Ile Ile Arg Tyr Asp Asp Glu Gly Gly
            660                 665                 670

Gly Glu Glu Asp Thr Glu Ala Phe Asp Ile Ala Thr Leu Gln Asn Pro
        675                 680                 685
```

```
Asp Gly Ile Asn Gly Phe Leu Pro Arg Trp Gly Leu Pro Ile Gln Trp
    690                 695                 700

Trp Glu Glu Arg Asn Pro Ile Gln Thr Cys Leu Phe Ser Arg Ser Arg
705                 710                 715                 720

Ile Pro Arg Ser Leu Leu Phe Ile Phe Phe His Lys Asp Thr Lys Ile
                725                 730                 735

Asn Cys Ile Thr Gln Trp Thr Thr
            740
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<210> 10404
<211> 799
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2083; "

<220>
<221> source
<223> /note="Gene Symbol: CDH8; "

<220>
<221> source
<223> /note="Gene Name: cadherin 8, type 2; "

<220>
<221> source
<223> /note="Uniprot ID: P55286; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462701"

<400> 10404

```
Met Pro Glu Arg Leu Ala Glu Met Leu Leu Asp Leu Trp Thr Pro Leu
1               5                   10                  15

Ile Ile Leu Trp Ile Thr Leu Pro Pro Cys Ile Tyr Met Ala Pro Met
            20                  25                  30

Asn Gln Ser Gln Val Leu Met Ser Gly Ser Pro Leu Glu Leu Asn Ser
        35                  40                  45

Leu Gly Glu Glu Gln Arg Ile Leu Asn Arg Ser Lys Arg Gly Trp Val
    50                  55                  60
```

```
Trp Asn Gln Met Phe Val Leu Glu Glu Phe Ser Gly Pro Glu Pro Ile
65                  70                  75                  80

Leu Val Gly Arg Leu His Thr Asp Leu Asp Pro Gly Ser Lys Lys Ile
                85                  90                  95

Lys Tyr Ile Leu Ser Gly Asp Gly Ala Gly Thr Ile Phe Gln Ile Asn
            100                 105                 110

Asp Val Thr Gly Asp Ile His Ala Ile Lys Arg Leu Asp Arg Glu Glu
        115                 120                 125

Lys Ala Glu Tyr Thr Leu Thr Ala Gln Ala Val Asp Trp Glu Thr Ser
    130                 135                 140

Lys Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile
145                 150                 155                 160

Asn Asp Asn Ala Pro Glu Phe Leu Asn Gly Pro Tyr His Ala Thr Val
                165                 170                 175

Pro Glu Met Ser Ile Leu Gly Thr Ser Val Thr Asn Val Thr Ala Thr
            180                 185                 190

Asp Ala Asp Asp Pro Val Tyr Gly Asn Ser Ala Lys Leu Val Tyr Ser
        195                 200                 205

Ile Leu Glu Gly Gln Pro Tyr Phe Ser Ile Glu Pro Glu Thr Ala Ile
    210                 215                 220

Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Glu Glu Tyr
225                 230                 235                 240

Leu Val Val Ile Gln Ala Lys Asp Met Gly Gly His Ser Gly Gly Leu
                245                 250                 255

Ser Gly Thr Thr Thr Leu Thr Val Thr Leu Thr Asp Val Asn Asp Asn
            260                 265                 270

Pro Pro Lys Phe Ala Gln Ser Leu Tyr His Phe Ser Val Pro Glu Asp
        275                 280                 285
```

```
Val Val Leu Gly Thr Ala Ile Gly Arg Val Lys Ala Asn Asp Gln Asp
    290                 295                 300

Ile Gly Glu Asn Ala Gln Ser Ser Tyr Asp Ile Ile Asp Gly Asp Gly
305                 310                 315                 320

Thr Ala Leu Phe Glu Ile Thr Ser Asp Ala Gln Ala Gln Asp Gly Ile
                325                 330                 335

Ile Arg Leu Arg Lys Pro Leu Asp Phe Glu Thr Lys Lys Ser Tyr Thr
            340                 345                 350

Leu Lys Val Glu Ala Ala Asn Val His Ile Asp Pro Arg Phe Ser Gly
        355                 360                 365

Arg Gly Pro Phe Lys Asp Thr Ala Thr Val Lys Ile Val Val Glu Asp
    370                 375                 380

Ala Asp Glu Pro Pro Val Phe Ser Ser Pro Thr Tyr Leu Leu Glu Val
385                 390                 395                 400

His Glu Asn Ala Ala Leu Asn Ser Val Ile Gly Gln Val Thr Ala Arg
                405                 410                 415

Asp Pro Asp Ile Thr Ser Ser Pro Ile Arg Phe Ser Ile Asp Arg His
            420                 425                 430

Thr Asp Leu Glu Arg Gln Phe Asn Ile Asn Ala Asp Asp Gly Lys Ile
        435                 440                 445

Thr Leu Ala Thr Pro Leu Asp Arg Glu Leu Ser Val Trp His Asn Ile
    450                 455                 460

Thr Ile Ile Ala Thr Glu Ile Arg Asn His Ser Gln Ile Ser Arg Val
465                 470                 475                 480

Pro Val Ala Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe
                485                 490                 495

Ala Ser Glu Tyr Glu Ala Phe Leu Cys Glu Asn Gly Lys Pro Gly Gln
            500                 505                 510
```

```
Val Ile Gln Thr Val Ser Ala Met Asp Lys Asp Asp Pro Lys Asn Gly
        515                 520                 525

His Tyr Phe Leu Tyr Ser Leu Leu Pro Glu Met Val Asn Asn Pro Asn
    530                 535                 540

Phe Thr Ile Lys Lys Asn Glu Asp Asn Ser Leu Ser Ile Leu Ala Lys
545                 550                 555                 560

His Asn Gly Phe Asn Arg Gln Lys Gln Glu Val Tyr Leu Leu Pro Ile
                565                 570                 575

Ile Ile Ser Asp Ser Gly Asn Pro Pro Leu Ser Ser Thr Ser Thr Leu
            580                 585                 590

Thr Ile Arg Val Cys Gly Cys Ser Asn Asp Gly Val Val Gln Ser Cys
        595                 600                 605

Asn Val Glu Ala Tyr Val Leu Pro Ile Gly Leu Ser Met Gly Ala Leu
    610                 615                 620

Ile Ala Ile Leu Ala Cys Ile Ile Leu Leu Leu Val Ile Val Val Leu
625                 630                 635                 640

Phe Val Thr Leu Arg Arg His Lys Asn Glu Pro Leu Ile Ile Lys Asp
                645                 650                 655

Asp Glu Asp Val Arg Glu Asn Ile Ile Arg Tyr Asp Asp Glu Gly Gly
            660                 665                 670

Gly Glu Glu Asp Thr Glu Ala Phe Asp Ile Ala Thr Leu Gln Asn Pro
        675                 680                 685

Asp Gly Ile Asn Gly Phe Leu Pro Arg Lys Asp Ile Lys Pro Asp Leu
    690                 695                 700

Gln Phe Met Pro Arg Gln Gly Leu Ala Pro Val Pro Asn Gly Val Asp
705                 710                 715                 720

Val Asp Glu Phe Ile Asn Val Arg Leu His Glu Ala Asp Asn Asp Pro
                725                 730                 735

Thr Ala Pro Pro Tyr Asp Ser Ile Gln Ile Tyr Gly Tyr Glu Gly Arg
```

740 745 750

Gly Ser Val Ala Gly Ser Leu Ser Ser Leu Glu Ser Thr Thr Ser Asp
755 760 765

Ser Asp Gln Asn Phe Asp Tyr Leu Ser Asp Trp Gly Pro Arg Phe Lys
770 775 780

Arg Leu Gly Glu Leu Tyr Ser Val Gly Glu Ser Asp Lys Glu Thr
785 790 795

<210> 10405
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2083; "

<220>
<221> source
<223> /note="Gene Symbol: CDH8; "

<220>
<221> source
<223> /note="Gene Name: cadherin 8, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462847"

<400> 10405
Met Pro Glu Arg Leu Ala Glu Met Leu Leu Asp Leu Trp Thr Pro Leu
1 5 10 15

Ile Ile Leu Trp Ile Thr Leu Pro Pro Cys Ile Tyr Met Ala Pro Met
20 25 30

Asn Gln Ser Gln Val Leu Met Ser Gly Ser Pro Leu Glu Leu Asn Ser
35 40 45

Leu Gly Glu Glu Gln Arg Ile Leu Asn Arg Ser Lys Arg Gly Trp Val
50 55 60

Trp Asn Gln Met Phe Val Leu Glu Glu Phe Ser Gly Pro Glu Pro Ile
65 70 75 80

Leu

<210> 10406
<211> 425
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2083; "

<220>
<221> source
<223> /note="Gene Symbol: CDH8; "

<220>
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<223> /note="Gene Name: cadherin 8, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462976"

<400> 10406
Met Pro Glu Arg Leu Ala Glu Met Leu Leu Asp Leu Trp Thr Pro Leu
1 5 10 15

Ile Ile Leu Trp Ile Thr Leu Pro Pro Cys Ile Tyr Met Ala Pro Met
20 25 30

Asn Gln Ser Gln Val Leu Met Ser Gly Ser Pro Leu Glu Leu Asn Ser
35 40 45

Leu Gly Glu Glu Gln Arg Ile Leu Asn Arg Ser Lys Arg Gly Trp Val
50 55 60

Trp Asn Gln Met Phe Val Leu Glu Glu Phe Ser Gly Pro Glu Pro Ile
65 70 75 80

Leu Val Gly Arg Leu His Thr Asp Leu Asp Pro Gly Ser Lys Lys Ile
85 90 95

Lys Tyr Ile Leu Ser Gly Asp Gly Ala Gly Thr Ile Phe Gln Ile Asn
100 105 110

Asp Val Thr Gly Asp Ile His Ala Ile Lys Arg Leu Asp Arg Glu Glu
115 120 125

```
Lys Ala Glu Tyr Thr Leu Thr Ala Gln Ala Val Asp Trp Glu Thr Ser
    130                 135                 140

Lys Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile
145                 150                 155                 160

Asn Asp Asn Ala Pro Glu Phe Leu Asn Gly Pro Tyr His Ala Thr Val
                165                 170                 175

Pro Glu Met Ser Ile Leu Gly Thr Ser Val Thr Asn Val Thr Ala Thr
            180                 185                 190

Asp Ala Asp Asp Pro Val Tyr Gly Asn Ser Ala Lys Leu Val Tyr Ser
        195                 200                 205

Ile Leu Glu Gly Gln Pro Tyr Phe Ser Ile Glu Pro Glu Thr Ala Ile
    210                 215                 220

Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Glu Glu Tyr
225                 230                 235                 240

Leu Val Val Ile Gln Ala Lys Asp Met Gly Gly His Ser Gly Gly Leu
                245                 250                 255

Ser Gly Thr Thr Thr Leu Thr Val Thr Leu Thr Asp Val Asn Asp Asn
            260                 265                 270

Pro Pro Lys Phe Ala Gln Ser Leu Tyr His Phe Ser Val Pro Glu Asp
        275                 280                 285

Val Val Leu Gly Thr Ala Ile Gly Arg Val Lys Ala Asn Asp Gln Asp
    290                 295                 300

Ile Gly Glu Asn Ala Gln Ser Ser Tyr Asp Ile Ile Asp Gly Asp Gly
305                 310                 315                 320

Thr Ala Leu Phe Glu Ile Thr Ser Asp Ala Gln Ala Gln Asp Gly Ile
                325                 330                 335

Ile Arg Leu Arg Lys Pro Leu Asp Phe Glu Thr Lys Lys Ser Tyr Thr
            340                 345                 350
```

```
Leu Lys Val Glu Ala Ala Asn Val His Ile Asp Pro Arg Phe Ser Gly
        355                 360                 365

Arg Gly Pro Phe Lys Asp Thr Ala Thr Val Lys Ile Val Val Glu Asp
    370                 375                 380

Ala Asp Glu Pro Pro Val Phe Ser Ser Pro Thr Tyr Leu Leu Glu Val
385                 390                 395                 400

His Glu Asn Ala Ala Leu Asn Ser Val Ile Gly Gln Val Thr Ala Arg
                405                 410                 415

Asp Pro Asp Ile Thr Ser Ser Pro Ile
            420                 425


<210> 10407
<211> 476
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2083; "

<220>
<221> source
<223> /note="Gene Symbol: CDH8; "

<220>
<221> source
<223> /note="Gene Name: cadherin 8, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463266"

<400> 10407
Met Pro Glu Arg Leu Ala Glu Met Leu Leu Asp Leu Trp Thr Pro Leu
1               5                   10                  15

Ile Ile Leu Trp Ile Thr Leu Pro Pro Cys Ile Tyr Met Ala Pro Met
            20                  25                  30

Asn Gln Ser Gln Val Leu Met Ser Gly Ser Pro Leu Glu Leu Asn Ser
        35                  40                  45

Leu Gly Glu Glu Gln Arg Ile Leu Asn Arg Ser Lys Arg Gly Trp Val
    50                  55                  60
```

```
Trp Asn Gln Met Phe Val Leu Glu Glu Phe Ser Gly Pro Glu Pro Ile
65                  70                  75                  80

Leu Val Gly Arg Leu His Thr Asp Leu Asp Pro Gly Ser Lys Lys Ile
                85                  90                  95

Lys Tyr Ile Leu Ser Gly Asp Gly Ala Gly Thr Ile Phe Gln Ile Asn
            100                 105                 110

Asp Val Thr Gly Asp Ile His Ala Ile Lys Arg Leu Asp Arg Glu Glu
        115                 120                 125

Lys Ala Glu Tyr Thr Leu Thr Ala Gln Ala Val Asp Trp Glu Thr Ser
    130                 135                 140

Lys Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile
145                 150                 155                 160

Asn Asp Asn Ala Pro Glu Phe Leu Asn Gly Pro Tyr His Ala Thr Val
                165                 170                 175

Pro Glu Met Ser Ile Leu Gly Thr Ser Val Thr Asn Val Thr Ala Thr
            180                 185                 190

Asp Ala Asp Asp Pro Val Tyr Gly Asn Ser Ala Lys Leu Val Tyr Ser
        195                 200                 205

Ile Leu Glu Gly Gln Pro Tyr Phe Ser Ile Glu Pro Glu Thr Ala Ile
    210                 215                 220

Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Glu Glu Tyr
225                 230                 235                 240

Leu Val Val Ile Gln Ala Lys Asp Met Gly Gly His Ser Gly Gly Leu
                245                 250                 255

Ser Gly Thr Thr Thr Leu Thr Val Thr Leu Thr Asp Val Asn Asp Asn
            260                 265                 270

Pro Pro Lys Phe Ala Gln Ser Leu Tyr His Phe Ser Val Pro Glu Asp
        275                 280                 285
```

```
Val Val Leu Gly Thr Ala Ile Gly Arg Val Lys Ala Asn Asp Gln Asp
    290                 295                 300

Ile Gly Glu Asn Ala Gln Ser Ser Tyr Asp Ile Ile Asp Gly Asp Gly
305                 310                 315                 320

Thr Ala Leu Phe Glu Ile Thr Ser Asp Ala Gln Ala Gln Asp Gly Ile
                325                 330                 335

Ile Arg Leu Arg Lys Pro Leu Asp Phe Glu Thr Lys Lys Ser Tyr Thr
            340                 345                 350

Leu Lys Val Glu Ala Ala Asn Val His Ile Asp Pro Arg Phe Ser Gly
        355                 360                 365

Arg Gly Pro Phe Lys Asp Thr Ala Thr Val Lys Ile Val Val Glu Asp
    370                 375                 380

Ala Asp Glu Pro Pro Val Phe Ser Ser Pro Thr Tyr Leu Leu Glu Val
385                 390                 395                 400

His Glu Asn Ala Ala Leu Asn Ser Val Ile Gly Gln Val Thr Ala Arg
                405                 410                 415

Asp Pro Asp Ile Thr Ser Ser Pro Ile Arg Phe Ser Ile Asp Arg His
            420                 425                 430

Thr Asp Leu Glu Arg Gln Phe Asn Ile Asn Ala Asp Asp Gly Lys Ile
        435                 440                 445

Thr Leu Ala Thr Pro Leu Asp Arg Glu Leu Ser Val Trp His Asn Ile
    450                 455                 460

Thr Ile Ile Ala Thr Glu Ile Ser His Ser Asn Cys
465                 470                 475


<210> 10408
<211> 532
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2083; "
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<220>
<221> source
<223> /note="Gene Symbol: CDH8; "

<220>
<221> source
<223> /note="Gene Name: cadherin 8, type 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463511"

<400> 10408
Met Pro Glu Arg Leu Ala Glu Met Leu Leu Asp Leu Trp Thr Pro Leu
1   5   10   15

Ile Ile Leu Trp Ile Thr Leu Pro Pro Cys Ile Tyr Met Ala Pro Met
            20   25   30

Asn Gln Ser Gln Val Leu Met Ser Gly Ser Pro Leu Glu Leu Asn Ser
        35   40   45

Leu Gly Glu Glu Gln Arg Ile Leu Asn Arg Ser Lys Arg Gly Trp Val
    50   55   60

Trp Asn Gln Met Phe Val Leu Glu Glu Phe Ser Gly Pro Glu Pro Ile
65   70   75   80

Leu Val Gly Arg Leu His Thr Asp Leu Asp Pro Gly Ser Lys Lys Ile
                85   90   95

Lys Tyr Ile Leu Ser Gly Asp Gly Ala Gly Thr Ile Phe Gln Ile Asn
            100   105   110

Asp Val Thr Gly Asp Ile His Ala Ile Lys Arg Leu Asp Arg Glu Glu
        115   120   125

Lys Ala Glu Tyr Thr Leu Thr Ala Gln Ala Val Asp Trp Glu Thr Ser
    130   135   140

Lys Pro Leu Glu Pro Pro Ser Glu Phe Ile Ile Lys Val Gln Asp Ile
145   150   155   160

Asn Asp Asn Ala Pro Glu Phe Leu Asn Gly Pro Tyr His Ala Thr Val
                165   170   175

```
Pro Glu Met Ser Ile Leu Gly Thr Ser Val Thr Asn Val Thr Ala Thr
            180                 185                 190

Asp Ala Asp Asp Pro Val Tyr Gly Asn Ser Ala Lys Leu Val Tyr Ser
        195                 200                 205

Ile Leu Glu Gly Gln Pro Tyr Phe Ser Ile Glu Pro Glu Thr Ala Ile
    210                 215                 220

Ile Lys Thr Ala Leu Pro Asn Met Asp Arg Glu Ala Lys Glu Glu Tyr
225                 230                 235                 240

Leu Val Val Ile Gln Ala Lys Asp Met Gly Gly His Ser Gly Gly Leu
                245                 250                 255

Ser Gly Thr Thr Thr Leu Thr Val Thr Leu Thr Asp Val Asn Asp Asn
            260                 265                 270

Pro Pro Lys Phe Ala Gln Ser Leu Tyr His Phe Ser Val Pro Glu Asp
        275                 280                 285

Val Val Leu Gly Thr Ala Ile Gly Arg Val Lys Ala Asn Asp Gln Asp
    290                 295                 300

Ile Gly Glu Asn Ala Gln Ser Ser Tyr Asp Ile Ile Asp Gly Asp Gly
305                 310                 315                 320

Thr Ala Leu Phe Glu Ile Thr Ser Asp Ala Gln Ala Gln Asp Gly Ile
                325                 330                 335

Ile Arg Leu Arg Lys Pro Leu Asp Phe Glu Thr Lys Lys Ser Tyr Thr
            340                 345                 350

Leu Lys Val Glu Ala Ala Asn Val His Ile Asp Pro Arg Phe Ser Gly
        355                 360                 365

Arg Gly Pro Phe Lys Asp Thr Ala Thr Val Lys Ile Val Val Glu Asp
    370                 375                 380

Ala Asp Glu Pro Pro Val Phe Ser Ser Pro Thr Tyr Leu Leu Glu Val
385                 390                 395                 400

His Glu Asn Ala Ala Leu Asn Ser Val Ile Gly Gln Val Thr Ala Arg
```

```
                405                 410                 415

Asp Pro Asp Ile Thr Ser Ser Pro Ile Arg Phe Ser Ile Asp Arg His
            420                 425                 430

Thr Asp Leu Glu Arg Gln Phe Asn Ile Asn Ala Asp Asp Gly Lys Ile
        435                 440                 445

Thr Leu Ala Thr Pro Leu Asp Arg Glu Leu Ser Val Trp His Asn Ile
    450                 455                 460

Thr Ile Ile Ala Thr Glu Ile Arg Asn His Ser Gln Ile Ser Arg Val
465                 470                 475                 480

Pro Val Ala Ile Lys Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe
                485                 490                 495

Ala Ser Glu Tyr Glu Ala Phe Leu Cys Glu Asn Gly Lys Pro Gly Gln
            500                 505                 510

Val Asn Ile Ser Met Leu Leu Met Leu Asn Met Phe Val Tyr Asn Cys
        515                 520                 525

Leu Ile Phe Asp
    530


<210> 10409
<211> 789
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2084; "

<220>
<221> source
<223> /note="Gene Symbol: CDH9; "

<220>
<221> source
<223> /note="Gene Name: cadherin 9, type 2 (T1-cadherin); "

<220>
<221> source
<223> /note="Uniprot ID:  Q9ULB4; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000231021"

<400> 10409
Met Arg Thr Tyr His Tyr Ile Pro Leu Phe Ile Trp Thr Tyr Met Phe
1 5 10 15

His Thr Val Asp Thr Ile Leu Leu Gln Glu Lys Pro Asn Ser Tyr Leu
20 25 30

Ser Ser Lys Lys Ile Ala Gly Leu Thr Lys Asp Asp Gly Lys Met Leu
35 40 45

Arg Arg Thr Lys Arg Gly Trp Met Trp Asn Gln Phe Phe Leu Leu Glu
50 55 60

Glu Tyr Thr Gly Thr Asp Thr Gln Tyr Val Gly Lys Leu His Thr Asp
65 70 75 80

Gln Asp Lys Gly Asp Gly Asn Leu Lys Tyr Ile Leu Thr Gly Asp Gly
85 90 95

Ala Gly Ser Leu Phe Val Ile Asp Glu Asn Thr Gly Asp Ile His Ala
100 105 110

Ala Lys Lys Leu Asp Arg Glu Glu Lys Ser Leu Tyr Ile Leu Arg Ala
115 120 125

Lys Ala Ile Asp Arg Lys Thr Gly Arg Gln Val Glu Pro Glu Ser Glu
130 135 140

Phe Ile Ile Lys Ile His Asp Ile Asn Asp Asn Glu Pro Lys Phe Thr
145 150 155 160

Lys Asp Leu Tyr Thr Ala Ser Val Pro Glu Met Ser Gly Val Gly Thr
165 170 175

Ser Val Ile Gln Val Thr Ala Thr Asp Ala Asp Asp Ala Asn Tyr Gly
180 185 190

Asn Ser Ala Lys Val Val Tyr Ser Ile Leu Gln Gly Gln Pro Tyr Phe
195 200 205

Ser Val Asp Pro Glu Ser Gly Ile Ile Lys Thr Ala Leu Pro Asp Met

```
    210                 215                 220

Ser Arg Glu Asn Arg Glu Gln Tyr Gln Val Val Ile Gln Ala Lys Asp
225                 230                 235                 240

Met Gly Gly Gln Met Gly Gly Leu Ser Gly Thr Thr Thr Val Asn Ile
                245                 250                 255

Thr Leu Thr Asp Val Asn Asn Asn Pro Pro Arg Phe Pro Gln Ser Thr
            260                 265                 270

Tyr Gln Phe Asn Ser Pro Glu Ser Val Pro Leu Gly Thr His Leu Gly
        275                 280                 285

Arg Ile Lys Ala Asn Asp Pro Asp Val Gly Glu Asn Ala Glu Met Glu
    290                 295                 300

Tyr Ser Ile Ala Glu Gly Asp Gly Ala Asp Met Phe Asp Val Ile Thr
305                 310                 315                 320

Asp Lys Asp Thr Gln Glu Gly Ile Ile Thr Val Lys Gln Asn Leu Asp
                325                 330                 335

Phe Glu Asn Gln Met Leu Tyr Thr Leu Arg Val Asp Ala Ser Asn Thr
            340                 345                 350

His Pro Asp Pro Arg Phe Leu His Leu Gly Pro Phe Lys Asp Thr Ala
        355                 360                 365

Val Val Lys Ile Ser Val Glu Asp Ile Asp Glu Pro Pro Val Phe Thr
    370                 375                 380

Lys Val Ser Tyr Leu Ile Glu Val Asp Glu Asp Val Lys Glu Gly Ser
385                 390                 395                 400

Ile Ile Gly Gln Val Thr Ala Tyr Asp Pro Asp Ala Arg Asn Asn Leu
                405                 410                 415

Ile Lys Tyr Ser Val Asp Arg His Thr Asp Met Asp Arg Ile Phe Gly
            420                 425                 430

Ile His Ser Glu Asn Gly Ser Ile Phe Thr Leu Lys Ala Leu Asp Arg
        435                 440                 445
```

```
Glu Ser Ser Pro Trp His Asn Ile Thr Val Thr Ala Thr Glu Ile Asn
    450                 455                 460

Asn Pro Lys Gln Ser Ser His Ile Pro Val Phe Ile Arg Ile Leu Asp
465                 470                 475                 480

Ile Asn Asp His Ala Pro Glu Phe Ala Met Tyr Tyr Glu Thr Phe Val
                485                 490                 495

Cys Glu Asn Ala Lys Pro Gly Gln Leu Ile Gln Thr Val Ser Val Met
            500                 505                 510

Asp Lys Asp Asp Pro Pro Arg Gly His Lys Phe Phe Phe Glu Pro Val
        515                 520                 525

Pro Glu Phe Thr Leu Asn Pro Asn Phe Thr Ile Val Asp Asn Lys Asp
    530                 535                 540

Asn Thr Ala Gly Ile Met Thr Arg Lys Asp Gly Tyr Ser Arg Asn Lys
545                 550                 555                 560

Met Ser Thr Tyr Leu Leu Pro Ile Leu Ile Phe Asp Asn Asp Tyr Pro
                565                 570                 575

Ile Gln Ser Ser Thr Gly Thr Leu Thr Ile Arg Val Cys Ala Cys Asp
            580                 585                 590

Asn Gln Gly Asn Met Gln Ser Cys Thr Ala Glu Ala Leu Ile Leu Ser
        595                 600                 605

Ala Gly Leu Ser Thr Gly Ala Leu Val Ala Ile Leu Leu Cys Val Leu
    610                 615                 620

Ile Leu Leu Ile Leu Val Val Leu Phe Ala Ala Leu Lys Arg Gln Arg
625                 630                 635                 640

Lys Lys Glu Pro Leu Ile Ile Ser Lys Asp Asp Val Arg Asp Asn Ile
                645                 650                 655

Val Thr Tyr Asn Asp Glu Gly Gly Gly Glu Glu Asp Thr Gln Ala Phe
            660                 665                 670
```

```
Asp Ile Gly Thr Leu Arg Asn Pro Glu Ala Arg Glu Asp Ser Lys Leu
        675                 680                 685

Arg Arg Asp Val Met Pro Glu Thr Ile Phe Gln Ile Arg Arg Thr Val
    690                 695                 700

Pro Leu Trp Glu Asn Ile Asp Val Gln Asp Phe Ile His Arg Arg Leu
705                 710                 715                 720

Lys Glu Asn Asp Ala Asp Pro Ser Ala Pro Pro Tyr Asp Ser Leu Ala
                725                 730                 735

Thr Tyr Ala Tyr Glu Gly Asn Asp Ser Ile Ala Asp Ser Leu Ser Ser
            740                 745                 750

Leu Glu Ser Leu Thr Ala Asp Cys Asn Gln Asp Tyr Asp Tyr Leu Ser
        755                 760                 765

Asp Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Met Tyr Gly Gly Asp
    770                 775                 780

Asp Ser Asp Arg Asp
785


<210> 10410
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2084; "

<220>
<221> source
<223> /note="Gene Symbol: CDH9; "

<220>
<221> source
<223> /note="Gene Name: cadherin 9, type 2 (T1-cadherin); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000422538"

<400> 10410
Met Arg Thr Tyr His Tyr Ile Pro Leu Phe Ile Trp Thr Tyr Met Phe
1               5                   10                  15
```

```
His Thr Val Asp Thr Ile Leu Leu Gln Glu Lys Pro Asn Ser Tyr Leu
            20                  25                  30

Ser Ser Lys Lys Ile Ala Gly Leu Thr Lys Asp Asp Gly Lys Met Leu
        35                  40                  45

Arg Arg Thr Lys Arg Gly Trp Met Trp Asn Gln Phe Phe Leu Leu Glu
    50                  55                  60

Glu Tyr Thr Gly Thr Asp Thr Gln Tyr Val Gly Lys Leu His Thr Asp
65                  70                  75                  80

Gln
```

<210> 10411
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2084; "

<220>
<221> source
<223> /note="Gene Symbol: CDH9; "

<220>
<221> source
<223> /note="Gene Name: cadherin 9, type 2 (T1-cadherin); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426239"

<400> 10411

```
Met Arg Thr Tyr His Tyr Ile Pro Leu Phe Ile Trp Thr Tyr Met Phe
1               5                   10                  15

His Thr Val Asp Thr Ile Leu Leu Gln Glu Lys Pro Asn Ser Tyr Leu
            20                  25                  30

Ser Ser Lys Lys Ile Ala Gly Leu Thr Lys Asp Asp Gly Lys Met Leu
        35                  40                  45

Arg Arg Thr Lys Arg Gly Trp Met Trp Asn Gln Phe Phe Leu Leu Glu
```

```
    50                  55                  60

Glu Tyr Thr Gly Thr Asp Thr Gln Tyr Val Gly Lys Leu His Thr Asp
65                  70                  75                  80

Gln Asp Lys Gly Asp Gly Asn Leu Lys Tyr Ile Leu Thr Gly Asp Gly
                85                  90                  95

Ala Gly Ser Leu Phe Val Ile Asp Glu Asn Thr Gly Asp Ile His Ala
            100                 105                 110

Ala Lys Lys Leu Asp Arg Glu Glu Lys Ser Leu Tyr Ile Leu Arg Ala
        115                 120                 125

Lys Ala Ile Asp
    130
```

<210> 10412
<211> 3014
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2085; "

<220>
<221> source
<223> /note="Gene Symbol: CELSR1; "

<220>
<221> source
<223> /note="Gene Name: cadherin, EGF LAG seven-pass G-type
receptor 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NYQ6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000262738"

<400> 10412

```
Met Ala Pro Pro Pro Pro Val Leu Pro Val Leu Leu Leu Leu Ala
1               5                   10                  15

Ala Ala Ala Ala Leu Pro Ala Met Gly Leu Arg Ala Ala Ala Trp Glu
            20                  25                  30
```

```
Pro Arg Val Pro Gly Gly Thr Arg Ala Phe Ala Leu Arg Pro Gly Cys
        35                  40                  45

Thr Tyr Ala Val Gly Ala Ala Cys Thr Pro Arg Ala Pro Arg Glu Leu
    50                  55                  60

Leu Asp Val Gly Arg Asp Gly Arg Leu Ala Gly Arg Arg Arg Val Ser
65                  70                  75                  80

Gly Ala Gly Arg Pro Leu Pro Leu Gln Val Arg Leu Val Ala Arg Ser
                85                  90                  95

Ala Pro Thr Ala Leu Ser Arg Arg Leu Arg Ala Arg Thr His Leu Pro
            100                 105                 110

Gly Cys Gly Ala Arg Ala Arg Leu Cys Gly Thr Gly Ala Arg Leu Cys
        115                 120                 125

Gly Ala Leu Cys Phe Pro Val Pro Gly Gly Cys Ala Ala Ala Gln His
    130                 135                 140

Ser Ala Leu Ala Ala Pro Thr Thr Leu Pro Ala Cys Arg Cys Pro Pro
145                 150                 155                 160

Arg Pro Arg Pro Arg Cys Pro Gly Arg Pro Ile Cys Leu Pro Pro Gly
                165                 170                 175

Gly Ser Val Arg Leu Arg Leu Leu Cys Ala Leu Arg Arg Ala Ala Gly
            180                 185                 190

Ala Val Arg Val Gly Leu Ala Leu Glu Ala Ala Thr Ala Gly Thr Pro
        195                 200                 205

Ser Ala Ser Pro Ser Pro Ser Pro Pro Leu Pro Pro Asn Leu Pro Glu
    210                 215                 220

Ala Arg Ala Gly Pro Ala Arg Arg Ala Arg Arg Gly Thr Ser Gly Arg
225                 230                 235                 240

Gly Ser Leu Lys Phe Pro Met Pro Asn Tyr Gln Val Ala Leu Phe Glu
                245                 250                 255
```

```
Asn Glu Pro Ala Gly Thr Leu Ile Leu Gln Leu His Ala His Tyr Thr
            260                 265                 270

Ile Glu Gly Glu Glu Glu Arg Val Ser Tyr Tyr Met Glu Gly Leu Phe
        275                 280                 285

Asp Glu Arg Ser Arg Gly Tyr Phe Arg Ile Asp Ser Ala Thr Gly Ala
    290                 295                 300

Val Ser Thr Asp Ser Val Leu Asp Arg Glu Thr Lys Glu Thr His Val
305                 310                 315                 320

Leu Arg Val Lys Ala Val Asp Tyr Ser Thr Pro Pro Arg Ser Ala Thr
                325                 330                 335

Thr Tyr Ile Thr Val Leu Val Lys Asp Thr Asn Asp His Ser Pro Val
            340                 345                 350

Phe Glu Gln Ser Glu Tyr Arg Glu Arg Val Arg Glu Asn Leu Glu Val
        355                 360                 365

Gly Tyr Glu Val Leu Thr Ile Arg Ala Ser Asp Arg Asp Ser Pro Ile
    370                 375                 380

Asn Ala Asn Leu Arg Tyr Arg Val Leu Gly Gly Ala Trp Asp Val Phe
385                 390                 395                 400

Gln Leu Asn Glu Ser Ser Gly Val Val Ser Thr Arg Ala Val Leu Asp
                405                 410                 415

Arg Glu Glu Ala Ala Glu Tyr Gln Leu Leu Val Glu Ala Asn Asp Gln
            420                 425                 430

Gly Arg Asn Pro Gly Pro Leu Ser Ala Thr Ala Thr Val Tyr Ile Glu
        435                 440                 445

Val Glu Asp Glu Asn Asp Asn Tyr Pro Gln Phe Ser Glu Gln Asn Tyr
    450                 455                 460

Val Val Gln Val Pro Glu Asp Val Gly Leu Asn Thr Ala Val Leu Arg
465                 470                 475                 480

Val Gln Ala Thr Asp Arg Asp Gln Gly Gln Asn Ala Ala Ile His Tyr
```

485 490 495

Ser Ile Leu Ser Gly Asn Val Ala Gly Gln Phe Tyr Leu His Ser Leu
500 505 510

Ser Gly Ile Leu Asp Val Ile Asn Pro Leu Asp Phe Glu Asp Val Gln
515 520 525

Lys Tyr Ser Leu Ser Ile Lys Ala Gln Asp Gly Gly Arg Pro Pro Leu
530 535 540

Ile Asn Ser Ser Gly Val Val Ser Val Gln Val Leu Asp Val Asn Asp
545 550 555 560

Asn Glu Pro Ile Phe Val Ser Ser Pro Phe Gln Ala Thr Val Leu Glu
565 570 575

Asn Val Pro Leu Gly Tyr Pro Val Val His Ile Gln Ala Val Asp Ala
580 585 590

Asp Ser Gly Glu Asn Ala Arg Leu His Tyr Arg Leu Val Asp Thr Ala
595 600 605

Ser Thr Phe Leu Gly Gly Gly Ser Ala Gly Pro Lys Asn Pro Ala Pro
610 615 620

Thr Pro Asp Phe Pro Phe Gln Ile His Asn Ser Ser Gly Trp Ile Thr
625 630 635 640

Val Cys Ala Glu Leu Asp Arg Glu Glu Val Glu His Tyr Ser Phe Gly
645 650 655

Val Glu Ala Val Asp His Gly Ser Pro Pro Met Ser Ser Ser Thr Ser
660 665 670

Val Ser Ile Thr Val Leu Asp Val Asn Asp Asn Asp Pro Val Phe Thr
675 680 685

Gln Pro Thr Tyr Glu Leu Arg Leu Asn Glu Asp Ala Ala Val Gly Ser
690 695 700

Ser Val Leu Thr Leu Gln Ala Arg Asp Arg Asp Ala Asn Ser Val Ile
705 710 715 720

```
Thr Tyr Gln Leu Thr Gly Gly Asn Thr Arg Asn Arg Phe Ala Leu Ser
                725                 730                 735

Ser Gln Arg Gly Gly Gly Leu Ile Thr Leu Ala Leu Pro Leu Asp Tyr
            740                 745                 750

Lys Gln Glu Gln Gln Tyr Val Leu Ala Val Thr Ala Ser Asp Gly Thr
        755                 760                 765

Arg Ser His Thr Ala His Val Leu Ile Asn Val Thr Asp Ala Asn Thr
    770                 775                 780

His Arg Pro Val Phe Gln Ser Ser His Tyr Thr Val Ser Val Ser Glu
785                 790                 795                 800

Asp Arg Pro Val Gly Thr Ser Ile Ala Thr Leu Ser Ala Asn Asp Glu
                805                 810                 815

Asp Thr Gly Glu Asn Ala Arg Ile Thr Tyr Val Ile Gln Asp Pro Val
            820                 825                 830

Pro Gln Phe Arg Ile Asp Pro Asp Ser Gly Thr Met Tyr Thr Met Met
        835                 840                 845

Glu Leu Asp Tyr Glu Asn Gln Val Ala Tyr Thr Leu Thr Ile Met Ala
    850                 855                 860

Gln Asp Asn Gly Ile Pro Gln Lys Ser Asp Thr Thr Thr Leu Glu Ile
865                 870                 875                 880

Leu Ile Leu Asp Ala Asn Asp Asn Ala Pro Gln Phe Leu Trp Asp Phe
                885                 890                 895

Tyr Gln Gly Ser Ile Phe Glu Asp Ala Pro Pro Ser Thr Ser Ile Leu
            900                 905                 910

Gln Val Ser Ala Thr Asp Arg Asp Ser Gly Pro Asn Gly Arg Leu Leu
        915                 920                 925

Tyr Thr Phe Gln Gly Gly Asp Asp Gly Asp Gly Asp Phe Tyr Ile Glu
    930                 935                 940
```

```
Pro Thr Ser Gly Val Ile Arg Thr Gln Arg Arg Leu Asp Arg Glu Asn
945                 950                 955                 960

Val Ala Val Tyr Asn Leu Trp Ala Leu Ala Val Asp Arg Gly Ser Pro
                965                 970                 975

Thr Pro Leu Ser Ala Ser Val Glu Ile Gln Val Thr Ile Leu Asp Ile
            980                 985                 990

Asn Asp Asn Ala Pro Met Phe Glu  Lys Asp Glu Leu Glu  Leu Phe
Val
        995                 1000                1005

Glu Glu  Asn Asn Pro Val Gly  Ser Val Val Ala Lys  Ile Arg Ala
    1010                1015                1020

Asn Asp  Pro Asp Glu Gly Pro  Asn Ala Gln Ile Met  Tyr Gln Ile
    1025                1030                1035

Val Glu  Gly Asp Met Arg His  Phe Phe Gln Leu Asp  Leu Leu Asn
    1040                1045                1050

Gly Asp  Leu Arg Ala Met Val  Glu Leu Asp Phe Glu  Val Arg Arg
    1055                1060                1065

Glu Tyr  Val Leu Val Val Gln  Ala Thr Ser Ala Pro  Leu Val Ser
    1070                1075                1080

Arg Ala  Thr Val His Ile Leu  Leu Val Asp Gln Asn  Asp Asn Pro
    1085                1090                1095

Pro Val  Leu Pro Asp Phe Gln  Ile Leu Phe Asn Asn  Tyr Val Thr
    1100                1105                1110

Asn Lys  Ser Asn Ser Phe Pro  Thr Gly Val Ile Gly  Cys Ile Pro
    1115                1120                1125

Ala His  Asp Pro Asp Val Ser  Asp Ser Leu Asn Tyr  Thr Phe Val
    1130                1135                1140

Gln Gly  Asn Glu Leu Arg Leu  Leu Leu Leu Asp Pro  Ala Thr Gly
    1145                1150                1155
```

```
Glu Leu  Gln Leu Ser Arg Asp  Leu Asp Asn Asn Arg  Pro Leu Glu
    1160                1165                1170

Ala Leu  Met Glu Val Ser Val  Ser Asp Gly Ile His  Ser Val Thr
    1175                1180                1185

Ala Phe  Cys Thr Leu Arg Val  Thr Ile Ile Thr Asp  Asp Met Leu
    1190                1195                1200

Thr Asn  Ser Ile Thr Val Arg  Leu Glu Asn Met Ser  Gln Glu Lys
    1205                1210                1215

Phe Leu  Ser Pro Leu Leu Ala  Leu Phe Val Glu Gly  Val Ala Ala
    1220                1225                1230

Val Leu  Ser Thr Thr Lys Asp  Asp Val Phe Val Phe  Asn Val Gln
    1235                1240                1245

Asn Asp  Thr Asp Val Ser Ser  Asn Ile Leu Asn Val  Thr Phe Ser
    1250                1255                1260

Ala Leu  Leu Pro Gly Gly Val  Arg Gly Gln Phe Phe  Pro Ser Glu
    1265                1270                1275

Asp Leu  Gln Glu Gln Ile Tyr  Leu Asn Arg Thr Leu  Leu Thr Thr
    1280                1285                1290

Ile Ser  Thr Gln Arg Val Leu  Pro Phe Asp Asp Asn  Ile Cys Leu
    1295                1300                1305

Arg Glu  Pro Cys Glu Asn Tyr  Met Lys Cys Val Ser  Val Leu Arg
    1310                1315                1320

Phe Asp  Ser Ser Ala Pro Phe  Leu Ser Ser Thr Thr  Val Leu Phe
    1325                1330                1335

Arg Pro  Ile His Pro Ile Asn  Gly Leu Arg Cys Arg  Cys Pro Pro
    1340                1345                1350

Gly Phe  Thr Gly Asp Tyr Cys  Glu Thr Glu Ile Asp  Leu Cys Tyr
    1355                1360                1365
```

```
Ser Asp  Pro Cys Gly Ala Asn  Gly Arg Cys Arg Ser  Arg Glu Gly
    1370                1375                1380

Gly Tyr  Thr Cys Glu Cys Phe  Glu Asp Phe Thr Gly  Glu His Cys
    1385                1390                1395

Glu Val  Asp Ala Arg Ser Gly  Arg Cys Ala Asn Gly  Val Cys Lys
    1400                1405                1410

Asn Gly  Gly Thr Cys Val Asn  Leu Leu Ile Gly Gly  Phe His Cys
    1415                1420                1425

Val Cys  Pro Pro Gly Glu Tyr  Glu Arg Pro Tyr Cys  Glu Val Thr
    1430                1435                1440

Thr Arg  Ser Phe Pro Pro Gln  Ser Phe Val Thr Phe  Arg Gly Leu
    1445                1450                1455

Arg Gln  Arg Phe His Phe Thr  Ile Ser Leu Thr Phe  Ala Thr Gln
    1460                1465                1470

Glu Arg  Asn Gly Leu Leu Leu  Tyr Asn Gly Arg Phe  Asn Glu Lys
    1475                1480                1485

His Asp  Phe Ile Ala Leu Glu  Ile Val Asp Glu Gln  Val Gln Leu
    1490                1495                1500

Thr Phe  Ser Ala Gly Glu Thr  Thr Thr Thr Val Ala  Pro Lys Val
    1505                1510                1515

Pro Ser  Gly Val Ser Asp Gly  Arg Trp His Ser Val  Gln Val Gln
    1520                1525                1530

Tyr Tyr  Asn Lys Pro Asn Ile  Gly His Leu Gly Leu  Pro His Gly
    1535                1540                1545

Pro Ser  Gly Glu Lys Met Ala  Val Val Thr Val Asp  Asp Cys Asp
    1550                1555                1560

Thr Thr  Met Ala Val Arg Phe  Gly Lys Asp Ile Gly  Asn Tyr Ser
    1565                1570                1575

Cys Ala  Ala Gln Gly Thr Gln  Thr Gly Ser Lys Lys  Ser Leu Asp
```

1580 1585 1590

Leu Thr Gly Pro Leu Leu Leu Gly Gly Val Pro Asn Leu Pro Glu
1595 1600 1605

Asp Phe Pro Val His Asn Arg Gln Phe Val Gly Cys Met Arg Asn
1610 1615 1620

Leu Ser Val Asp Gly Lys Asn Val Asp Met Ala Gly Phe Ile Ala
1625 1630 1635

Asn Asn Gly Thr Arg Glu Gly Cys Ala Ala Arg Arg Asn Phe Cys
1640 1645 1650

Asp Gly Arg Arg Cys Gln Asn Gly Gly Thr Cys Val Asn Arg Trp
1655 1660 1665

Asn Met Tyr Leu Cys Glu Cys Pro Leu Arg Phe Gly Gly Lys Asn
1670 1675 1680

Cys Glu Gln Ala Met Pro His Pro Gln Leu Phe Ser Gly Glu Ser
1685 1690 1695

Val Val Ser Trp Ser Asp Leu Asn Ile Ile Ile Ser Val Pro Trp
1700 1705 1710

Tyr Leu Gly Leu Met Phe Arg Thr Arg Lys Glu Asp Ser Val Leu
1715 1720 1725

Met Glu Ala Thr Ser Gly Gly Pro Thr Ser Phe Arg Leu Gln Ile
1730 1735 1740

Leu Asn Asn Tyr Leu Gln Phe Glu Val Ser His Gly Pro Ser Asp
1745 1750 1755

Val Glu Ser Val Met Leu Ser Gly Leu Arg Val Thr Asp Gly Glu
1760 1765 1770

Trp His His Leu Leu Ile Glu Leu Lys Asn Val Lys Glu Asp Ser
1775 1780 1785

Glu Met Lys His Leu Val Thr Met Thr Leu Asp Tyr Gly Met Asp
1790 1795 1800

```
Gln Asn  Lys Ala Asp Ile Gly  Gly Met Leu Pro Gly  Leu Thr Val
    1805                 1810                 1815

Arg Ser  Val Val Val Gly Gly  Ala Ser Glu Asp Lys  Val Ser Val
    1820                 1825                 1830

Arg Arg  Gly Phe Arg Gly Cys  Met Gln Gly Val Arg  Met Gly Gly
    1835                 1840                 1845

Thr Pro  Thr Asn Val Ala Thr  Leu Asn Met Asn Asn  Ala Leu Lys
    1850                 1855                 1860

Val Arg  Val Lys Asp Gly Cys  Asp Val Asp Asp Pro  Cys Thr Ser
    1865                 1870                 1875

Ser Pro  Cys Pro Pro Asn Ser  Arg Cys His Asp Ala  Trp Glu Asp
    1880                 1885                 1890

Tyr Ser  Cys Val Cys Asp Lys  Gly Tyr Leu Gly Ile  Asn Cys Val
    1895                 1900                 1905

Asp Ala  Cys His Leu Asn Pro  Cys Glu Asn Met Gly  Ala Cys Val
    1910                 1915                 1920

Arg Ser  Pro Gly Ser Pro Gln  Gly Tyr Val Cys Glu  Cys Gly Pro
    1925                 1930                 1935

Ser His  Tyr Gly Pro Tyr Cys  Glu Asn Lys Leu Asp  Leu Pro Cys
    1940                 1945                 1950

Pro Arg  Gly Trp Trp Gly Asn  Pro Val Cys Gly Pro  Cys His Cys
    1955                 1960                 1965

Ala Val  Ser Lys Gly Phe Asp  Pro Asp Cys Asn Lys  Thr Asn Gly
    1970                 1975                 1980

Gln Cys  Gln Cys Lys Glu Asn  Tyr Tyr Lys Leu Leu  Ala Gln Asp
    1985                 1990                 1995

Thr Cys  Leu Pro Cys Asp Cys  Phe Pro His Gly Ser  His Ser Arg
    2000                 2005                 2010
```

Thr Cys Asp Met Ala Thr Gly Gln Cys Ala Cys Lys Pro Gly Val
2015 2020 2025

Ile Gly Arg Gln Cys Asn Arg Cys Asp Asn Pro Phe Ala Glu Val
2030 2035 2040

Thr Thr Leu Gly Cys Glu Val Ile Tyr Asn Gly Cys Pro Lys Ala
2045 2050 2055

Phe Glu Ala Gly Ile Trp Trp Pro Gln Thr Lys Phe Gly Gln Pro
2060 2065 2070

Ala Ala Val Pro Cys Pro Lys Gly Ser Val Gly Asn Ala Val Arg
2075 2080 2085

His Cys Ser Gly Glu Lys Gly Trp Leu Pro Pro Glu Leu Phe Asn
2090 2095 2100

Cys Thr Thr Ile Ser Phe Val Asp Leu Arg Ala Met Asn Glu Lys
2105 2110 2115

Leu Ser Arg Asn Glu Thr Gln Val Asp Gly Ala Arg Ala Leu Gln
2120 2125 2130

Leu Val Arg Ala Leu Arg Ser Ala Thr Gln His Thr Gly Thr Leu
2135 2140 2145

Phe Gly Asn Asp Val Arg Thr Ala Tyr Gln Leu Leu Gly His Val
2150 2155 2160

Leu Gln His Glu Ser Trp Gln Gln Gly Phe Asp Leu Ala Ala Thr
2165 2170 2175

Gln Asp Ala Asp Phe His Glu Asp Val Ile His Ser Gly Ser Ala
2180 2185 2190

Leu Leu Ala Pro Ala Thr Arg Ala Ala Trp Glu Gln Ile Gln Arg
2195 2200 2205

Ser Glu Gly Gly Thr Ala Gln Leu Leu Arg Arg Leu Glu Gly Tyr
2210 2215 2220

Phe Ser Asn Val Ala Arg Asn Val Arg Arg Thr Tyr Leu Arg Pro
2225 2230 2235

Phe Val Ile Val Thr Ala Asn Met Ile Leu Ala Val Asp Ile Phe
2240 2245 2250

Asp Lys Phe Asn Phe Thr Gly Ala Arg Val Pro Arg Phe Asp Thr
2255 2260 2265

Ile His Glu Glu Phe Pro Arg Glu Leu Glu Ser Ser Val Ser Phe
2270 2275 2280

Pro Ala Asp Phe Phe Arg Pro Pro Glu Glu Lys Glu Gly Pro Leu
2285 2290 2295

Leu Arg Pro Ala Gly Arg Arg Thr Thr Pro Gln Thr Thr Arg Pro
2300 2305 2310

Gly Pro Gly Thr Glu Arg Glu Ala Pro Ile Ser Arg Arg Arg Arg
2315 2320 2325

His Pro Asp Asp Ala Gly Gln Phe Ala Val Ala Leu Val Ile Ile
2330 2335 2340

Tyr Arg Thr Leu Gly Gln Leu Leu Pro Glu Arg Tyr Asp Pro Asp
2345 2350 2355

Arg Arg Ser Leu Arg Leu Pro His Arg Pro Ile Ile Asn Thr Pro
2360 2365 2370

Met Val Ser Thr Leu Val Tyr Ser Glu Gly Ala Pro Leu Pro Arg
2375 2380 2385

Pro Leu Glu Arg Pro Val Leu Val Glu Phe Ala Leu Leu Glu Val
2390 2395 2400

Glu Glu Arg Thr Lys Pro Val Cys Val Phe Trp Asn His Ser Leu
2405 2410 2415

Ala Val Gly Gly Thr Gly Gly Trp Ser Ala Arg Gly Cys Glu Leu
2420 2425 2430

Leu Ser Arg Asn Arg Thr His Val Ala Cys Gln Cys Ser His Thr

2435 2440 2445

Ala Ser Phe Ala Val Leu Met Asp Ile Ser Arg Arg Glu Asn Gly
2450 2455 2460

Glu Val Leu Pro Leu Lys Ile Val Thr Tyr Ala Ala Val Ser Leu
2465 2470 2475

Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Leu Ser Leu Val
2480 2485 2490

Arg Met Leu Arg Ser Asn Leu His Ser Ile His Lys His Leu Ala
2495 2500 2505

Val Ala Leu Phe Leu Ser Gln Leu Val Phe Val Ile Gly Ile Asn
2510 2515 2520

Gln Thr Glu Asn Pro Phe Leu Cys Thr Val Val Ala Ile Leu Leu
2525 2530 2535

His Tyr Ile Tyr Met Ser Thr Phe Ala Trp Thr Leu Val Glu Ser
2540 2545 2550

Leu His Val Tyr Arg Met Leu Thr Glu Val Arg Asn Ile Asp Thr
2555 2560 2565

Gly Pro Met Arg Phe Tyr Tyr Val Val Gly Trp Gly Ile Pro Ala
2570 2575 2580

Ile Val Thr Gly Leu Ala Val Gly Leu Asp Pro Gln Gly Tyr Gly
2585 2590 2595

Asn Pro Asp Phe Cys Trp Leu Ser Leu Gln Asp Thr Leu Ile Trp
2600 2605 2610

Ser Phe Ala Gly Pro Ile Gly Ala Val Ile Ile Ile Asn Thr Val
2615 2620 2625

Thr Ser Val Leu Ser Ala Lys Val Ser Cys Gln Arg Lys His His
2630 2635 2640

Tyr Tyr Gly Lys Lys Gly Ile Val Ser Leu Leu Arg Thr Ala Phe
2645 2650 2655

```
Leu Leu  Leu Leu Leu Ile Ser  Ala Thr Trp Leu Leu  Gly Leu Leu
    2660                2665                2670

Ala Val  Asn Arg Asp Ala Leu  Ser Phe His Tyr Leu  Phe Ala Ile
    2675                2680                2685

Phe Ser  Gly Leu Gln Gly Pro  Phe Val Leu Leu Phe  His Cys Val
    2690                2695                2700

Leu Asn  Gln Glu Val Arg Lys  His Leu Lys Gly Val  Leu Gly Gly
    2705                2710                2715

Arg Lys  Leu His Leu Glu Asp  Ser Ala Thr Thr Arg  Ala Thr Leu
    2720                2725                2730

Leu Thr  Arg Ser Leu Asn Cys  Asn Thr Thr Phe Gly  Asp Gly Pro
    2735                2740                2745

Asp Met  Leu Arg Thr Asp Leu  Gly Glu Ser Thr Ala  Ser Leu Asp
    2750                2755                2760

Ser Ile  Val Arg Asp Glu Gly  Ile Gln Lys Leu Gly  Val Ser Ser
    2765                2770                2775

Gly Leu  Val Arg Gly Ser His  Gly Glu Pro Asp Ala  Ser Leu Met
    2780                2785                2790

Pro Arg  Ser Cys Lys Asp Pro  Pro Gly His Asp Ser  Asp Ser Asp
    2795                2800                2805

Ser Glu  Leu Ser Leu Asp Glu  Gln Ser Ser Ser Tyr  Ala Ser Ser
    2810                2815                2820

His Ser  Ser Asp Ser Glu Asp  Asp Gly Val Gly Ala  Glu Glu Lys
    2825                2830                2835

Trp Asp  Pro Ala Arg Gly Ala  Val His Ser Thr Pro  Lys Gly Asp
    2840                2845                2850

Ala Val  Ala Asn His Val Pro  Ala Gly Trp Pro Asp  Gln Ser Leu
    2855                2860                2865
```

```
Ala Glu  Ser Asp Ser Glu Asp  Pro Ser Gly Lys Pro  Arg Leu Lys
    2870                2875                2880

Val Glu  Thr Lys Val Ser Val  Glu Leu His Arg Glu  Glu Gln Gly
    2885                2890                2895

Ser His  Arg Gly Glu Tyr Pro  Pro Asp Gln Glu Ser  Gly Gly Ala
    2900                2905                2910

Ala Arg  Leu Ala Ser Ser Gln  Pro Pro Glu Gln Arg  Lys Gly Ile
    2915                2920                2925

Leu Lys  Asn Lys Val Thr Tyr  Pro Pro Pro Leu Thr  Leu Thr Glu
    2930                2935                2940

Gln Thr  Leu Lys Gly Arg Leu  Arg Glu Lys Leu Ala  Asp Cys Glu
    2945                2950                2955

Gln Ser  Pro Thr Ser Ser Arg  Thr Ser Ser Leu Gly  Ser Gly Gly
    2960                2965                2970

Pro Asp  Cys Ala Ile Thr Val  Lys Ser Pro Gly Arg  Glu Pro Gly
    2975                2980                2985

Arg Asp  His Leu Asn Gly Val  Ala Met Asn Val Arg  Thr Gly Ser
    2990                2995                3000

Ala Gln  Ala Asp Gly Ser Asp  Ser Glu Lys Pro
    3005                3010
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<210> 10413
<211> 772
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<213> Homo sapiens

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<223> /note="Gene Name: cadherin, EGF LAG seven-pass G-type

receptor 1; "

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<221> MOD_RES
<222> (1)..(1)
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<400> 10413

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Xaa Asp Phe Pro Phe Gln Ile His Asn Ser Ser Gly Trp Ile Thr Val
1               5                  10                  15

Cys Ala Glu Leu Asp Arg Glu Glu Val Glu His Tyr Ser Phe Gly Val
            20                  25                  30

Glu Ala Val Asp His Gly Ser Pro Pro Met Ser Ser Ser Thr Ser Val
        35                  40                  45

Ser Ile Thr Val Leu Asp Val Asn Asp Asn Asp Pro Val Phe Thr Gln
    50                  55                  60

Pro Thr Tyr Glu Leu Arg Leu Asn Glu Asp Ala Ala Val Gly Ser Ser
65                  70                  75                  80

Val Leu Thr Leu Gln Ala Arg Asp Arg Asp Ala Asn Ser Val Ile Thr
                85                  90                  95

Tyr Gln Leu Thr Gly Gly Asn Thr Arg Asn Arg Phe Ala Leu Ser Ser
            100                 105                 110

Gln Arg Gly Gly Gly Leu Ile Thr Leu Ala Leu Pro Leu Asp Tyr Lys
        115                 120                 125

Gln Glu Gln Gln Tyr Val Leu Ala Val Thr Ala Ser Asp Gly Thr Arg
    130                 135                 140

Ser His Thr Ala His Val Leu Ile Asn Val Thr Asp Ala Asn Thr His
145                 150                 155                 160

Arg Pro Val Phe Gln Ser Ser His Tyr Thr Val Ser Val Ser Glu Asp
                165                 170                 175
```

```
Arg Pro Val Gly Thr Ser Ile Ala Thr Leu Ser Ala Asn Asp Glu Asp
            180                 185                 190

Thr Gly Glu Asn Ala Arg Ile Thr Tyr Val Ile Gln Asp Pro Val Pro
        195                 200                 205

Gln Phe Arg Ile Asp Pro Asp Ser Gly Thr Met Tyr Thr Met Met Glu
    210                 215                 220

Leu Asp Tyr Glu Asn Gln Val Ala Tyr Thr Leu Thr Ile Met Ala Gln
225                 230                 235                 240

Asp Asn Gly Ile Pro Gln Lys Ser Asp Thr Thr Thr Leu Glu Ile Leu
                245                 250                 255

Ile Leu Asp Ala Asn Asp Asn Ala Pro Gln Phe Leu Trp Asp Phe Tyr
            260                 265                 270

Gln Gly Ser Ile Phe Glu Asp Ala Pro Pro Ser Thr Ser Ile Leu Gln
        275                 280                 285

Val Ser Ala Thr Asp Arg Asp Ser Gly Pro Asn Gly Arg Leu Leu Tyr
    290                 295                 300

Thr Phe Gln Gly Gly Asp Asp Gly Asp Gly Asp Phe Tyr Ile Glu Pro
305                 310                 315                 320

Thr Ser Gly Val Ile Arg Thr Gln Arg Arg Leu Asp Arg Glu Asn Val
                325                 330                 335

Ala Val Tyr Asn Leu Trp Ala Leu Ala Val Asp Arg Gly Ser Pro Thr
            340                 345                 350

Pro Leu Ser Ala Ser Val Glu Ile Gln Val Thr Ile Leu Asp Ile Asn
        355                 360                 365

Asp Asn Ala Pro Met Phe Glu Lys Asp Glu Leu Glu Leu Phe Val Glu
    370                 375                 380

Glu Asn Asn Pro Val Gly Ser Val Val Ala Lys Ile Arg Ala Asn Asp
385                 390                 395                 400

Pro Asp Glu Gly Pro Asn Ala Gln Ile Met Tyr Gln Ile Val Glu Gly
```

```
                405                 410                 415

Asp Met Arg His Phe Phe Gln Leu Asp Leu Leu Asn Gly Asp Leu Arg
            420                 425                 430

Ala Met Val Glu Leu Asp Phe Glu Val Arg Arg Glu Tyr Val Leu Val
        435                 440                 445

Val Gln Ala Thr Ser Ala Pro Leu Val Ser Arg Ala Thr Val His Ile
    450                 455                 460

Leu Leu Val Asp Gln Asn Asp Asn Pro Pro Val Leu Pro Asp Phe Gln
465                 470                 475                 480

Ile Leu Phe Asn Asn Tyr Val Thr Asn Lys Ser Asn Ser Phe Pro Thr
                485                 490                 495

Gly Val Ile Gly Cys Ile Pro Ala His Asp Pro Asp Val Ser Asp Ser
            500                 505                 510

Leu Asn Tyr Thr Phe Val Gln Gly Asn Glu Leu Arg Leu Leu Leu Leu
        515                 520                 525

Asp Pro Ala Thr Gly Glu Leu Gln Leu Ser Arg Asp Leu Asp Asn Asn
    530                 535                 540

Arg Pro Leu Glu Ala Leu Met Glu Val Ser Val Ser Asp Gly Ile His
545                 550                 555                 560

Ser Val Thr Ala Phe Cys Thr Leu Arg Val Thr Ile Ile Thr Asp Asp
                565                 570                 575

Met Leu Thr Asn Ser Ile Thr Val Arg Leu Glu Asn Met Ser Gln Glu
            580                 585                 590

Lys Phe Leu Ser Pro Leu Leu Ala Leu Phe Val Glu Gly Val Ala Ala
        595                 600                 605

Val Leu Ser Thr Thr Lys Asp Asp Val Phe Val Phe Asn Val Gln Asn
    610                 615                 620

Asp Thr Asp Val Ser Ser Asn Ile Leu Asn Val Thr Phe Ser Ala Leu
625                 630                 635                 640
```

```
Leu Pro Gly Gly Val Arg Gly Gln Phe Phe Pro Ser Glu Asp Leu Gln
                645                 650                 655

Glu Gln Ile Tyr Leu Asn Arg Thr Leu Leu Thr Thr Ile Ser Thr Gln
            660                 665                 670

Arg Val Leu Pro Phe Asp Asp Asn Ile Cys Leu Arg Glu Pro Cys Glu
        675                 680                 685

Asn Tyr Met Lys Cys Val Ser Val Leu Arg Phe Asp Ser Ser Ala Pro
    690                 695                 700

Phe Leu Ser Ser Thr Thr Val Leu Phe Arg Pro Ile His Pro Ile Asn
705                 710                 715                 720

Gly Leu Arg Cys Arg Cys Pro Pro Gly Phe Thr Gly Asp Tyr Cys Glu
                725                 730                 735

Thr Glu Ile Asp Leu Cys Tyr Ser Asp Pro Cys Gly Ala Asn Gly Arg
            740                 745                 750

Cys Arg Ser Arg Glu Gly Gly Tyr Thr Cys Glu Cys Phe Glu Asp Phe
        755                 760                 765

Thr Glu Ile Ser
    770
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<210> 10414
<211> 2923
<212> PRT
<213> Homo sapiens

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receptor 2; "

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<400> 10414

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Met Arg Ser Pro Ala Thr Gly Val Pro Leu Pro Thr Pro Pro Pro Pro
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Leu Leu Leu Leu Leu Leu Leu Leu Leu Pro Pro Pro Leu Leu Gly Asp
            20                  25                  30

Gln Val Gly Pro Cys Arg Ser Leu Gly Ser Arg Gly Arg Gly Ser Ser
        35                  40                  45

Gly Ala Cys Ala Pro Met Gly Trp Leu Cys Pro Ser Ser Ala Ser Asn
    50                  55                  60

Leu Trp Leu Tyr Thr Ser Arg Cys Arg Asp Ala Gly Thr Glu Leu Thr
65                  70                  75                  80

Gly His Leu Val Pro His His Asp Gly Leu Arg Val Trp Cys Pro Glu
                85                  90                  95

Ser Glu Ala His Ile Pro Leu Pro Pro Ala Pro Glu Gly Cys Pro Trp
            100                 105                 110

Ser Cys Arg Leu Leu Gly Ile Gly Gly His Leu Ser Pro Gln Gly Lys
        115                 120                 125

Leu Thr Leu Pro Glu Glu His Pro Cys Leu Lys Ala Pro Arg Leu Arg
    130                 135                 140

Cys Gln Ser Cys Lys Leu Ala Gln Ala Pro Gly Leu Arg Ala Gly Glu
145                 150                 155                 160

Arg Ser Pro Glu Glu Ser Leu Gly Gly Arg Arg Lys Arg Asn Val Asn
                165                 170                 175

Thr Ala Pro Gln Phe Gln Pro Pro Ser Tyr Gln Ala Thr Val Pro Glu
            180                 185                 190

Asn Gln Pro Ala Gly Thr Pro Val Ala Ser Leu Arg Ala Ile Asp Pro
```

```
        195                 200                 205

Asp Glu Gly Glu Ala Gly Arg Leu Glu Tyr Thr Met Asp Ala Leu Phe
    210                 215                 220

Asp Ser Arg Ser Asn Gln Phe Phe Ser Leu Asp Pro Val Thr Gly Ala
225                 230                 235                 240

Val Thr Thr Ala Glu Glu Leu Asp Arg Glu Thr Lys Ser Thr His Val
                245                 250                 255

Phe Arg Val Thr Ala Gln Asp His Gly Met Pro Arg Arg Ser Ala Leu
            260                 265                 270

Ala Thr Leu Thr Ile Leu Val Thr Asp Thr Asn Asp His Asp Pro Val
        275                 280                 285

Phe Glu Gln Gln Glu Tyr Lys Glu Ser Leu Arg Glu Asn Leu Glu Val
    290                 295                 300

Gly Tyr Glu Val Leu Thr Val Arg Ala Thr Asp Gly Asp Ala Pro Pro
305                 310                 315                 320

Asn Ala Asn Ile Leu Tyr Arg Leu Leu Glu Gly Ser Gly Gly Ser Pro
                325                 330                 335

Ser Glu Val Phe Glu Ile Asp Pro Arg Ser Gly Val Ile Arg Thr Arg
            340                 345                 350

Gly Pro Val Asp Arg Glu Glu Val Glu Ser Tyr Gln Leu Thr Val Glu
        355                 360                 365

Ala Ser Asp Gln Gly Arg Asp Pro Gly Pro Arg Ser Thr Thr Ala Ala
    370                 375                 380

Val Phe Leu Ser Val Glu Asp Asp Asn Asp Asn Ala Pro Gln Phe Ser
385                 390                 395                 400

Glu Lys Arg Tyr Val Val Gln Val Arg Glu Asp Val Thr Pro Gly Ala
                405                 410                 415

Pro Val Leu Arg Val Thr Ala Ser Asp Arg Asp Lys Gly Ser Asn Ala
            420                 425                 430
```

```
Val Val His Tyr Ser Ile Met Ser Gly Asn Ala Arg Gly Gln Phe Tyr
        435                 440                 445

Leu Asp Ala Gln Thr Gly Ala Leu Asp Val Val Ser Pro Leu Asp Tyr
    450                 455                 460

Glu Thr Thr Lys Glu Tyr Thr Leu Arg Val Arg Ala Gln Asp Gly Gly
465                 470                 475                 480

Arg Pro Pro Leu Ser Asn Val Ser Gly Leu Val Thr Val Gln Val Leu
                485                 490                 495

Asp Ile Asn Asp Asn Ala Pro Ile Phe Val Ser Thr Pro Phe Gln Ala
            500                 505                 510

Thr Val Leu Glu Ser Val Pro Leu Gly Tyr Leu Val Leu His Val Gln
        515                 520                 525

Ala Ile Asp Ala Asp Ala Gly Asp Asn Ala Arg Leu Glu Tyr Arg Leu
    530                 535                 540

Ala Gly Val Gly His Asp Phe Pro Phe Thr Ile Asn Asn Gly Thr Gly
545                 550                 555                 560

Trp Ile Ser Val Ala Ala Glu Leu Asp Arg Glu Glu Val Asp Phe Tyr
                565                 570                 575

Ser Phe Gly Val Glu Ala Arg Asp His Gly Thr Pro Ala Leu Thr Ala
            580                 585                 590

Ser Ala Ser Val Ser Val Thr Val Leu Asp Val Asn Asp Asn Asn Pro
        595                 600                 605

Thr Phe Thr Gln Pro Glu Tyr Thr Val Arg Leu Asn Glu Asp Ala Ala
    610                 615                 620

Val Gly Thr Ser Val Val Thr Val Ser Ala Val Asp Arg Asp Ala His
625                 630                 635                 640

Ser Val Ile Thr Tyr Gln Ile Thr Ser Gly Asn Thr Arg Asn Arg Phe
                645                 650                 655
```

Ser Ile Thr Ser Gln Ser Gly Gly Gly Leu Val Ser Leu Ala Leu Pro
660 665 670

Leu Asp Tyr Lys Leu Glu Arg Gln Tyr Val Leu Ala Val Thr Ala Ser
675 680 685

Asp Gly Thr Arg Gln Asp Thr Ala Gln Ile Val Val Asn Val Thr Asp
690 695 700

Ala Asn Thr His Arg Pro Val Phe Gln Ser Ser His Tyr Thr Val Asn
705 710 715 720

Val Asn Glu Asp Arg Pro Ala Gly Thr Thr Val Val Leu Ile Ser Ala
725 730 735

Thr Asp Glu Asp Thr Gly Glu Asn Ala Arg Ile Thr Tyr Phe Met Glu
740 745 750

Asp Ser Ile Pro Gln Phe Arg Ile Asp Ala Asp Thr Gly Ala Val Thr
755 760 765

Thr Gln Ala Glu Leu Asp Tyr Glu Asp Gln Val Ser Tyr Thr Leu Ala
770 775 780

Ile Thr Ala Arg Asp Asn Gly Ile Pro Gln Lys Ser Asp Thr Thr Tyr
785 790 795 800

Leu Glu Ile Leu Val Asn Asp Val Asn Asp Asn Ala Pro Gln Phe Leu
805 810 815

Arg Asp Ser Tyr Gln Gly Ser Val Tyr Glu Asp Val Pro Pro Phe Thr
820 825 830

Ser Val Leu Gln Ile Ser Ala Thr Asp Arg Asp Ser Gly Leu Asn Gly
835 840 845

Arg Val Phe Tyr Thr Phe Gln Gly Gly Asp Asp Gly Asp Gly Asp Phe
850 855 860

Ile Val Glu Ser Thr Ser Gly Ile Val Arg Thr Leu Arg Arg Leu Asp
865 870 875 880

```
Arg Glu Asn Val Ala Gln Tyr Val Leu Arg Ala Tyr Ala Val Asp Lys
                885                 890                 895

Gly Met Pro Pro Ala Arg Thr Pro Met Glu Val Thr Val Thr Val Leu
            900                 905                 910

Asp Val Asn Asp Asn Pro Pro Val Phe Glu Gln Asp Glu Phe Asp Val
        915                 920                 925

Phe Val Glu Glu Asn Ser Pro Ile Gly Leu Ala Val Ala Arg Val Thr
    930                 935                 940

Ala Thr Asp Pro Asp Glu Gly Thr Asn Ala Gln Ile Met Tyr Gln Ile
945                 950                 955                 960

Val Glu Gly Asn Ile Pro Glu Val Phe Gln Leu Asp Ile Phe Ser Gly
                965                 970                 975

Glu Leu Thr Ala Leu Val Asp Leu Asp Tyr Glu Asp Arg Pro Glu Tyr
            980                 985                 990

Val Leu Val Ile Gln Ala Thr Ser  Ala Pro Leu Val Ser  Arg Ala
Thr
        995                 1000                1005

Val His  Val Arg Leu Leu Asp  Arg Asn Asp Asn Pro  Pro Val Leu
    1010                1015                1020

Gly Asn  Phe Glu Ile Leu Phe  Asn Asn Tyr Val Thr  Asn Arg Ser
    1025                1030                1035

Ser Ser  Phe Pro Gly Gly Ala  Ile Gly Arg Val Pro  Ala His Asp
    1040                1045                1050

Pro Asp  Ile Ser Asp Ser Leu  Thr Tyr Ser Phe Glu  Arg Gly Asn
    1055                1060                1065

Glu Leu  Ser Leu Val Leu Leu  Asn Ala Ser Thr Gly  Glu Leu Lys
    1070                1075                1080

Leu Ser  Arg Ala Leu Asp Asn  Asn Arg Pro Leu Glu  Ala Ile Met
    1085                1090                1095
```

```
Ser Val  Leu Val Ser Asp Gly  Val His Ser Val Thr  Ala Gln Cys
    1100                1105                1110

Ala Leu  Arg Val Thr Ile Ile  Thr Asp Glu Met Leu  Thr His Ser
    1115                1120                1125

Ile Thr  Leu Arg Leu Glu Asp  Met Ser Pro Glu Arg  Phe Leu Ser
    1130                1135                1140

Pro Leu  Leu Gly Leu Phe Ile  Gln Ala Val Ala Ala  Thr Leu Ala
    1145                1150                1155

Thr Pro  Pro Asp His Val Val  Val Phe Asn Val Gln  Arg Asp Thr
    1160                1165                1170

Asp Ala  Pro Gly Gly His Ile  Leu Asn Val Ser Leu  Ser Val Gly
    1175                1180                1185

Gln Pro  Pro Gly Pro Gly Gly  Gly Pro Pro Phe Leu  Pro Ser Glu
    1190                1195                1200

Asp Leu  Gln Glu Arg Leu Tyr  Leu Asn Arg Ser Leu  Leu Thr Ala
    1205                1210                1215

Ile Ser  Ala Gln Arg Val Leu  Pro Phe Asp Asp Asn  Ile Cys Leu
    1220                1225                1230

Arg Glu  Pro Cys Glu Asn Tyr  Met Arg Cys Val Ser  Val Leu Arg
    1235                1240                1245

Phe Asp  Ser Ser Ala Pro Phe  Ile Ala Ser Ser Ser  Val Leu Phe
    1250                1255                1260

Arg Pro  Ile His Pro Val Gly  Gly Leu Arg Cys Arg  Cys Pro Pro
    1265                1270                1275

Gly Phe  Thr Gly Asp Tyr Cys  Glu Thr Glu Val Asp  Leu Cys Tyr
    1280                1285                1290

Ser Arg  Pro Cys Gly Pro His  Gly Arg Cys Arg Ser  Arg Glu Gly
    1295                1300                1305

Gly Tyr  Thr Cys Leu Cys Arg  Asp Gly Tyr Thr Gly  Glu His Cys
```

1310 1315 1320

Glu Val Ser Ala Arg Ser Gly Arg Cys Thr Pro Gly Val Cys Lys
1325 1330 1335

Asn Gly Gly Thr Cys Val Asn Leu Leu Val Gly Gly Phe Lys Cys
1340 1345 1350

Asp Cys Pro Ser Gly Asp Phe Glu Lys Pro Tyr Cys Gln Val Thr
1355 1360 1365

Thr Arg Ser Phe Pro Ala His Ser Phe Ile Thr Phe Arg Gly Leu
1370 1375 1380

Arg Gln Arg Phe His Phe Thr Leu Ala Leu Ser Phe Ala Thr Lys
1385 1390 1395

Glu Arg Asp Gly Leu Leu Leu Tyr Asn Gly Arg Phe Asn Glu Lys
1400 1405 1410

His Asp Phe Val Ala Leu Glu Val Ile Gln Glu Gln Val Gln Leu
1415 1420 1425

Thr Phe Ser Ala Gly Glu Ser Thr Thr Thr Val Ser Pro Phe Val
1430 1435 1440

Pro Gly Gly Val Ser Asp Gly Gln Trp His Thr Val Gln Leu Lys
1445 1450 1455

Tyr Tyr Asn Lys Pro Leu Leu Gly Gln Thr Gly Leu Pro Gln Gly
1460 1465 1470

Pro Ser Glu Gln Lys Val Ala Val Val Thr Val Asp Gly Cys Asp
1475 1480 1485

Thr Gly Val Ala Leu Arg Phe Gly Ser Val Leu Gly Asn Tyr Ser
1490 1495 1500

Cys Ala Ala Gln Gly Thr Gln Gly Gly Ser Lys Lys Ser Leu Asp
1505 1510 1515

Leu Thr Gly Pro Leu Leu Leu Gly Gly Val Pro Asp Leu Pro Glu
1520 1525 1530

```
Ser Phe  Pro Val Arg Met Arg  Gln Phe Val Gly Cys  Met Arg Asn
    1535                1540                1545

Leu Gln  Val Asp Ser Arg His  Ile Asp Met Ala Asp  Phe Ile Ala
    1550                1555                1560

Asn Asn  Gly Thr Val Pro Gly  Cys Pro Ala Lys Lys  Asn Val Cys
    1565                1570                1575

Asp Ser  Asn Thr Cys His Asn  Gly Gly Thr Cys Val  Asn Gln Trp
    1580                1585                1590

Asp Ala  Phe Ser Cys Glu Cys  Pro Leu Gly Phe Gly  Gly Lys Ser
    1595                1600                1605

Cys Ala  Gln Glu Met Ala Asn  Pro Gln His Phe Leu  Gly Ser Ser
    1610                1615                1620

Leu Val  Ala Trp His Gly Leu  Ser Leu Pro Ile Ser  Gln Pro Trp
    1625                1630                1635

Tyr Leu  Ser Leu Met Phe Arg  Thr Arg Gln Ala Asp  Gly Val Leu
    1640                1645                1650

Leu Gln  Ala Ile Thr Arg Gly  Arg Ser Thr Ile Thr  Leu Gln Leu
    1655                1660                1665

Arg Glu  Gly His Val Met Leu  Ser Val Glu Gly Thr  Gly Leu Gln
    1670                1675                1680

Ala Ser  Ser Leu Arg Leu Glu  Pro Gly Arg Ala Asn  Asp Gly Asp
    1685                1690                1695

Trp His  His Ala Gln Leu Ala  Leu Gly Ala Ser Gly  Gly Pro Gly
    1700                1705                1710

His Ala  Ile Leu Ser Phe Asp  Tyr Gly Gln Gln Arg  Ala Glu Gly
    1715                1720                1725

Asn Leu  Gly Pro Arg Leu His  Gly Leu His Leu Ser  Asn Ile Thr
    1730                1735                1740
```

```
Val Gly  Gly Ile Pro Gly Pro  Ala Gly Gly Val Ala  Arg Gly Phe
    1745                1750                1755

Arg Gly  Cys Leu Gln Gly Val  Arg Val Ser Asp Thr  Pro Glu Gly
    1760                1765                1770

Val Asn  Ser Leu Asp Pro Ser  His Gly Glu Ser Ile  Asn Val Glu
    1775                1780                1785

Gln Gly  Cys Ser Leu Pro Asp  Pro Cys Asp Ser Asn  Pro Cys Pro
    1790                1795                1800

Ala Asn  Ser Tyr Cys Ser Asn  Asp Trp Asp Ser Tyr  Ser Cys Ser
    1805                1810                1815

Cys Asp  Pro Gly Tyr Tyr Gly  Asp Asn Cys Thr Asn  Val Cys Asp
    1820                1825                1830

Leu Asn  Pro Cys Glu His Gln  Ser Val Cys Thr Arg  Lys Pro Ser
    1835                1840                1845

Ala Pro  His Gly Tyr Thr Cys  Glu Cys Pro Pro Asn  Tyr Leu Gly
    1850                1855                1860

Pro Tyr  Cys Glu Thr Arg Ile  Asp Gln Pro Cys Pro  Arg Gly Trp
    1865                1870                1875

Trp Gly  His Pro Thr Cys Gly  Pro Cys Asn Cys Asp  Val Ser Lys
    1880                1885                1890

Gly Phe  Asp Pro Asp Cys Asn  Lys Thr Ser Gly Glu  Cys His Cys
    1895                1900                1905

Lys Glu  Asn His Tyr Arg Pro  Pro Gly Ser Pro Thr  Cys Leu Leu
    1910                1915                1920

Cys Asp  Cys Tyr Pro Thr Gly  Ser Leu Ser Arg Val  Cys Asp Pro
    1925                1930                1935

Glu Asp  Gly Gln Cys Pro Cys  Lys Pro Gly Val Ile  Gly Arg Gln
    1940                1945                1950
```

Cys Asp Arg Cys Asp Asn Pro Phe Ala Glu Val Thr Thr Asn Gly
1955 1960 1965

Cys Glu Val Asn Tyr Asp Ser Cys Pro Arg Ala Ile Glu Ala Gly
1970 1975 1980

Ile Trp Trp Pro Arg Thr Arg Phe Gly Leu Pro Ala Ala Ala Pro
1985 1990 1995

Cys Pro Lys Gly Ser Phe Gly Thr Ala Val Arg His Cys Asp Glu
2000 2005 2010

His Arg Gly Trp Leu Pro Pro Asn Leu Phe Asn Cys Thr Ser Ile
2015 2020 2025

Thr Phe Ser Glu Leu Lys Gly Phe Ala Glu Arg Leu Gln Arg Asn
2030 2035 2040

Glu Ser Gly Leu Asp Ser Gly Arg Ser Gln Gln Leu Ala Leu Leu
2045 2050 2055

Leu Arg Asn Ala Thr Gln His Thr Ala Gly Tyr Phe Gly Ser Asp
2060 2065 2070

Val Lys Val Ala Tyr Gln Leu Ala Thr Arg Leu Leu Ala His Glu
2075 2080 2085

Ser Thr Gln Arg Gly Phe Gly Leu Ser Ala Thr Gln Asp Val His
2090 2095 2100

Phe Thr Glu Asn Leu Leu Arg Val Gly Ser Ala Leu Leu Asp Thr
2105 2110 2115

Ala Asn Lys Arg His Trp Glu Leu Ile Gln Gln Thr Glu Gly Gly
2120 2125 2130

Thr Ala Trp Leu Leu Gln His Tyr Glu Ala Tyr Ala Ser Ala Leu
2135 2140 2145

Ala Gln Asn Met Arg His Thr Tyr Leu Ser Pro Phe Thr Ile Val
2150 2155 2160

Thr Pro Asn Ile Val Ile Ser Val Val Arg Leu Asp Lys Gly Asn

2165 2170 2175

Phe Ala Gly Ala Lys Leu Pro Arg Tyr Glu Ala Leu Arg Gly Glu
2180 2185 2190

Gln Pro Pro Asp Leu Glu Thr Thr Val Ile Leu Pro Glu Ser Val
2195 2200 2205

Phe Arg Glu Thr Pro Pro Val Val Arg Pro Ala Gly Pro Gly Glu
2210 2215 2220

Ala Gln Glu Pro Glu Glu Leu Ala Arg Arg Gln Arg Arg His Pro
2225 2230 2235

Glu Leu Ser Gln Gly Glu Ala Val Ala Ser Val Ile Ile Tyr Arg
2240 2245 2250

Thr Leu Ala Gly Leu Leu Pro His Asn Tyr Asp Pro Asp Lys Arg
2255 2260 2265

Ser Leu Arg Val Pro Lys Arg Pro Ile Ile Asn Thr Pro Val Val
2270 2275 2280

Ser Ile Ser Val His Asp Asp Glu Glu Leu Leu Pro Arg Ala Leu
2285 2290 2295

Asp Lys Pro Val Thr Val Gln Phe Arg Leu Leu Glu Thr Glu Glu
2300 2305 2310

Arg Thr Lys Pro Ile Cys Val Phe Trp Asn His Ser Ile Leu Val
2315 2320 2325

Ser Gly Thr Gly Gly Trp Ser Ala Arg Gly Cys Glu Val Val Phe
2330 2335 2340

Arg Asn Glu Ser His Val Ser Cys Gln Cys Asn His Met Thr Ser
2345 2350 2355

Phe Ala Val Leu Met Asp Val Ser Arg Arg Glu Asn Gly Glu Ile
2360 2365 2370

Leu Pro Leu Lys Thr Leu Thr Tyr Val Ala Leu Gly Val Thr Leu
2375 2380 2385

```
Ala Ala  Leu Leu Leu Thr Phe  Phe Phe Leu Thr Leu  Leu Arg Ile
    2390                 2395                 2400

Leu Arg  Ser Asn Gln His Gly  Ile Arg Arg Asn Leu  Thr Ala Ala
    2405                 2410                 2415

Leu Gly  Leu Ala Gln Leu Val  Phe Leu Leu Gly Ile  Asn Gln Ala
    2420                 2425                 2430

Asp Leu  Pro Phe Ala Cys Thr  Val Ile Ala Ile Leu  Leu His Phe
    2435                 2440                 2445

Leu Tyr  Leu Cys Thr Phe Ser  Trp Ala Leu Leu Glu  Ala Leu His
    2450                 2455                 2460

Leu Tyr  Arg Ala Leu Thr Glu  Val Arg Asp Val Asn  Thr Gly Pro
    2465                 2470                 2475

Met Arg  Phe Tyr Tyr Met Leu  Gly Trp Gly Val Pro  Ala Phe Ile
    2480                 2485                 2490

Thr Gly  Leu Ala Val Gly Leu  Asp Pro Glu Gly Tyr  Gly Asn Pro
    2495                 2500                 2505

Asp Phe  Cys Trp Leu Ser Ile  Tyr Asp Thr Leu Ile  Trp Ser Phe
    2510                 2515                 2520

Ala Gly  Pro Val Ala Phe Ala  Val Ser Met Ser Val  Phe Leu Tyr
    2525                 2530                 2535

Ile Leu  Ala Ala Arg Ala Ser  Cys Ala Ala Gln Arg  Gln Gly Phe
    2540                 2545                 2550

Glu Lys  Lys Gly Pro Val Ser  Gly Leu Gln Pro Ser  Phe Ala Val
    2555                 2560                 2565

Leu Leu  Leu Leu Ser Ala Thr  Trp Leu Leu Ala Leu  Leu Ser Val
    2570                 2575                 2580

Asn Ser  Asp Thr Leu Leu Phe  His Tyr Leu Phe Ala  Thr Cys Asn
    2585                 2590                 2595
```

```
Cys Ile  Gln Gly Pro Phe Ile  Phe Leu Ser Tyr Val  Val Leu Ser
    2600                2605                2610

Lys Glu  Val Arg Lys Ala Leu  Lys Leu Ala Cys Ser  Arg Lys Pro
    2615                2620                2625

Ser Pro  Asp Pro Ala Leu Thr  Thr Lys Ser Thr Leu  Thr Ser Ser
    2630                2635                2640

Tyr Asn  Cys Pro Ser Pro Tyr  Ala Asp Gly Arg Leu  Tyr Gln Pro
    2645                2650                2655

Tyr Gly  Asp Ser Ala Gly Ser  Leu His Ser Thr Ser  Arg Ser Gly
    2660                2665                2670

Lys Ser  Gln Pro Ser Tyr Ile  Pro Phe Leu Leu Arg  Glu Glu Ser
    2675                2680                2685

Ala Leu  Asn Pro Gly Gln Gly  Pro Pro Gly Leu Gly  Asp Pro Gly
    2690                2695                2700

Ser Leu  Phe Leu Glu Gly Gln  Asp Gln Gln His Asp  Pro Asp Thr
    2705                2710                2715

Asp Ser  Asp Ser Asp Leu Ser  Leu Glu Asp Asp Gln  Ser Gly Ser
    2720                2725                2730

Tyr Ala  Ser Thr His Ser Ser  Asp Ser Glu Glu Glu  Glu Glu Glu
    2735                2740                2745

Glu Glu  Glu Glu Ala Ala Phe  Pro Gly Glu Gln Gly  Trp Asp Ser
    2750                2755                2760

Leu Leu  Gly Pro Gly Ala Glu  Arg Leu Pro Leu His  Ser Thr Pro
    2765                2770                2775

Lys Asp  Gly Gly Pro Gly Pro  Gly Lys Ala Pro Trp  Pro Gly Asp
    2780                2785                2790

Phe Gly  Thr Thr Ala Lys Glu  Ser Ser Gly Asn Gly  Ala Pro Glu
    2795                2800                2805
```

```
Glu Arg  Leu Arg Glu Asn Gly  Asp Ala Leu Ser Arg  Glu Gly Ser
    2810                 2815                 2820

Leu Gly  Pro Leu Pro Gly Ser  Ser Ala Gln Pro His  Lys Gly Ile
    2825                 2830                 2835

Leu Lys  Lys Lys Cys Leu Pro  Thr Ile Ser Glu Lys  Ser Ser Leu
    2840                 2845                 2850

Leu Arg  Leu Pro Leu Glu Gln  Cys Thr Gly Ser Ser  Arg Gly Ser
    2855                 2860                 2865

Ser Ala  Ser Glu Gly Ser Arg  Gly Gly Pro Pro Pro  Arg Pro Pro
    2870                 2875                 2880

Pro Arg  Gln Ser Leu Gln Glu  Gln Leu Asn Gly Val  Met Pro Ile
    2885                 2890                 2895

Ala Met  Ser Ile Lys Ala Gly  Thr Val Asp Glu Asp  Ser Ser Gly
    2900                 2905                 2910

Ser Glu  Phe Leu Phe Phe Asn  Phe Leu His
    2915                 2920


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Pro Ile Leu Leu Leu Leu Leu Leu Ser Leu Phe Pro Leu Ser Gln Glu
20 25 30

Glu Leu Gly Gly Gly Gly His Gln Gly Trp Asp Pro Gly Leu Ala Ala
35 40 45

Thr Thr Gly Pro Arg Ala His Ile Gly Gly Gly Ala Leu Ala Leu Cys
50 55 60

Pro Glu Ser Ser Gly Val Arg Glu Asp Gly Gly Pro Gly Leu Gly Val
65 70 75 80

Arg Glu Pro Ile Phe Val Gly Leu Arg Gly Arg Arg Gln Ser Ala Arg
85 90 95

Asn Ser Arg Gly Pro Pro Glu Gln Pro Asn Glu Glu Leu Gly Ile Glu
100 105 110

His Gly Val Gln Pro Leu Gly Ser Arg Glu Arg Glu Thr Gly Gln Gly
115 120 125

Pro Gly Ser Val Leu Tyr Trp Arg Pro Glu Val Ser Ser Cys Gly Arg
130 135 140

Thr Gly Pro Leu Gln Arg Gly Ser Leu Ser Pro Gly Ala Leu Ser Ser
145 150 155 160

Gly Val Pro Gly Ser Gly Asn Ser Ser Pro Leu Pro Ser Asp Phe Leu
165 170 175

Ile Arg His His Gly Pro Lys Pro Val Ser Ser Gln Arg Asn Ala Gly
180 185 190

Thr Gly Ser Arg Lys Arg Val Gly Thr Ala Arg Cys Cys Gly Glu Leu
195 200 205

Trp Ala Thr Gly Ser Lys Gly Gln Gly Glu Arg Ala Thr Thr Ser Gly
210 215 220

```
Ala Glu Arg Thr Ala Pro Arg Arg Asn Cys Leu Pro Gly Ala Ser Gly
225                 230                 235                 240

Ser Gly Pro Glu Leu Asp Ser Ala Pro Arg Thr Ala Arg Thr Ala Pro
                245                 250                 255

Ala Ser Gly Ser Ala Pro Arg Glu Ser Arg Thr Ala Pro Glu Pro Ala
            260                 265                 270

Pro Lys Arg Met Arg Ser Arg Gly Leu Phe Arg Cys Arg Phe Leu Pro
        275                 280                 285

Gln Arg Pro Gly Pro Arg Pro Pro Gly Leu Pro Ala Arg Pro Glu Ala
    290                 295                 300

Arg Lys Val Thr Ser Ala Asn Arg Ala Arg Phe Arg Arg Ala Ala Asn
305                 310                 315                 320

Arg His Pro Gln Phe Pro Gln Tyr Asn Tyr Gln Thr Leu Val Pro Glu
                325                 330                 335

Asn Glu Ala Ala Gly Thr Ala Val Leu Arg Val Val Ala Gln Asp Pro
            340                 345                 350

Asp Ala Gly Glu Ala Gly Arg Leu Val Tyr Ser Leu Ala Ala Leu Met
        355                 360                 365

Asn Ser Arg Ser Leu Glu Leu Phe Ser Ile Asp Pro Gln Ser Gly Leu
    370                 375                 380

Ile Arg Thr Ala Ala Ala Leu Asp Arg Glu Ser Met Glu Arg His Tyr
385                 390                 395                 400

Leu Arg Val Thr Ala Gln Asp His Gly Ser Pro Arg Leu Ser Ala Thr
                405                 410                 415

Thr Met Val Ala Val Thr Val Ala Asp Arg Asn Asp His Ser Pro Val
            420                 425                 430

Phe Glu Gln Ala Gln Tyr Arg Glu Thr Leu Arg Glu Asn Val Glu Glu
        435                 440                 445
```

```
Gly Tyr Pro Ile Leu Gln Leu Arg Ala Thr Asp Gly Asp Ala Pro Pro
    450                 455                 460

Asn Ala Asn Leu Arg Tyr Arg Phe Val Gly Pro Pro Ala Ala Arg Ala
465                 470                 475                 480

Ala Ala Ala Ala Ala Phe Glu Ile Asp Pro Arg Ser Gly Leu Ile Ser
                485                 490                 495

Thr Ser Gly Arg Val Asp Arg Glu His Met Glu Ser Tyr Glu Leu Val
            500                 505                 510

Val Glu Ala Ser Asp Gln Gly Gln Glu Pro Gly Pro Arg Ser Ala Thr
        515                 520                 525

Val Arg Val His Ile Thr Val Leu Asp Glu Asn Asp Asn Ala Pro Gln
    530                 535                 540

Phe Ser Glu Lys Arg Tyr Val Ala Gln Val Arg Glu Asp Val Arg Pro
545                 550                 555                 560

His Thr Val Val Leu Arg Val Thr Ala Thr Asp Arg Asp Lys Asp Ala
                565                 570                 575

Asn Gly Leu Val His Tyr Asn Ile Ile Ser Gly Asn Ser Arg Gly His
            580                 585                 590

Phe Ala Ile Asp Ser Leu Thr Gly Glu Ile Gln Val Val Ala Pro Leu
        595                 600                 605

Asp Phe Glu Ala Glu Arg Glu Tyr Ala Leu Arg Ile Arg Ala Gln Asp
    610                 615                 620

Ala Gly Arg Pro Pro Leu Ser Asn Asn Thr Gly Leu Ala Ser Ile Gln
625                 630                 635                 640

Val Val Asp Ile Asn Asp His Ile Pro Ile Phe Val Ser Thr Pro Phe
                645                 650                 655

Gln Val Ser Val Leu Glu Asn Ala Pro Leu Gly His Ser Val Ile His
            660                 665                 670

Ile Gln Ala Val Asp Ala Asp His Gly Glu Asn Ala Arg Leu Glu Tyr
```

675 680 685

Ser Leu Thr Gly Val Ala Pro Asp Thr Pro Phe Val Ile Asn Ser Ala
690 695 700

Thr Gly Trp Val Ser Val Ser Gly Pro Leu Asp Arg Glu Ser Val Glu
705 710 715 720

His Tyr Phe Phe Gly Val Glu Ala Arg Asp His Gly Ser Pro Pro Leu
725 730 735

Ser Ala Ser Ala Ser Val Thr Val Thr Val Leu Asp Val Asn Asp Asn
740 745 750

Arg Pro Glu Phe Thr Met Lys Glu Tyr His Leu Arg Leu Asn Glu Asp
755 760 765

Ala Ala Val Gly Thr Ser Val Val Ser Val Thr Ala Val Asp Arg Asp
770 775 780

Ala Asn Ser Ala Ile Ser Tyr Gln Ile Thr Gly Gly Asn Thr Arg Asn
785 790 795 800

Arg Phe Ala Ile Ser Thr Gln Gly Gly Val Gly Leu Val Thr Leu Ala
805 810 815

Leu Pro Leu Asp Tyr Lys Gln Glu Arg Tyr Phe Lys Leu Val Leu Thr
820 825 830

Ala Ser Asp Arg Ala Leu His Asp His Cys Tyr Val His Ile Asn Ile
835 840 845

Thr Asp Ala Asn Thr His Arg Pro Val Phe Gln Ser Ala His Tyr Ser
850 855 860

Val Ser Val Asn Glu Asp Arg Pro Met Gly Ser Thr Ile Val Val Ile
865 870 875 880

Ser Ala Ser Asp Asp Asp Val Gly Glu Asn Ala Arg Ile Thr Tyr Leu
885 890 895

Leu Glu Asp Asn Leu Pro Gln Phe Arg Ile Asp Ala Asp Ser Gly Ala
900 905 910

```
Ile Thr Leu Gln Ala Pro Leu Asp Tyr Glu Asp Gln Val Thr Tyr Thr
        915                 920                 925

Leu Ala Ile Thr Ala Arg Asp Asn Gly Ile Pro Gln Lys Ala Asp Thr
    930                 935                 940

Thr Tyr Val Glu Val Met Val Asn Asp Val Asn Asp Asn Ala Pro Gln
945                 950                 955                 960

Phe Val Ala Ser His Tyr Thr Gly Leu Val Ser Glu Asp Ala Pro Pro
                965                 970                 975

Phe Thr Ser Val Leu Gln Ile Ser Ala Thr Asp Arg Asp Ala His Ala
            980                 985                 990

Asn Gly Arg Val Gln Tyr Thr Phe  Gln Asn Gly Glu Asp  Gly Asp
Gly
        995                 1000                1005

Asp Phe  Thr Ile Glu Pro Thr  Ser Gly Ile Val Arg  Thr Val Arg
    1010                1015                1020

Arg Leu  Asp Arg Glu Ala Val  Ser Val Tyr Glu Leu  Thr Ala Tyr
    1025                1030                1035

Ala Val  Asp Arg Gly Val Pro  Pro Leu Arg Thr Pro  Val Ser Ile
    1040                1045                1050

Gln Val  Met Val Gln Asp Val  Asn Asp Asn Ala Pro  Val Phe Pro
    1055                1060                1065

Ala Glu  Glu Phe Glu Val Arg  Val Lys Glu Asn Ser  Ile Val Gly
    1070                1075                1080

Ser Val  Val Ala Gln Ile Thr  Ala Val Asp Pro Asp  Glu Gly Pro
    1085                1090                1095

Asn Ala  His Ile Met Tyr Gln  Ile Val Glu Gly Asn  Ile Pro Glu
    1100                1105                1110

Leu Phe  Gln Met Asp Ile Phe  Ser Gly Glu Leu Thr  Ala Leu Ile
    1115                1120                1125
```

```
Asp Leu  Asp Tyr Glu Ala Arg  Gln Glu Tyr Val Ile  Val Val Gln
    1130                1135                1140

Ala Thr  Ser Ala Pro Leu Val  Ser Arg Ala Thr Val  His Val Arg
    1145                1150                1155

Leu Val  Asp Gln Asn Asp Asn  Ser Pro Val Leu Asn  Asn Phe Gln
    1160                1165                1170

Ile Leu  Phe Asn Asn Tyr Val  Ser Asn Arg Ser Asp  Thr Phe Pro
    1175                1180                1185

Ser Gly  Ile Ile Gly Arg Ile  Pro Ala Tyr Asp Pro  Asp Val Ser
    1190                1195                1200

Asp His  Leu Phe Tyr Ser Phe  Glu Arg Gly Asn Glu  Leu Gln Leu
    1205                1210                1215

Leu Val  Val Asn Gln Thr Ser  Gly Glu Leu Arg Leu  Ser Arg Lys
    1220                1225                1230

Leu Asp  Asn Asn Arg Pro Leu  Val Ala Ser Met Leu  Val Thr Val
    1235                1240                1245

Thr Asp  Gly Leu His Ser Val  Thr Ala Gln Cys Val  Leu Arg Val
    1250                1255                1260

Val Ile  Ile Thr Glu Glu Leu  Leu Ala Asn Ser Leu  Thr Val Arg
    1265                1270                1275

Leu Glu  Asn Met Trp Gln Glu  Arg Phe Leu Ser Pro  Leu Leu Gly
    1280                1285                1290

Arg Phe  Leu Glu Gly Val Ala  Ala Val Leu Ala Thr  Pro Ala Glu
    1295                1300                1305

Asp Val  Phe Ile Phe Asn Ile  Gln Asn Asp Thr Asp  Val Gly Gly
    1310                1315                1320

Thr Val  Leu Asn Val Ser Phe  Ser Ala Leu Ala Pro  Arg Gly Ala
    1325                1330                1335
```

```
Gly Ala  Gly Ala Ala Gly Pro  Trp Phe Ser Ser Glu  Glu Leu Gln
    1340                1345                1350

Glu Gln  Leu Tyr Val Arg Arg  Ala Ala Leu Ala Ala  Arg Ser Leu
    1355                1360                1365

Leu Asp  Val Leu Pro Phe Asp  Asp Asn Val Cys Leu  Arg Glu Pro
    1370                1375                1380

Cys Glu  Asn Tyr Met Lys Cys  Val Ser Val Leu Arg  Phe Asp Ser
    1385                1390                1395

Ser Ala  Pro Phe Leu Ala Ser  Ala Ser Thr Leu Phe  Arg Pro Ile
    1400                1405                1410

Gln Pro  Ile Ala Gly Leu Arg  Cys Arg Cys Pro Pro  Gly Phe Thr
    1415                1420                1425

Gly Asp  Phe Cys Glu Thr Glu  Leu Asp Leu Cys Tyr  Ser Asn Pro
    1430                1435                1440

Cys Arg  Asn Gly Gly Ala Cys  Ala Arg Arg Glu Gly  Gly Tyr Thr
    1445                1450                1455

Cys Val  Cys Arg Pro Arg Phe  Thr Gly Glu Asp Cys  Glu Leu Asp
    1460                1465                1470

Thr Glu  Ala Gly Arg Cys Val  Pro Gly Val Cys Arg  Asn Gly Gly
    1475                1480                1485

Thr Cys  Thr Asp Ala Pro Asn  Gly Gly Phe Arg Cys  Gln Cys Pro
    1490                1495                1500

Ala Gly  Gly Ala Phe Glu Gly  Pro Arg Cys Glu Val  Ala Ala Arg
    1505                1510                1515

Ser Phe  Pro Pro Ser Ser Phe  Val Met Phe Arg Gly  Leu Arg Gln
    1520                1525                1530

Arg Phe  His Leu Thr Leu Ser  Leu Ser Phe Ala Thr  Val Gln Gln
    1535                1540                1545
```

Ser Gly Leu Leu Phe Tyr Asn Gly Arg Leu Asn Glu Lys His Asp
1550 1555 1560

Phe Leu Ala Leu Glu Leu Val Ala Gly Gln Val Arg Leu Thr Tyr
1565 1570 1575

Ser Thr Gly Glu Ser Asn Thr Val Val Ser Pro Thr Val Pro Gly
1580 1585 1590

Gly Leu Ser Asp Gly Gln Trp His Thr Val His Leu Arg Tyr Tyr
1595 1600 1605

Asn Lys Pro Arg Thr Asp Ala Leu Gly Gly Ala Gln Gly Pro Ser
1610 1615 1620

Lys Asp Lys Val Ala Val Leu Ser Val Asp Asp Cys Asp Val Ala
1625 1630 1635

Val Ala Leu Gln Phe Gly Ala Glu Ile Gly Asn Tyr Ser Cys Ala
1640 1645 1650

Ala Ala Gly Val Gln Thr Ser Ser Lys Lys Ser Leu Asp Leu Thr
1655 1660 1665

Gly Pro Leu Leu Leu Gly Gly Val Pro Asn Leu Pro Glu Asn Phe
1670 1675 1680

Pro Val Ser His Lys Asp Phe Ile Gly Cys Met Arg Asp Leu His
1685 1690 1695

Ile Asp Gly Arg Arg Val Asp Met Ala Ala Phe Val Ala Asn Asn
1700 1705 1710

Gly Thr Met Ala Gly Cys Gln Ala Lys Leu His Phe Cys Asp Ser
1715 1720 1725

Gly Pro Cys Lys Asn Ser Gly Phe Cys Ser Glu Arg Trp Gly Ser
1730 1735 1740

Phe Ser Cys Asp Cys Pro Val Gly Phe Gly Gly Lys Asp Cys Gln
1745 1750 1755

Leu Thr Met Ala His Pro His His Phe Arg Gly Asn Gly Thr Leu

1760 1765 1770

Ser Trp Asn Phe Gly Ser Asp Met Ala Val Ser Val Pro Trp Tyr
1775 1780 1785

Leu Gly Leu Ala Phe Arg Thr Arg Ala Thr Gln Gly Val Leu Met
1790 1795 1800

Gln Val Gln Ala Gly Pro His Ser Thr Leu Leu Cys Gln Leu Asp
1805 1810 1815

Arg Gly Leu Leu Ser Val Thr Val Thr Arg Gly Ser Gly Arg Ala
1820 1825 1830

Ser His Leu Leu Leu Asp Gln Val Thr Val Ser Asp Gly Arg Trp
1835 1840 1845

His Asp Leu Arg Leu Glu Leu Gln Glu Glu Pro Gly Gly Arg Arg
1850 1855 1860

Gly His His Val Leu Met Val Ser Leu Asp Phe Ser Leu Phe Gln
1865 1870 1875

Asp Thr Met Ala Val Gly Ser Glu Leu Gln Gly Leu Lys Val Lys
1880 1885 1890

Gln Leu His Val Gly Gly Leu Pro Pro Gly Ser Ala Glu Glu Ala
1895 1900 1905

Pro Gln Gly Leu Val Gly Cys Ile Gln Gly Val Trp Leu Gly Ser
1910 1915 1920

Thr Pro Ser Gly Ser Pro Ala Leu Leu Pro Pro Ser His Arg Val
1925 1930 1935

Asn Ala Glu Pro Gly Cys Val Val Thr Asn Ala Cys Ala Ser Gly
1940 1945 1950

Pro Cys Pro Pro His Ala Asp Cys Arg Asp Leu Trp Gln Thr Phe
1955 1960 1965

Ser Cys Thr Cys Gln Pro Gly Tyr Tyr Gly Pro Gly Cys Val Asp
1970 1975 1980

```
Ala Cys  Leu Leu Asn Pro Cys  Gln Asn Gln Gly Ser  Cys Arg His
    1985                 1990                 1995

Leu Pro  Gly Ala Pro His Gly  Tyr Thr Cys Asp Cys  Val Gly Gly
    2000                 2005                 2010

Tyr Phe  Gly His His Cys Glu  His Arg Met Asp Gln  Gln Cys Pro
    2015                 2020                 2025

Arg Gly  Trp Trp Gly Ser Pro  Thr Cys Gly Pro Cys  Asn Cys Asp
    2030                 2035                 2040

Val His  Lys Gly Phe Asp Pro  Asn Cys Asn Lys Thr  Asn Gly Gln
    2045                 2050                 2055

Cys His  Cys Lys Glu Phe His  Tyr Arg Pro Arg Gly  Ser Asp Ser
    2060                 2065                 2070

Cys Leu  Pro Cys Asp Cys Tyr  Pro Val Gly Ser Thr  Ser Arg Ser
    2075                 2080                 2085

Cys Ala  Pro His Ser Gly Gln  Cys Pro Cys Arg Pro  Gly Ala Leu
    2090                 2095                 2100

Gly Arg  Gln Cys Asn Ser Cys  Asp Ser Pro Phe Ala  Glu Val Thr
    2105                 2110                 2115

Ala Ser  Gly Cys Arg Val Leu  Tyr Asp Ala Cys Pro  Lys Ser Leu
    2120                 2125                 2130

Arg Ser  Gly Val Trp Trp Pro  Gln Thr Lys Phe Gly  Val Leu Ala
    2135                 2140                 2145

Thr Val  Pro Cys Pro Arg Gly  Ala Leu Gly Ala Ala  Val Arg Leu
    2150                 2155                 2160

Cys Asp  Glu Ala Gln Gly Trp  Leu Glu Pro Asp Leu  Phe Asn Cys
    2165                 2170                 2175

Thr Ser  Pro Ala Phe Arg Glu  Leu Ser Leu Leu Leu  Asp Gly Leu
    2180                 2185                 2190
```

```
Glu Leu  Asn Lys Thr Ala Leu  Asp Thr Met Glu Ala  Lys Lys Leu
    2195                2200                2205

Ala Gln  Arg Leu Arg Glu Val  Thr Gly His Thr Asp  His Tyr Phe
    2210                2215                2220

Ser Gln  Asp Val Arg Val Thr  Ala Arg Leu Leu Ala  His Leu Leu
    2225                2230                2235

Ala Phe  Glu Ser His Gln Gln  Gly Phe Gly Leu Thr  Ala Thr Gln
    2240                2245                2250

Asp Ala  His Phe Asn Glu Asn  Leu Leu Trp Ala Gly  Ser Ala Leu
    2255                2260                2265

Leu Ala  Pro Glu Thr Gly Asp  Leu Trp Ala Ala Leu  Gly Gln Arg
    2270                2275                2280

Ala Pro  Gly Gly Ser Pro Gly  Ser Ala Gly Leu Val  Arg His Leu
    2285                2290                2295

Glu Glu  Tyr Ala Ala Thr Leu  Ala Arg Asn Met Glu  Leu Thr Tyr
    2300                2305                2310

Leu Asn  Pro Met Gly Leu Val  Thr Pro Asn Ile Met  Leu Ser Ile
    2315                2320                2325

Asp Arg  Met Glu His Pro Ser  Ser Pro Arg Gly Ala  Arg Arg Tyr
    2330                2335                2340

Pro Arg  Tyr His Ser Asn Leu  Phe Arg Gly Gln Asp  Ala Trp Asp
    2345                2350                2355

Pro His  Thr His Val Leu Leu  Pro Ser Gln Ser Pro  Arg Pro Ser
    2360                2365                2370

Pro Ser  Glu Val Leu Pro Thr  Ser Ser Ser Ile Glu  Asn Ser Thr
    2375                2380                2385

Thr Ser  Ser Val Val Pro Pro  Pro Ala Pro Pro Glu  Pro Glu Pro
    2390                2395                2400
```

Gly Ile Ser Ile Ile Ile Leu Leu Val Tyr Arg Thr Leu Gly Gly
2405 2410 2415

Leu Leu Pro Ala Gln Phe Gln Ala Glu Arg Arg Gly Ala Arg Leu
2420 2425 2430

Pro Gln Asn Pro Val Met Asn Ser Pro Val Val Ser Val Ala Val
2435 2440 2445

Phe His Gly Arg Asn Phe Leu Arg Gly Ile Leu Glu Ser Pro Ile
2450 2455 2460

Ser Leu Glu Phe Arg Leu Leu Gln Thr Ala Asn Arg Ser Lys Ala
2465 2470 2475

Ile Cys Val Gln Trp Asp Pro Pro Gly Leu Ala Glu Gln His Gly
2480 2485 2490

Val Trp Thr Ala Arg Asp Cys Glu Leu Val His Arg Asn Gly Ser
2495 2500 2505

His Ala Arg Cys Arg Cys Ser Arg Thr Gly Thr Phe Gly Val Leu
2510 2515 2520

Met Asp Ala Ser Pro Arg Glu Arg Leu Glu Gly Asp Leu Glu Leu
2525 2530 2535

Leu Ala Val Phe Thr His Val Val Val Ala Val Ser Val Ala Ala
2540 2545 2550

Leu Val Leu Thr Ala Ala Ile Leu Leu Ser Leu Arg Ser Leu Lys
2555 2560 2565

Ser Asn Val Arg Gly Ile His Ala Asn Val Ala Ala Ala Leu Gly
2570 2575 2580

Val Ala Glu Leu Leu Phe Leu Leu Gly Ile His Arg Thr His Asn
2585 2590 2595

Gln Leu Val Cys Thr Ala Val Ala Ile Leu Leu His Tyr Phe Phe
2600 2605 2610

Leu Ser Thr Phe Ala Trp Leu Phe Val Gln Gly Leu His Leu Tyr

2615 2620 2625

Arg Met Gln Val Glu Pro Arg Asn Val Asp Arg Gly Ala Met Arg
2630 2635 2640

Phe Tyr His Ala Leu Gly Trp Gly Val Pro Ala Val Leu Leu Gly
2645 2650 2655

Leu Ala Val Gly Leu Asp Pro Glu Gly Tyr Gly Asn Pro Asp Phe
2660 2665 2670

Cys Trp Ile Ser Val His Glu Pro Leu Ile Trp Ser Phe Ala Gly
2675 2680 2685

Pro Val Val Leu Val Ile Val Met Asn Gly Thr Met Phe Leu Leu
2690 2695 2700

Ala Ala Arg Thr Ser Cys Ser Thr Gly Gln Arg Glu Ala Lys Lys
2705 2710 2715

Thr Ser Ala Leu Thr Leu Arg Ser Ser Phe Leu Leu Leu Leu Leu
2720 2725 2730

Val Ser Ala Ser Trp Leu Phe Gly Leu Leu Ala Val Asn His Ser
2735 2740 2745

Ile Leu Ala Phe His Tyr Leu His Ala Gly Leu Cys Gly Leu Gln
2750 2755 2760

Gly Leu Ala Val Leu Leu Leu Phe Cys Val Leu Asn Ala Asp Ala
2765 2770 2775

Arg Ala Ala Trp Met Pro Ala Cys Leu Gly Arg Lys Ala Ala Pro
2780 2785 2790

Glu Glu Ala Arg Pro Ala Pro Gly Leu Gly Pro Gly Ala Tyr Asn
2795 2800 2805

Asn Thr Ala Leu Phe Glu Glu Ser Gly Leu Ile Arg Ile Thr Leu
2810 2815 2820

Gly Ala Ser Thr Val Ser Ser Val Ser Ser Ala Arg Ser Gly Arg
2825 2830 2835

```
Thr Gln  Asp Gln Asp Ser Gln  Arg Gly Arg Ser Tyr  Leu Arg Asp
    2840                 2845                 2850

Asn Val  Leu Val Arg His Gly  Ser Ala Ala Asp His  Thr Asp His
    2855                 2860                 2865

Ser Leu  Gln Ala His Ala Gly  Pro Thr Asp Leu Asp  Val Ala Met
    2870                 2875                 2880

Phe His  Arg Asp Ala Gly Ala  Asp Ser Asp Ser Asp  Ser Asp Leu
    2885                 2890                 2895

Ser Leu  Glu Glu Glu Arg Ser  Leu Ser Ile Pro Ser  Ser Glu Ser
    2900                 2905                 2910

Glu Asp  Asn Gly Arg Thr Arg  Gly Arg Phe Gln Arg  Pro Leu Cys
    2915                 2920                 2925

Arg Ala  Ala Gln Ser Glu Arg  Leu Leu Thr His Pro  Lys Asp Val
    2930                 2935                 2940

Asp Gly  Asn Asp Leu Leu Ser  Tyr Trp Pro Ala Leu  Gly Glu Cys
    2945                 2950                 2955

Glu Ala  Ala Pro Cys Ala Leu  Gln Thr Trp Gly Ser  Glu Arg Arg
    2960                 2965                 2970

Leu Gly  Leu Asp Thr Ser Lys  Asp Ala Ala Asn Asn  Asn Gln Pro
    2975                 2980                 2985

Asp Pro  Ala Leu Thr Ser Gly  Asp Glu Thr Ser Leu  Gly Arg Ala
    2990                 2995                 3000

Gln Arg  Gln Arg Lys Gly Ile  Leu Lys Asn Arg Leu  Gln Tyr Pro
    3005                 3010                 3015

Leu Val  Pro Gln Thr Arg Gly  Ala Pro Glu Leu Ser  Trp Cys Arg
    3020                 3025                 3030

Ala Ala  Thr Leu Gly His Arg  Ala Val Pro Ala Ala  Ser Tyr Gly
    3035                 3040                 3045
```

```
Arg Ile  Tyr Ala Gly Gly Gly  Thr Gly Ser Leu Ser  Gln Pro Ala
    3050                 3055                 3060

Ser Arg  Tyr Ser Ser Arg Glu  Gln Leu Asp Leu Leu  Leu Arg Arg
    3065                 3070                 3075

Gln Leu  Ser Arg Glu Arg Leu  Glu Glu Ala Pro Ala  Pro Val Leu
    3080                 3085                 3090

Arg Pro  Leu Ser Arg Pro Gly  Ser Gln Glu Cys Met  Asp Ala Ala
    3095                 3100                 3105

Pro Gly  Arg Leu Glu Pro Lys  Asp Arg Gly Ser Thr  Leu Pro Arg
    3110                 3115                 3120

Arg Gln  Pro Pro Arg Asp Tyr  Pro Gly Ala Met Ala  Gly Arg Phe
    3125                 3130                 3135

Gly Ser  Arg Asp Ala Leu Asp  Leu Gly Ala Pro Arg  Glu Trp Leu
    3140                 3145                 3150

Ser Thr  Leu Pro Pro Pro Arg  Arg Thr Arg Asp Leu  Asp Pro Gln
    3155                 3160                 3165

Pro Pro  Pro Leu Pro Leu Ser  Pro Gln Arg Gln Leu  Ser Arg Asp
    3170                 3175                 3180

Pro Leu  Leu Pro Ser Arg Pro  Leu Asp Ser Leu Ser  Arg Ser Ser
    3185                 3190                 3195

Asn Ser  Arg Glu Gln Leu Asp  Gln Val Pro Ser Arg  His Pro Ser
    3200                 3205                 3210

Arg Glu  Ala Leu Gly Pro Leu  Pro Gln Leu Leu Arg  Ala Arg Glu
    3215                 3220                 3225

Asp Ser  Val Ser Gly Pro Ser  His Gly Pro Ser Thr  Glu Gln Leu
    3230                 3235                 3240

Asp Ile  Leu Ser Ser Ile Leu  Ala Ser Phe Asn Ser  Ser Ala Leu
    3245                 3250                 3255
```

```
Ser Ser  Val Gln Ser Ser Ser  Thr Pro Leu Gly Pro  His Thr Thr
    3260                 3265                 3270


Ala Thr  Pro Ser Ala Thr Ala  Ser Val Leu Gly Pro  Ser Thr Pro
    3275                 3280                 3285


Arg Ser  Ala Thr Ser His Ser  Ile Ser Glu Leu Ser  Pro Asp Ser
    3290                 3295                 3300


Glu Val  Pro Arg Ser Glu Gly  His Ser
    3305                 3310


<210> 10416
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Met Val Cys Arg Pro Val Phe Pro Cys Arg Arg Arg Phe Cys Pro Arg
1               5                  10                  15


Pro Phe Leu Val Gly Leu Val Val Ala Ile Cys Leu Phe Tyr Gln Thr
            20                  25                  30


Leu Thr Leu Arg Gly Ser Arg Lys Leu Thr Ala Ala Ala Pro Gly Ala
        35                  40                  45


Val Pro His Thr Ser Thr Glu Thr Gln Ala Ser Arg Cys Lys Lys Gly
    50                  55                  60
```

```
Phe Ser Gln Asp Lys Gln Cys Phe Leu Leu Ser Gly Asn Ala Gln Glu
65                  70                  75                  80

Thr Arg Lys Val Lys Glu Ser Met Glu Thr His Phe Gly Ser His Gly
                85                  90                  95

Arg Arg Ala Ile Leu Tyr Arg Pro Pro Phe Tyr Ser Lys Thr Glu Leu
            100                 105                 110

Gln Leu His Gln His Ile Leu Thr Gln His Gly Tyr Thr Val Val Ile
        115                 120                 125

Ala Glu Glu Arg Leu Asn Ala Gly Leu Gly Pro Gly Leu Leu Glu Gln
    130                 135                 140

Gly Asp Leu Gly Ser Trp Asp Leu Leu Ile Cys Leu Ser Ser Lys Lys
145                 150                 155                 160

Ala Glu Gly Thr Pro Cys Ile Ser Lys Glu Val Met Cys Gln Leu Gly
                165                 170                 175

Leu His Gln Lys Ala Asn Arg Leu Pro Glu Ile Gln Gln Pro Leu Cys
            180                 185                 190

Arg Lys Glu Gly Leu Cys Gln Ile Val Arg Arg Phe Pro Glu Leu Gln
        195                 200                 205

Leu Pro Val Ser Pro Ser Val Cys Leu Asp Gln Gly Met Gln Leu Lys
    210                 215                 220

Pro Ser Thr Ser Ser His Leu Leu Lys Thr Val Lys Pro Arg Val Trp
225                 230                 235                 240

Lys Pro Gly Asp Trp Ser Arg Glu Gln Leu Asn Glu Thr Thr Val Leu
                245                 250                 255

Ala Pro His Glu Thr Ile Phe Arg Ala Glu Asp Leu Ser Val Ile Leu
            260                 265                 270

Lys Ala Tyr Val Leu Val Thr Ser Leu Thr Pro Leu Arg Ala Phe Ile
        275                 280                 285
```

```
His Ser Thr Gly Thr Val Trp Asn Pro Pro Lys Lys Lys Arg Phe Thr
    290                 295                 300

Val Lys Leu Gln Thr Phe Phe Glu Thr Phe Leu Arg Ala Ser Ser Pro
305                 310                 315                 320

Gln Gln Ala Phe Asp Ile Met Lys Glu Ala Ile Gly Lys Leu Leu Leu
                325                 330                 335

Ala Ala Glu Val Phe Ser Glu Thr Ser Thr Leu Gly Pro Lys Thr Phe
            340                 345                 350

His Arg Cys Arg Phe Cys Phe Gln Leu Leu Thr Phe Asp Ile Gly Tyr
        355                 360                 365

Gly Ser Phe Met Tyr Pro Val Val Leu Gln Val His Glu His Leu Asn
    370                 375                 380

Phe Gln Asp Tyr Asp Asn Met Asp Phe Glu Asp Gln Asn Thr Glu Glu
385                 390                 395                 400

Phe Leu Leu Asn Asp Thr Phe Asn Phe Leu Phe Pro Asn Glu Ser Ser
                405                 410                 415

Leu Ser Ile Phe Ser Glu Ile Phe Gln Arg Leu Tyr Arg Ser Asp Val
            420                 425                 430

Phe Lys Gly Glu Asn Tyr Gln Lys Glu Leu Asn Gln Cys Leu Ser Leu
        435                 440                 445

Glu Glu Ile Asn Ser Ile Met Thr Phe Ile Lys Glu Leu Gly Ser Leu
    450                 455                 460

Gly Gln Phe Gln Leu Leu Phe Pro Ser Thr Thr Pro Gly Ile Gln Ser
465                 470                 475                 480

Leu Met His Glu Phe Tyr Asp Val Ala Asn Pro Val Gly Asn Pro Gly
                485                 490                 495

Ser Val Leu Thr Gln Tyr Trp Ser Leu Leu Asn Val Phe Glu Gln Phe
            500                 505                 510
```

```
Gln Phe Met Asn Lys Lys Thr Gln Pro His Pro Leu Glu Trp Asn Ser
        515                 520                 525

Phe Thr Glu Asp Lys Asn Ile Glu Lys Pro Gln Val Pro Phe Asp Ala
    530                 535                 540

Ile Glu Asn Lys Lys Ala Ala Val Pro Gln Ile Lys Asn Glu Asn Lys
545                 550                 555                 560

Glu Ile His Cys Ser Asp Asp Glu Asn Thr Pro Cys His Ile Lys Gln
                565                 570                 575

Ile Phe Thr His Pro His Leu Glu Leu Asn Pro Asp Phe His Pro Lys
            580                 585                 590

Ile Lys Asp Tyr Tyr Cys Glu Val Pro Phe Asp Val Val Thr Val Thr
        595                 600                 605

Ile Gly Val Glu Thr Pro Lys Cys Leu Cys Lys Val His Leu Tyr Glu
    610                 615                 620

Gln Ala Gly Pro Ser Phe Ala Ser Tyr Pro Leu Gly Leu Gly Met Asn
625                 630                 635                 640

Lys Ile Ser Ile Phe Val Val Asp Glu Ser Pro Ala His Gly Glu Thr
                645                 650                 655

Leu Ile Thr Tyr Lys Leu Thr Ile Tyr Arg Glu Asp Arg Pro Ser Leu
            660                 665                 670

Pro Leu Phe Glu Ala Phe Thr Ala Cys Gly Phe Val Gln Asp Cys Gly
        675                 680                 685

Leu Leu Ile His Pro Glu Glu Thr Cys Gly Leu Gln Pro Ile Ser Ser
    690                 695                 700

Asp Tyr Ile Glu Ala Ile Leu Gln Ser Glu Leu Lys Arg Cys Pro Ser
705                 710                 715                 720

Gly Asp Met Lys Gly Gln Trp Ile Val Pro Cys Leu Ser Cys Ser Asp
                725                 730                 735

Asn Arg Thr Cys Asp Trp Arg Glu Ile Thr Trp Gln Pro His Asn Cys
```

```
            740                 745                 750

Gln Tyr Gly Val Leu Thr Lys Pro Gln Leu Gln Gln Cys Leu Gly Gly
        755                 760                 765

Arg Lys Ile Leu Phe Ile Gly Asp Ser Thr Asn Arg Gly Ile Met Tyr
    770                 775                 780

Tyr Leu Ile Glu Arg Leu Asn Glu Thr Leu Gln Glu Trp Gln Lys Val
785                 790                 795                 800

His Gly Thr Lys Phe Tyr His Asn Val Asn Gly Gly Lys Thr Leu Ile
                805                 810                 815

Ser Tyr Ser Tyr Tyr Pro Gln Phe Trp Ile Ser Pro Ser Leu Arg Pro
            820                 825                 830

Thr Phe Glu Asn Ala Leu Glu His Leu Leu Gln Arg Ser Arg Pro Leu
        835                 840                 845

Glu Asn Thr Gly Gln Thr Val Leu Val Val Gly Gly Val Gln Trp Leu
    850                 855                 860

Asn Ser Asn His Leu Gln Ile Ile His Lys Val Leu Lys Arg Glu Asn
865                 870                 875                 880

Leu Leu Asn Ile Leu Val Ile Ile Lys Thr Leu Gly Ile Gly Phe His
                885                 890                 895

Leu Pro Val Asp Gly Val His Phe Leu Thr Gln Ser Glu Val Gln Asn
            900                 905                 910

Leu Trp Lys Glu Asn Leu Ile Ile Leu Asp Thr Ala Lys Lys His Gly
        915                 920                 925

Tyr Glu Val Val Asp Thr Phe Thr Ile Thr Met Gly Arg Tyr Lys Glu
    930                 935                 940

Phe Leu Gln Gly Lys Cys Gly Cys His Phe His Glu Val Val Lys Ser
945                 950                 955                 960

Lys Leu Ser Lys Glu Tyr Asn Phe Ile Lys Met Lys Arg Ser Arg Asn
                965                 970                 975
```

```
His Ile Met Gly Arg Tyr Phe Ser Asn Gln Ser Lys Leu Gln Gln Gly
            980                 985                 990


Thr Val Thr Asn Phe Arg Ser Pro  Tyr His Val Arg Gly  Pro Ile
Asn
        995                 1000                1005


Gln Val  Cys Ser Glu Ile Leu  Leu Ser Arg Met Cys  Ala Asn Lys
    1010                1015                1020


Arg Thr  Met
    1025


<210> 10417
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<400> 10417
Met Val Cys Arg Pro Val Phe Pro Cys Arg Arg Arg Phe Cys Pro Arg
1               5                   10                  15


Pro Phe Leu Val Gly Leu Val Val Ala Ile Cys Leu Phe Tyr Gln Thr
            20                  25                  30


Leu Thr Leu Arg Gly Ser Arg Lys Leu Thr Ala Ala Ala Pro Gly Ala
        35                  40                  45


Val Pro His Thr Ser Thr Glu Thr Gln Ala Ser Arg Cys Lys Lys Gly
    50                  55                  60
```

```
Phe Ser Gln Asp Lys Gln Cys Phe Leu Leu Ser Gly Asn Ala Gln Glu
65                  70                  75                  80

Thr Arg Lys Val Lys Glu Ser Met Glu Thr His Phe Gly Ser His Gly
                85                  90                  95

Arg Arg Ala Ile Leu Tyr Arg Pro Pro Phe Tyr Ser Lys Thr Glu Leu
            100                 105                 110

Gln Leu His Gln His Ile Leu Thr Gln His Gly Tyr Thr Val Val Ile
        115                 120                 125

Ala Glu Glu Arg Leu Asn Ala Gly Leu Gly Pro Gly Leu Leu Glu Gln
    130                 135                 140

Gly Asp Leu Gly Ser Trp Asp Leu Leu Ile Cys Leu Ser Ser Lys Lys
145                 150                 155                 160

Ala Glu Gly Thr Pro Cys Ile Ser Lys Glu Val Met Cys Gln Leu Gly
                165                 170                 175

Leu His Gln Lys Gln Leu Arg Arg Arg Glu Glu Arg Gln Arg Pro Gly
            180                 185                 190

Ser Pro Ala Ser Arg Arg Leu Ser Val Arg
        195                 200


<210> 10418
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<400> 10418

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Met Gln Leu Lys Pro Ser Thr Ser Ser His Leu Leu Lys Thr Val Lys
1               5                  10                  15

Pro Arg Val Trp Lys Pro Gly Asp Trp Ser Arg Glu Gln Leu Asn Glu
            20                  25                  30

Thr Thr Val Leu Ala Pro His Glu Thr Ile Phe Arg Ala Glu Asp Leu
        35                  40                  45

Ser Val Ile Leu Lys Ala Tyr Val Leu Val Thr Ser Leu Thr Pro Leu
    50                  55                  60

Arg Ala Phe Ile His Ser Thr Gly Thr Val Trp Asn Pro Pro Lys Lys
65                  70                  75                  80

Lys Arg Phe Thr Val Lys Leu Gln Thr Phe Phe Glu Thr Phe Leu Arg
                85                  90                  95

Ala Ser Ser Pro Gln Gln Ala Phe Asp Ile Met Lys Glu Ala Ile Gly
            100                 105                 110

Lys Leu Leu Leu Ala Ala Glu Val Phe Ser Glu Thr Ser Thr Leu Gly
        115                 120                 125

Pro Lys Thr Phe His Arg Cys Arg Phe Cys Phe Gln Leu Leu Thr Phe
    130                 135                 140

Asp Ile Gly Tyr Gly Ser Phe Met Tyr Pro Val Val Leu Gln Val His
145                 150                 155                 160

Glu His Leu Asn Phe Gln Asp Tyr Asp Asn Met Asp Phe Glu Asp Gln
                165                 170                 175

Asn Thr Glu Glu Phe Leu Leu Asn Asp Thr Phe Asn Phe Leu Phe Pro
            180                 185                 190

Asn Glu Ser Ser Leu Ser Ile Phe Ser Glu Ile Phe Gln Arg Leu Tyr
        195                 200                 205

Arg Ser Asp Val Phe Lys Gly Glu Asn Tyr Gln Lys Glu Leu Asn Gln
    210                 215                 220
```

```
Cys Leu Ser Leu Glu Glu Ile Asn Ser Ile Met Thr Phe Ile Lys Glu
225                 230                 235                 240

Leu Gly Ser Leu Gly Gln Phe Gln Leu Leu Phe Pro Ser Thr Thr Pro
                245                 250                 255

Gly Ile Gln Ser Leu Met His Glu Phe Tyr Asp Val Ala Asn Pro Val
            260                 265                 270

Gly Asn Pro Gly Ser Val Leu Thr Gln Tyr Trp Ser Leu Leu Asn Val
        275                 280                 285

Phe Glu Gln Phe Gln Phe Met Asn Lys Lys Thr Gln Pro His Pro Leu
    290                 295                 300

Glu Trp Asn Ser Phe Thr Glu Asp Lys Asn Ile Glu Lys Pro Gln Val
305                 310                 315                 320

Pro Phe Asp Ala Ile Glu Asn Lys Lys Ala Ala Val Pro Gln
                325                 330


<210> 10419
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<213> Homo sapiens

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<400> 10419
Met Val Cys Arg Pro Val Phe Pro Cys Arg Arg Arg Phe Cys Pro Arg
1               5                   10                  15
```

```
Pro Phe Leu Val Gly Leu Val Val Ala Ile Cys Leu Phe Tyr Gln Thr
            20                  25                  30

Leu Thr Leu Arg Gly Ser Arg Lys Leu Thr Ala Ala Ala Pro Gly Ala
        35                  40                  45

Val Pro His Thr Ser Thr Glu Thr Gln Ala Ser Arg Cys Lys Lys Gly
    50                  55                  60

Phe Ser Gln Asp Lys Gln Cys Phe Leu Leu Ser Gly Asn Ala Gln Glu
65                  70                  75                  80

Thr Arg Lys Val Lys Glu Ser Met Glu Thr His Phe Gly Ser His Gly
                85                  90                  95

Arg Arg Ala Ile Leu Tyr Arg Pro Pro Phe Tyr Ser Lys Thr Glu Leu
            100                 105                 110

Gln Leu His Gln His Ile Leu Thr Gln His Gly Tyr Thr Val Val Ile
        115                 120                 125

Ala Glu Glu Arg Leu Asn Ala Gly Leu Gly Pro Gly Leu Leu Glu Gln
    130                 135                 140

Gly Asp Leu Gly Ser Trp Asp Leu Leu Ile Cys Leu Ser Ser Lys Lys
145                 150                 155                 160

Ala Glu Gly Thr Pro Cys Ile Ser Lys Glu Val Met Cys Gln Leu Gly
                165                 170                 175

Leu His Gln Lys Ala Asn Arg Leu Pro Glu Ile Gln Gln Pro Leu Cys
            180                 185                 190

Arg Lys Glu Gly Leu Cys Gln Ile Val Arg Arg Phe Pro Glu Leu Gln
        195                 200                 205

Leu Pro Val Ser Pro Ser Val Cys Leu Asp Gln Gly Met Gln Leu Lys
    210                 215                 220

Pro Ser Thr Ser Ser His Leu Leu Lys Thr Val Lys Pro Arg Val Trp
225                 230                 235                 240

Lys Pro Gly Asp Trp Ser Arg Glu Gln Leu Asn Glu Thr Thr Val Leu
```

```
                245                 250                 255

Ala Pro His Glu Thr Ile Phe Arg Ala Glu Asp Leu Ser Val Ile Leu
            260                 265                 270

Lys Ala Tyr Val Leu Val Thr Ser Leu Thr Pro Leu Arg Ala Phe Ile
        275                 280                 285

His Ser Thr Gly Thr Val Trp Asn Pro Pro Lys Lys Lys Arg Phe Thr
    290                 295                 300

Val Lys Leu Gln Thr Phe Phe Glu Thr Phe Leu Arg Ala Ser Ser Pro
305                 310                 315                 320

Gln Gln Ala Phe Asp Ile Met Lys Glu Ala Ile Gly Lys Leu Leu Leu
                325                 330                 335

Ala Ala Glu Val Phe Ser Glu Thr Ser Thr Leu Gly Pro Lys Thr Phe
            340                 345                 350

His Arg Cys Arg Phe Cys Phe Gln Leu Leu Thr Phe Asp Ile Gly Tyr
        355                 360                 365

Gly Ser Phe Met Tyr Pro Val Val Leu Gln Val His Glu His Leu Asn
    370                 375                 380

Phe Gln Asp Tyr Asp Asn Met Asp Phe Glu Asp Gln Asn Thr Glu Glu
385                 390                 395                 400

Phe Leu Leu Asn Asp Thr Phe Asn Phe Leu Phe Pro Asn Glu Ser Ser
                405                 410                 415

Leu Ser Ile Phe Ser Glu Ile Phe Gln Arg Leu Tyr Arg Ser Asp Val
            420                 425                 430

Phe Lys Gly Glu Asn Tyr Gln Lys Glu Leu Asn Gln Cys Leu Ser Leu
        435                 440                 445

Glu Glu Ile Asn Ser Ile Met Thr Phe Ile Lys Glu Leu Gly Ser Leu
    450                 455                 460

Gly Gln Phe Gln Leu Leu Phe Pro Ser Thr Thr Pro Gly Ile Gln Ser
465                 470                 475                 480
```

Leu Met His Glu Phe Tyr Asp Val Ala Asn Pro Val Gly Asn Pro Gly
485 490 495

Ser Val Leu Thr Gln Tyr Trp Ser Leu Leu Asn Val Phe Glu Gln Phe
500 505 510

Gln Phe Met Asn Lys Lys Thr Gln Pro His Pro Leu Glu Trp Asn Ser
515 520 525

Phe Thr Glu Asp Lys Asn Ile Glu Lys Pro Gln Val Pro Phe Asp Ala
530 535 540

Ile Glu Asn Lys Lys
545

<210> 10420
<211> 783
<212> PRT
<213> Homo sapiens

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Met Val Cys Arg Pro Val Phe Pro Cys Arg Arg Arg Phe Cys Pro Arg
1 5 10 15

Pro Phe Leu Val Gly Leu Val Val Ala Ile Cys Leu Phe Tyr Gln Thr
20 25 30

```
Leu Thr Leu Arg Gly Ser Arg Lys Leu Thr Ala Ala Ala Pro Gly Ala
        35                  40                  45

Val Pro His Thr Ser Thr Glu Thr Gln Ala Ser Arg Cys Lys Lys Gly
    50                  55                  60

Phe Ser Gln Asp Lys Gln Cys Phe Leu Leu Ser Gly Asn Ala Gln Glu
65                  70                  75                  80

Thr Arg Lys Val Lys Glu Ser Met Glu Thr His Phe Gly Ser His Gly
                85                  90                  95

Arg Arg Ala Ile Leu Tyr Arg Pro Pro Phe Tyr Ser Lys Thr Glu Leu
            100                 105                 110

Gln Leu His Gln His Ile Leu Thr Gln His Gly Tyr Thr Val Val Ile
        115                 120                 125

Ala Glu Glu Arg Leu Asn Ala Gly Leu Gly Pro Gly Leu Leu Glu Gln
    130                 135                 140

Gly Asp Leu Gly Ser Trp Asp Leu Leu Ile Cys Leu Ser Ser Lys Lys
145                 150                 155                 160

Ala Glu Gly Thr Pro Cys Ile Ser Lys Glu Val Met Cys Gln Leu Gly
                165                 170                 175

Leu His Gln Lys Ala Asn Arg Leu Pro Glu Ile Gln Gln Pro Leu Cys
            180                 185                 190

Arg Lys Glu Gly Leu Cys Gln Ile Val Arg Arg Phe Pro Glu Leu Gln
        195                 200                 205

Leu Pro Val Ser Pro Ser Val Cys Leu Asp Gln Gly Met Gln Leu Lys
    210                 215                 220

Pro Ser Thr Ser Ser His Leu Leu Lys Thr Val Lys Pro Arg Val Trp
225                 230                 235                 240

Lys Pro Gly Asp Trp Ser Arg Glu Gln Leu Asn Glu Thr Thr Val Leu
                245                 250                 255

Ala Pro His Glu Thr Ile Phe Arg Ala Glu Asp Leu Ser Val Ile Leu
```

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            260                 265                 270

Lys Ala Tyr Val Leu Val Thr Ser Leu Thr Pro Leu Arg Ala Phe Ile
        275                 280                 285

His Ser Thr Gly Thr Val Trp Asn Pro Pro Lys Lys Lys Arg Phe Thr
    290                 295                 300

Val Lys Leu Gln Thr Phe Phe Glu Thr Phe Leu Arg Ala Ser Ser Pro
305                 310                 315                 320

Gln Gln Ala Phe Asp Ile Met Lys Glu Ala Ile Gly Lys Leu Leu Leu
                325                 330                 335

Ala Ala Glu Val Phe Ser Glu Thr Ser Thr Leu Gly Pro Lys Thr Phe
            340                 345                 350

His Arg Cys Arg Phe Cys Phe Gln Leu Leu Thr Phe Asp Ile Gly Tyr
        355                 360                 365

Gly Ser Phe Met Tyr Pro Val Val Leu Gln Val His Glu His Leu Asn
    370                 375                 380

Phe Gln Asp Tyr Asp Asn Met Asp Phe Glu Asp Gln Asn Thr Glu Glu
385                 390                 395                 400

Phe Leu Leu Asn Asp Thr Phe Asn Phe Leu Phe Pro Asn Glu Ser Ser
                405                 410                 415

Leu Ser Ile Phe Ser Glu Ile Phe Gln Arg Leu Tyr Arg Ser Asp Val
            420                 425                 430

Phe Lys Gly Glu Asn Tyr Gln Lys Glu Leu Asn Gln Cys Leu Ser Leu
        435                 440                 445

Glu Glu Ile Asn Ser Ile Met Thr Phe Ile Lys Glu Leu Gly Ser Leu
    450                 455                 460

Gly Gln Phe Gln Leu Leu Phe Pro Ser Thr Thr Pro Gly Ile Gln Ser
465                 470                 475                 480

Leu Met His Glu Phe Tyr Asp Val Ala Asn Pro Val Gly Asn Pro Gly
                485                 490                 495
```

```
Ser Val Leu Thr Gln Tyr Trp Ser Leu Leu Asn Val Phe Glu Gln Phe
            500                 505                 510

Gln Phe Met Asn Lys Lys Thr Gln Pro His Pro Leu Glu Trp Asn Ser
        515                 520                 525

Phe Thr Glu Asp Lys Asn Ile Glu Lys Pro Gln Val Pro Phe Asp Ala
    530                 535                 540

Ile Glu Asn Lys Lys Ala Ala Val Pro Gln Ile Lys Asn Glu Asn Lys
545                 550                 555                 560

Glu Ile His Cys Ser Asp Asp Glu Asn Thr Pro Cys His Ile Lys Gln
                565                 570                 575

Ile Phe Thr His Pro His Leu Glu Leu Asn Pro Asp Phe His Pro Lys
            580                 585                 590

Ile Lys Asp Tyr Tyr Cys Glu Val Pro Phe Asp Val Val Thr Val Thr
        595                 600                 605

Ile Gly Val Glu Thr Pro Lys Cys Leu Cys Lys Val His Leu Tyr Glu
    610                 615                 620

Gln Ala Gly Pro Ser Phe Ala Ser Tyr Pro Leu Gly Leu Gly Met Asn
625                 630                 635                 640

Lys Ile Ser Ile Phe Val Val Asp Glu Ser Pro Ala His Gly Glu Thr
                645                 650                 655

Leu Ile Thr Tyr Lys Leu Thr Ile Tyr Arg Glu Asp Arg Pro Ser Leu
            660                 665                 670

Pro Leu Phe Glu Ala Phe Thr Ala Cys Gly Phe Val Gln Asp Cys Gly
        675                 680                 685

Leu Leu Ile His Pro Glu Glu Thr Cys Gly Leu Gln Pro Ile Ser Ser
    690                 695                 700

Asp Tyr Ile Glu Ala Ile Leu Gln Ser Glu Leu Lys Arg Cys Pro Ser
705                 710                 715                 720
```

Gly Asp Met Lys Gly Gln Trp Ile Val Pro Cys Leu Ser Cys Ser Asp
725 730 735

Asn Arg Thr Cys Asp Trp Arg Glu Ile Thr Trp Gln Pro His Asn Cys
740 745 750

Gln Tyr Gly Val Leu Thr Lys Pro Gln Leu Gln Gln Cys Leu Gly Gly
755 760 765

Arg Lys Leu Gly Val Asp Val Gln Arg Val Pro Arg Ser Arg Asn
770 775 780

<210> 10421
<211> 563
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2088; "

<220>
<221> source
<223> /note="Gene Symbol: CPED1; "

<220>
<221> source
<223> /note="Gene Name: cadherin-like and PC-esterase
domain containing 1; "

<220>
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<223> /note="ENSP ID: ENSP00000415573"

<400> 10421
Met Gln Leu Lys Pro Ser Thr Ser Ser His Leu Leu Lys Thr Val Lys
1 5 10 15

Pro Arg Val Trp Lys Pro Gly Asp Trp Ser Arg Glu Gln Leu Asn Glu
20 25 30

Thr Thr Val Leu Ala Pro His Glu Thr Ile Phe Arg Ala Glu Asp Leu
35 40 45

Ser Val Ile Leu Lys Ala Tyr Val Leu Val Thr Ser Leu Thr Pro Leu
50 55 60

Arg Ala Phe Ile His Ser Thr Gly Thr Val Trp Asn Pro Pro Lys Lys

65 70 75 80

Lys Arg Phe Thr Val Lys Leu Gln Thr Phe Phe Glu Thr Phe Leu Arg
85 90 95

Ala Ser Ser Pro Gln Gln Ala Phe Asp Ile Met Lys Glu Ala Ile Gly
100 105 110

Lys Leu Leu Leu Ala Ala Glu Val Phe Ser Glu Thr Ser Thr Leu Gly
115 120 125

Pro Lys Thr Phe His Arg Cys Arg Phe Cys Phe Gln Leu Leu Thr Phe
130 135 140

Asp Ile Gly Tyr Gly Ser Phe Met Tyr Pro Val Val Leu Gln Val His
145 150 155 160

Glu His Leu Asn Phe Gln Asp Tyr Asp Asn Met Asp Phe Glu Asp Gln
165 170 175

Asn Thr Glu Glu Phe Leu Leu Asn Asp Thr Phe Asn Phe Leu Phe Pro
180 185 190

Asn Glu Ser Ser Leu Ser Ile Phe Ser Glu Ile Phe Gln Arg Leu Tyr
195 200 205

Arg Ser Asp Val Phe Lys Gly Glu Asn Tyr Gln Lys Glu Leu Asn Gln
210 215 220

Cys Leu Ser Leu Glu Glu Ile Asn Ser Ile Met Thr Phe Ile Lys Glu
225 230 235 240

Leu Gly Ser Leu Gly Gln Phe Gln Leu Leu Phe Pro Ser Thr Thr Pro
245 250 255

Gly Ile Gln Ser Leu Met His Glu Phe Tyr Asp Val Ala Asn Pro Val
260 265 270

Gly Asn Pro Gly Ser Val Leu Thr Gln Tyr Trp Ser Leu Leu Asn Val
275 280 285

Phe Glu Gln Phe Gln Phe Met Asn Lys Lys Thr Gln Pro His Pro Leu
290 295 300

```
Glu Trp Asn Ser Phe Thr Glu Asp Lys Asn Ile Glu Lys Pro Gln Val
305                 310                 315                 320

Pro Phe Asp Ala Ile Glu Asn Lys Lys Ala Ala Val Pro Gln Ile Lys
                325                 330                 335

Asn Glu Asn Lys Glu Ile His Cys Ser Asp Asp Glu Asn Thr Pro Cys
            340                 345                 350

His Ile Lys Gln Ile Phe Thr His Pro His Leu Glu Leu Asn Pro Asp
        355                 360                 365

Phe His Pro Lys Ile Lys Asp Tyr Tyr Cys Glu Val Pro Phe Asp Val
    370                 375                 380

Val Thr Val Thr Ile Gly Val Glu Thr Pro Lys Cys Leu Cys Lys Val
385                 390                 395                 400

His Leu Tyr Glu Gln Ala Gly Pro Ser Phe Ala Ser Tyr Pro Leu Gly
                405                 410                 415

Leu Gly Met Asn Lys Ile Ser Ile Phe Val Val Asp Glu Ser Pro Ala
            420                 425                 430

His Gly Glu Thr Leu Ile Thr Tyr Lys Leu Thr Ile Tyr Arg Glu Asp
        435                 440                 445

Arg Pro Ser Leu Pro Leu Phe Glu Ala Phe Thr Ala Cys Gly Phe Val
    450                 455                 460

Gln Asp Cys Gly Leu Leu Ile His Pro Glu Glu Thr Cys Gly Leu Gln
465                 470                 475                 480

Pro Ile Ser Ser Asp Tyr Ile Glu Ala Ile Leu Gln Ser Glu Leu Lys
                485                 490                 495

Arg Cys Pro Ser Gly Asp Met Lys Gly Gln Trp Ile Val Pro Cys Leu
            500                 505                 510

Ser Cys Ser Asp Asn Arg Thr Cys Asp Trp Arg Glu Ile Thr Trp Gln
        515                 520                 525
```

Pro His Asn Cys Gln Tyr Gly Val Leu Thr Lys Pro Gln Leu Gln Gln
530 535 540

Cys Leu Gly Gly Arg Lys Leu Gly Val Asp Val Gln Arg Val Pro Arg
545 550 555 560

Ser Arg Asn

<210> 10422
<211> 60
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2088; "

<220>
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<223> /note="Gene Symbol: CPED1; "

<220>
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<223> /note="Gene Name: cadherin-like and PC-esterase
domain containing 1; "

<220>
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<223> /note="ENSP ID: ENSP00000428504"

<400> 10422
Arg Cys Lys Lys Gly Phe Ser Gln Asp Lys Gln Cys Phe Leu Leu Ser
1 5 10 15

Gly Asn Ala Gln Glu Thr Arg Lys Val Glu Phe Phe Gly Phe Ser Gly
20 25 30

Gln Pro Leu Glu Lys Leu Ala Pro Gly Trp Gly Ser Ser Cys Arg Cys
35 40 45

Lys Gly Glu Val Asp Ser Pro Phe Gln Ser Val Leu
50 55 60

<210> 10423
<211> 3359
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2089; "

<220>
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<223> /note="Gene Symbol: CDH23; "

<220>
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<223> /note="Gene Name: cadherin-related 23; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000224721"

<400> 10423
Met Gly Arg His Val Ala Thr Ser Cys His Val Ala Trp Leu Leu Val
1 5 10 15

Leu Ile Ser Gly Cys Trp Gly Gln Val Asn Arg Leu Pro Phe Phe Thr
20 25 30

Asn His Phe Phe Asp Thr Tyr Leu Leu Ile Ser Glu Asp Thr Pro Val
35 40 45

Gly Ser Ser Val Thr Gln Leu Leu Ala Gln Asp Met Asp Asn Asp Pro
50 55 60

Leu Val Phe Gly Val Ser Gly Glu Glu Ala Ser Arg Phe Phe Ala Val
65 70 75 80

Glu Pro Asp Thr Gly Val Val Trp Leu Arg Gln Pro Leu Asp Arg Glu
85 90 95

Thr Lys Ser Glu Phe Thr Val Glu Phe Ser Val Ser Asp His Gln Gly
100 105 110

Val Ile Thr Arg Lys Val Asn Ile Gln Val Gly Asp Val Asn Asp Asn
115 120 125

Ala Pro Thr Phe His Asn Gln Pro Tyr Ser Val Arg Ile Pro Glu Val
130 135 140

Gly Ala Thr Gly Asn Thr Pro Val Gly Thr Pro Ile Phe Ile Val Asn
145 150 155 160

```
Ala Thr Asp Pro Asp Leu Gly Ala Gly Gly Ser Val Leu Tyr Ser Phe
                165                 170                 175

Gln Pro Pro Ser Gln Phe Phe Ala Ile Asp Ser Ala Arg Gly Ile Val
            180                 185                 190

Thr Val Ile Arg Glu Leu Asp Tyr Glu Thr Thr Gln Ala Tyr Gln Leu
        195                 200                 205

Thr Val Asn Ala Thr Asp Gln Asp Lys Thr Arg Pro Leu Ser Thr Leu
    210                 215                 220

Ala Asn Leu Ala Ile Ile Ile Thr Asp Val Gln Asp Met Asp Pro Ile
225                 230                 235                 240

Phe Ile Asn Leu Pro Tyr Ser Thr Asn Ile Tyr Glu His Ser Pro Pro
                245                 250                 255

Gly Thr Thr Val Arg Ile Ile Thr Ala Ile Asp Gln Asp Lys Gly Arg
            260                 265                 270

Pro Arg Gly Ile Gly Tyr Thr Ile Val Ser Gly Asn Thr Asn Ser Ile
        275                 280                 285

Phe Ala Leu Asp Tyr Ile Ser Gly Val Leu Thr Leu Asn Gly Leu Leu
    290                 295                 300

Asp Arg Glu Asn Pro Leu Tyr Ser His Gly Phe Ile Leu Thr Val Lys
305                 310                 315                 320

Gly Thr Glu Leu Asn Asp Asp Arg Thr Pro Ser Asp Ala Thr Val Thr
                325                 330                 335

Thr Thr Phe Asn Ile Leu Val Ile Asp Ile Asn Asp Asn Ala Pro Glu
            340                 345                 350

Phe Asn Ser Ser Glu Tyr Ser Val Ala Ile Thr Glu Leu Ala Gln Val
        355                 360                 365

Gly Phe Ala Leu Pro Leu Phe Ile Gln Val Val Asp Lys Asp Glu Asn
    370                 375                 380

Leu Gly Leu Asn Ser Met Phe Glu Val Tyr Leu Val Gly Asn Asn Ser
```

385 390 395 400

His His Phe Ile Ile Ser Pro Thr Ser Val Gln Gly Lys Ala Asp Ile
405 410 415

Arg Ile Arg Val Ala Ile Pro Leu Asp Tyr Glu Thr Val Asp Arg Tyr
420 425 430

Asp Phe Asp Leu Phe Ala Asn Glu Ser Val Pro Asp His Val Gly Tyr
435 440 445

Ala Lys Val Lys Ile Thr Leu Ile Asn Glu Asn Asp Asn Arg Pro Ile
450 455 460

Phe Ser Gln Pro Leu Tyr Asn Ile Ser Leu Tyr Glu Asn Val Thr Val
465 470 475 480

Gly Thr Ser Val Leu Thr Val Leu Ala Thr Asp Asn Asp Ala Gly Thr
485 490 495

Phe Gly Glu Val Ser Tyr Phe Phe Ser Asp Asp Pro Asp Arg Phe Ser
500 505 510

Leu Asp Lys Asp Thr Gly Leu Ile Met Leu Ile Ala Arg Leu Asp Tyr
515 520 525

Glu Leu Ile Gln Arg Phe Thr Leu Thr Ile Ile Ala Arg Asp Gly Gly
530 535 540

Gly Glu Glu Thr Thr Gly Arg Val Arg Ile Asn Val Leu Asp Val Asn
545 550 555 560

Asp Asn Val Pro Thr Phe Gln Lys Asp Ala Tyr Val Gly Ala Leu Arg
565 570 575

Glu Asn Glu Pro Ser Val Thr Gln Leu Val Arg Leu Arg Ala Thr Asp
580 585 590

Glu Asp Ser Pro Pro Asn Asn Gln Ile Thr Tyr Ser Ile Val Ser Ala
595 600 605

Ser Ala Phe Gly Ser Tyr Phe Asp Ile Ser Leu Tyr Glu Gly Tyr Gly
610 615 620

Val Ile Ser Val Ser Arg Pro Leu Asp Tyr Glu Gln Ile Ser Asn Gly
625 630 635 640

Leu Ile Tyr Leu Thr Val Met Ala Met Asp Ala Gly Asn Pro Pro Leu
645 650 655

Asn Ser Thr Val Pro Val Thr Ile Glu Val Phe Asp Glu Asn Asp Asn
660 665 670

Pro Pro Thr Phe Ser Lys Pro Ala Tyr Phe Val Ser Val Val Glu Asn
675 680 685

Ile Met Ala Gly Ala Thr Val Leu Phe Leu Asn Ala Thr Asp Leu Asp
690 695 700

Arg Ser Arg Glu Tyr Gly Gln Glu Ser Ile Ile Tyr Ser Leu Glu Gly
705 710 715 720

Ser Thr Gln Phe Arg Ile Asn Ala Arg Ser Gly Glu Ile Thr Thr Thr
725 730 735

Ser Leu Leu Asp Arg Glu Thr Lys Ser Glu Tyr Ile Leu Ile Val Arg
740 745 750

Ala Val Asp Gly Gly Val Gly His Asn Gln Lys Thr Gly Ile Ala Thr
755 760 765

Val Asn Ile Thr Leu Leu Asp Ile Asn Asp Asn His Pro Thr Trp Lys
770 775 780

Asp Ala Pro Tyr Tyr Ile Asn Leu Val Glu Met Thr Pro Pro Asp Ser
785 790 795 800

Asp Val Thr Thr Val Val Ala Val Asp Pro Asp Leu Gly Glu Asn Gly
805 810 815

Thr Leu Val Tyr Ser Ile Gln Pro Pro Asn Lys Phe Tyr Ser Leu Asn
820 825 830

Ser Thr Thr Gly Lys Ile Arg Thr Thr His Ala Met Leu Asp Arg Glu
835 840 845

```
Asn Pro Asp Pro His Glu Ala Glu Leu Met Arg Lys Ile Val Val Ser
    850                 855                 860

Val Thr Asp Cys Gly Arg Pro Pro Leu Lys Ala Thr Ser Ser Ala Thr
865                 870                 875                 880

Val Phe Val Asn Leu Leu Asp Leu Asn Asp Asn Asp Pro Thr Phe Gln
                885                 890                 895

Asn Leu Pro Phe Val Ala Glu Val Leu Glu Gly Ile Pro Ala Gly Val
            900                 905                 910

Ser Ile Tyr Gln Val Val Ala Ile Asp Leu Asp Glu Gly Leu Asn Gly
        915                 920                 925

Leu Val Ser Tyr Arg Met Pro Val Gly Met Pro Arg Met Asp Phe Leu
    930                 935                 940

Ile Asn Ser Ser Ser Gly Val Val Val Thr Thr Thr Glu Leu Asp Arg
945                 950                 955                 960

Glu Arg Ile Ala Glu Tyr Gln Leu Arg Val Val Ala Ser Asp Ala Gly
                965                 970                 975

Thr Pro Thr Lys Ser Ser Thr Ser Thr Leu Thr Ile His Val Leu Asp
            980                 985                 990

Val Asn Asp Glu Thr Pro Thr Phe  Phe Pro Ala Val Tyr  Asn Val
Ser
        995                 1000                1005

Val Ser  Glu Asp Val Pro Arg  Glu Phe Arg Val Val  Trp Leu Asn
    1010                1015                1020

Cys Thr  Asp Asn Asp Val Gly  Leu Asn Ala Glu Leu  Ser Tyr Phe
    1025                1030                1035

Ile Thr  Gly Gly Asn Val Asp  Gly Lys Phe Ser Val  Gly Tyr Arg
    1040                1045                1050

Asp Ala  Val Val Arg Thr Val  Val Gly Leu Asp Arg  Glu Thr Thr
    1055                1060                1065
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Ala Ala  Tyr Met Leu Ile Leu  Glu Ala Ile Asp Asn  Gly Pro Val
    1070                1075                1080

Gly Lys  Arg His Thr Gly Thr  Ala Thr Val Phe Val  Thr Val Leu
    1085                1090                1095

Asp Val  Asn Asp Asn Arg Pro  Ile Phe Leu Gln Ser  Ser Tyr Glu
    1100                1105                1110

Ala Ser  Val Pro Glu Asp Ile  Pro Glu Gly His Ser  Ile Leu Gln
    1115                1120                1125

Leu Lys  Ala Thr Asp Ala Asp  Glu Gly Glu Phe Gly  Arg Val Trp
    1130                1135                1140

Tyr Arg  Ile Leu His Gly Asn  His Gly Asn Asn Phe  Arg Ile His
    1145                1150                1155

Val Ser  Asn Gly Leu Leu Met  Arg Gly Pro Arg Pro  Leu Asp Arg
    1160                1165                1170

Glu Arg  Asn Ser Ser His Val  Leu Ile Val Glu Ala  Tyr Asn His
    1175                1180                1185

Asp Leu  Gly Pro Met Arg Ser  Ser Val Arg Val Ile  Val Tyr Val
    1190                1195                1200

Glu Asp  Ile Asn Asp Glu Ala  Pro Val Phe Thr Gln  Gln Gln Tyr
    1205                1210                1215

Ser Arg  Leu Gly Leu Arg Glu  Thr Ala Gly Ile Gly  Thr Ser Val
    1220                1225                1230

Ile Val  Val Gln Ala Thr Asp  Arg Asp Ser Gly Asp  Gly Gly Leu
    1235                1240                1245

Val Asn  Tyr Arg Ile Leu Ser  Gly Ala Glu Gly Lys  Phe Glu Ile
    1250                1255                1260

Asp Glu  Ser Thr Gly Leu Ile  Ile Thr Val Asn Tyr  Leu Asp Tyr
    1265                1270                1275
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Glu Thr Lys Thr Ser Tyr Met Met Asn Val Ser Ala Thr Asp Gln
1280 1285 1290

Ala Pro Pro Phe Asn Gln Gly Phe Cys Ser Val Tyr Ile Thr Leu
1295 1300 1305

Leu Asn Glu Leu Asp Glu Ala Val Gln Phe Ser Asn Ala Ser Tyr
1310 1315 1320

Glu Ala Ala Ile Leu Glu Asn Leu Ala Leu Gly Thr Glu Ile Val
1325 1330 1335

Arg Val Gln Ala Tyr Ser Ile Asp Asn Leu Asn Gln Ile Thr Tyr
1340 1345 1350

Arg Phe Asn Ala Tyr Thr Ser Thr Gln Ala Lys Ala Leu Phe Lys
1355 1360 1365

Ile Asp Ala Ile Thr Gly Val Ile Thr Val Gln Gly Leu Val Asp
1370 1375 1380

Arg Glu Lys Gly Asp Phe Tyr Thr Leu Thr Val Val Ala Asp Asp
1385 1390 1395

Gly Gly Pro Lys Val Asp Ser Thr Val Lys Val Tyr Ile Thr Val
1400 1405 1410

Leu Asp Glu Asn Asp Asn Ser Pro Arg Phe Asp Phe Thr Ser Asp
1415 1420 1425

Ser Ala Val Ser Ile Pro Glu Asp Cys Pro Val Gly Gln Arg Val
1430 1435 1440

Ala Thr Val Lys Ala Trp Asp Pro Asp Ala Gly Ser Asn Gly Gln
1445 1450 1455

Val Val Phe Ser Leu Ala Ser Gly Asn Ile Ala Gly Ala Phe Glu
1460 1465 1470

Ile Val Thr Thr Asn Asp Ser Ile Gly Glu Val Phe Val Ala Arg
1475 1480 1485

Pro Leu Asp Arg Glu Glu Leu Asp His Tyr Ile Leu Gln Val Val

1490 1495 1500

Ala Ser Asp Arg Gly Thr Pro Pro Arg Lys Lys Asp His Ile Leu
1505 1510 1515

Gln Val Thr Ile Leu Asp Ile Asn Asp Asn Pro Pro Val Ile Glu
1520 1525 1530

Ser Pro Phe Gly Tyr Asn Val Ser Val Asn Glu Asn Val Gly Gly
1535 1540 1545

Gly Thr Ala Val Val Gln Val Arg Ala Thr Asp Arg Asp Ile Gly
1550 1555 1560

Ile Asn Ser Val Leu Ser Tyr Tyr Ile Thr Glu Gly Asn Lys Asp
1565 1570 1575

Met Ala Phe Arg Met Asp Arg Ile Ser Gly Glu Ile Ala Thr Arg
1580 1585 1590

Pro Ala Pro Pro Asp Arg Glu Arg Gln Ser Phe Tyr His Leu Val
1595 1600 1605

Ala Thr Val Glu Asp Glu Gly Thr Pro Thr Leu Ser Ala Thr Thr
1610 1615 1620

His Val Tyr Val Thr Ile Val Asp Glu Asn Asp Asn Ala Pro Met
1625 1630 1635

Phe Gln Gln Pro His Tyr Glu Val Leu Leu Asp Glu Gly Pro Asp
1640 1645 1650

Thr Leu Asn Thr Ser Leu Ile Thr Ile Gln Ala Leu Asp Leu Asp
1655 1660 1665

Glu Gly Pro Asn Gly Thr Val Thr Tyr Ala Ile Val Ala Gly Asn
1670 1675 1680

Ile Val Asn Thr Phe Arg Ile Asp Arg His Met Gly Val Ile Thr
1685 1690 1695

Ala Ala Lys Glu Leu Asp Tyr Glu Ile Ser His Gly Arg Tyr Thr
1700 1705 1710

```
Leu Ile  Val Thr Ala Thr Asp  Gln Cys Pro Ile Leu  Ser His Arg
    1715                1720                1725

Leu Thr  Ser Thr Thr Thr Val  Leu Val Asn Val Asn  Asp Ile Asn
    1730                1735                1740

Asp Asn  Val Pro Thr Phe Pro  Arg Asp Tyr Glu Gly  Pro Phe Glu
    1745                1750                1755

Val Thr  Glu Gly Gln Pro Gly  Pro Arg Val Trp Thr  Phe Leu Ala
    1760                1765                1770

His Asp  Arg Asp Ser Gly Pro  Asn Gly Gln Val Glu  Tyr Ser Ile
    1775                1780                1785

Met Asp  Gly Asp Pro Leu Gly  Glu Phe Val Ile Ser  Pro Val Glu
    1790                1795                1800

Gly Val  Leu Arg Val Arg Lys  Asp Val Glu Leu Asp  Arg Glu Thr
    1805                1810                1815

Ile Ala  Phe Tyr Asn Leu Thr  Ile Cys Ala Arg Asp  Arg Gly Met
    1820                1825                1830

Pro Pro  Leu Ser Ser Thr Met  Leu Val Gly Ile Arg  Val Leu Asp
    1835                1840                1845

Ile Asn  Asp Asn Asp Pro Val  Leu Leu Asn Leu Pro  Met Asn Ile
    1850                1855                1860

Thr Ile  Ser Glu Asn Ser Pro  Val Ser Ser Phe Val  Ala His Val
    1865                1870                1875

Leu Ala  Ser Asp Ala Asp Ser  Gly Cys Asn Ala Arg  Leu Thr Phe
    1880                1885                1890

Asn Ile  Thr Ala Gly Asn Arg  Glu Arg Ala Phe Phe  Ile Asn Ala
    1895                1900                1905

Thr Thr  Gly Ile Val Thr Val  Asn Arg Pro Leu Asp  Arg Glu Arg
    1910                1915                1920
```

Ile Pro Glu Tyr Lys Leu Thr Ile Ser Val Lys Asp Asn Pro Glu
1925 1930 1935

Asn Pro Arg Ile Ala Arg Arg Asp Tyr Asp Leu Leu Leu Ile Phe
1940 1945 1950

Leu Ser Asp Glu Asn Asp Asn His Pro Leu Phe Thr Lys Ser Thr
1955 1960 1965

Tyr Gln Ala Glu Val Met Glu Asn Ser Pro Ala Gly Thr Pro Leu
1970 1975 1980

Thr Val Leu Asn Gly Pro Ile Leu Ala Leu Asp Ala Asp Gln Asp
1985 1990 1995

Ile Tyr Ala Val Val Thr Tyr Gln Leu Leu Gly Ala Gln Ser Gly
2000 2005 2010

Leu Phe Asp Ile Asn Ser Ser Thr Gly Val Val Thr Val Arg Ser
2015 2020 2025

Gly Val Ile Ile Asp Arg Glu Ala Phe Ser Pro Pro Ile Leu Glu
2030 2035 2040

Leu Leu Leu Leu Ala Glu Asp Ile Gly Leu Leu Asn Ser Thr Ala
2045 2050 2055

His Leu Leu Ile Thr Ile Leu Asp Asp Asn Asp Asn Arg Pro Thr
2060 2065 2070

Phe Ser Pro Ala Thr Leu Thr Val His Leu Leu Glu Asn Cys Pro
2075 2080 2085

Pro Gly Phe Ser Val Leu Gln Val Thr Ala Thr Asp Glu Asp Ser
2090 2095 2100

Gly Leu Asn Gly Glu Leu Val Tyr Arg Ile Glu Ala Gly Ala Gln
2105 2110 2115

Asp Arg Phe Leu Ile His Leu Val Thr Gly Val Ile Arg Val Gly
2120 2125 2130

```
Asn Ala  Thr Ile Asp Arg Glu  Glu Gln Glu Ser Tyr  Arg Leu Thr
    2135                2140                2145

Val Val  Ala Thr Asp Arg Gly  Thr Val Pro Leu Ser  Gly Thr Ala
    2150                2155                2160

Ile Val  Thr Ile Leu Ile Asp  Asp Ile Asn Asp Ser  Arg Pro Glu
    2165                2170                2175

Phe Leu  Asn Pro Ile Gln Thr  Val Ser Val Leu Glu  Ser Ala Glu
    2180                2185                2190

Pro Gly  Thr Val Ile Ala Asn  Ile Thr Ala Ile Asp  His Asp Leu
    2195                2200                2205

Asn Pro  Lys Leu Glu Tyr His  Ile Val Gly Ile Val  Ala Lys Asp
    2210                2215                2220

Asp Thr  Asp Arg Leu Val Pro  Asn Gln Glu Asp Ala  Phe Ala Val
    2225                2230                2235

Asn Ile  Asn Thr Gly Ser Val  Met Val Lys Ser Pro  Met Asn Arg
    2240                2245                2250

Glu Leu  Val Ala Thr Tyr Glu  Val Thr Leu Ser Val  Ile Asp Asn
    2255                2260                2265

Ala Ser  Asp Leu Pro Glu Arg  Ser Val Ser Val Pro  Asn Ala Lys
    2270                2275                2280

Leu Thr  Val Asn Val Leu Asp  Val Asn Asp Asn Thr  Pro Gln Phe
    2285                2290                2295

Lys Pro  Phe Gly Ile Thr Tyr  Tyr Met Glu Arg Ile  Leu Glu Gly
    2300                2305                2310

Ala Thr  Pro Gly Thr Thr Leu  Ile Ala Val Ala Ala  Val Asp Pro
    2315                2320                2325

Asp Lys  Gly Leu Asn Gly Leu  Val Thr Tyr Thr Leu  Leu Asp Leu
    2330                2335                2340

Val Pro  Pro Gly Tyr Val Gln  Leu Glu Asp Ser Ser  Ala Gly Lys
```

2345 2350 2355

Val Ile Ala Asn Arg Thr Val Asp Tyr Glu Glu Val His Trp Leu
2360 2365 2370

Asn Phe Thr Val Arg Ala Ser Asp Asn Gly Ser Pro Pro Arg Ala
2375 2380 2385

Ala Glu Ile Pro Val Tyr Leu Glu Ile Val Asp Ile Asn Asp Asn
2390 2395 2400

Asn Pro Ile Phe Asp Gln Pro Ser Tyr Gln Glu Ala Val Phe Glu
2405 2410 2415

Asp Val Pro Val Gly Thr Ile Ile Leu Thr Val Thr Ala Thr Asp
2420 2425 2430

Ala Asp Ser Gly Asn Phe Ala Leu Ile Glu Tyr Ser Leu Gly Asp
2435 2440 2445

Gly Glu Ser Lys Phe Ala Ile Asn Pro Thr Thr Gly Asp Ile Tyr
2450 2455 2460

Val Leu Ser Ser Leu Asp Arg Glu Lys Lys Asp His Tyr Ile Leu
2465 2470 2475

Thr Ala Leu Ala Lys Asp Asn Pro Gly Asp Val Ala Ser Asn Arg
2480 2485 2490

Arg Glu Asn Ser Val Gln Val Val Ile Gln Val Leu Asp Val Asn
2495 2500 2505

Asp Cys Arg Pro Gln Phe Ser Lys Pro Gln Phe Ser Thr Ser Val
2510 2515 2520

Tyr Glu Asn Glu Pro Ala Gly Thr Ser Val Ile Thr Met Met Ala
2525 2530 2535

Thr Asp Gln Asp Glu Gly Pro Asn Gly Glu Leu Thr Tyr Ser Leu
2540 2545 2550

Glu Gly Pro Gly Val Glu Ala Phe His Val Asp Met Asp Ser Gly
2555 2560 2565

```
Leu Val  Thr Thr Gln Arg Pro  Leu Gln Ser Tyr Glu  Lys Phe Ser
    2570                2575                2580

Leu Thr  Val Val Ala Thr Asp  Gly Gly Glu Pro Pro  Leu Trp Gly
    2585                2590                2595

Thr Thr  Met Leu Leu Val Glu  Val Ile Asp Val Asn  Asp Asn Arg
    2600                2605                2610

Pro Val  Phe Val Arg Pro Pro  Asn Gly Thr Ile Leu  His Ile Arg
    2615                2620                2625

Glu Glu  Ile Pro Leu Arg Ser  Asn Val Tyr Glu Val  Tyr Ala Thr
    2630                2635                2640

Asp Lys  Asp Glu Gly Leu Asn  Gly Ala Val Arg Tyr  Ser Phe Leu
    2645                2650                2655

Lys Thr  Ala Gly Asn Arg Asp  Trp Glu Phe Phe Ile  Ile Asp Pro
    2660                2665                2670

Ile Ser  Gly Leu Ile Gln Thr  Ala Gln Arg Leu Asp  Arg Glu Ser
    2675                2680                2685

Gln Ala  Val Tyr Ser Leu Ile  Leu Val Ala Ser Asp  Leu Gly Gln
    2690                2695                2700

Pro Val  Pro Tyr Glu Thr Met  Gln Pro Leu Gln Val  Ala Leu Glu
    2705                2710                2715

Asp Ile  Asp Asp Asn Glu Pro  Leu Phe Val Arg Pro  Pro Lys Gly
    2720                2725                2730

Ser Pro  Gln Tyr Gln Leu Leu  Thr Val Pro Glu His  Ser Pro Arg
    2735                2740                2745

Gly Thr  Leu Val Gly Asn Val  Thr Gly Ala Val Asp  Ala Asp Glu
    2750                2755                2760

Gly Pro  Asn Ala Ile Val Tyr  Tyr Phe Ile Ala Ala  Gly Asn Glu
    2765                2770                2775
```

```
Glu Lys  Asn Phe His Leu Gln  Pro Asp Gly Cys Leu  Leu Val Leu
    2780                2785                2790

Arg Asp  Leu Asp Arg Glu Arg  Glu Ala Ile Phe Ser  Phe Ile Val
    2795                2800                2805

Lys Ala  Ser Ser Asn Arg Ser  Trp Thr Pro Pro Arg  Gly Pro Ser
    2810                2815                2820

Pro Thr  Leu Asp Leu Val Ala  Asp Leu Thr Leu Gln  Glu Val Arg
    2825                2830                2835

Val Val  Leu Glu Asp Ile Asn  Asp Gln Pro Pro Arg  Phe Thr Lys
    2840                2845                2850

Ala Glu  Tyr Thr Ala Gly Val  Ala Thr Asp Ala Lys  Val Gly Ser
    2855                2860                2865

Glu Leu  Ile Gln Val Leu Ala  Leu Asp Ala Asp Ile  Gly Asn Asn
    2870                2875                2880

Ser Leu  Val Phe Tyr Ser Ile  Leu Ala Ile His Tyr  Phe Arg Ala
    2885                2890                2895

Leu Ala  Asn Asp Ser Glu Asp  Val Gly Gln Val Phe  Thr Met Gly
    2900                2905                2910

Ser Met  Asp Gly Ile Leu Arg  Thr Phe Asp Leu Phe  Met Ala Tyr
    2915                2920                2925

Ser Pro  Gly Tyr Phe Val Val  Asp Ile Val Ala Arg  Asp Leu Ala
    2930                2935                2940

Gly His  Asn Asp Thr Ala Ile  Ile Gly Ile Tyr Ile  Leu Arg Asp
    2945                2950                2955

Asp Gln  Arg Val Lys Ile Val  Ile Asn Glu Ile Pro  Asp Arg Val
    2960                2965                2970

Arg Gly  Phe Glu Glu Glu Phe  Ile His Leu Leu Ser  Asn Ile Thr
    2975                2980                2985
```

Gly Ala Ile Val Asn Thr Asp Asn Val Gln Phe His Val Asp Lys
2990 2995 3000

Lys Gly Arg Val Asn Phe Ala Gln Thr Glu Leu Leu Ile His Val
3005 3010 3015

Val Asn Arg Asp Thr Asn Arg Ile Leu Asp Val Asp Arg Val Ile
3020 3025 3030

Gln Met Ile Asp Glu Asn Lys Glu Gln Leu Arg Asn Leu Phe Arg
3035 3040 3045

Asn Tyr Asn Val Leu Asp Val Gln Pro Ala Ile Ser Val Arg Leu
3050 3055 3060

Pro Asp Asp Met Ser Ala Leu Gln Met Ala Ile Ile Val Leu Ala
3065 3070 3075

Ile Leu Leu Phe Leu Ala Ala Met Leu Phe Val Leu Met Asn Trp
3080 3085 3090

Tyr Tyr Arg Thr Val His Lys Arg Lys Leu Lys Ala Ile Val Ala
3095 3100 3105

Gly Ser Ala Gly Asn Arg Gly Phe Ile Asp Ile Met Asp Met Pro
3110 3115 3120

Asn Thr Asn Lys Tyr Ser Phe Asp Gly Ala Asn Pro Val Trp Leu
3125 3130 3135

Asp Pro Phe Cys Arg Asn Leu Glu Leu Ala Ala Gln Ala Glu His
3140 3145 3150

Glu Asp Asp Leu Pro Glu Asn Leu Ser Glu Ile Ala Asp Leu Trp
3155 3160 3165

Asn Ser Pro Thr Arg Thr His Gly Thr Phe Gly Arg Glu Pro Ala
3170 3175 3180

Ala Val Lys Pro Asp Asp Asp Arg Tyr Leu Arg Ala Ala Ile Gln
3185 3190 3195

Glu Tyr Asp Asn Ile Ala Lys Leu Gly Gln Ile Ile Arg Glu Gly

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    3200                3205                3210

Pro Ile  Lys Gly Ser Leu Leu  Lys Val Val Leu Glu  Asp Tyr Leu
    3215                3220                3225

Arg Leu  Lys Lys Leu Phe Ala  Gln Arg Met Val Gln  Lys Ala Ser
    3230                3235                3240

Ser Cys  His Ser Ser Ile Ser  Glu Leu Ile Gln Thr  Glu Leu Asp
    3245                3250                3255

Glu Glu  Pro Gly Asp His Ser  Pro Gly Gln Gly Ser  Leu Arg Phe
    3260                3265                3270

Arg His  Lys Pro Pro Val Glu  Leu Lys Gly Pro Asp  Gly Ile His
    3275                3280                3285

Val Val  His Gly Ser Thr Gly  Thr Leu Leu Ala Thr  Asp Leu Asn
    3290                3295                3300

Ser Leu  Pro Glu Glu Asp Gln  Lys Gly Leu Gly Arg  Ser Leu Glu
    3305                3310                3315

Thr Leu  Thr Ala Ala Glu Ala  Thr Ala Phe Glu Arg  Asn Ala Arg
    3320                3325                3330

Thr Glu  Ser Ala Lys Ser Thr  Pro Leu His Lys Leu  Arg Asp Val
    3335                3340                3345

Ile Met  Glu Thr Pro Leu Glu  Ile Thr Glu Leu
    3350                3355


<210> 10424
<211> 1061
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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<220>
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Met Gly Arg His Val Ala Thr Ser Cys His Val Ala Trp Leu Leu Val
1   5   10   15

Leu Ile Ser Gly Cys Trp Gly Gln Val Asn Arg Leu Pro Phe Phe Thr
            20   25   30

Asn His Phe Phe Asp Thr Tyr Leu Leu Ile Ser Glu Asp Thr Pro Val
        35   40   45

Gly Ser Ser Val Thr Gln Leu Leu Ala Gln Asp Met Asp Asn Asp Pro
    50   55   60

Leu Val Phe Gly Val Ser Gly Glu Glu Ala Ser Arg Phe Phe Ala Val
65   70   75   80

Glu Pro Asp Thr Gly Val Val Trp Leu Arg Gln Pro Leu Asp Arg Glu
                85   90   95

Thr Lys Ser Glu Phe Thr Val Glu Phe Ser Val Ser Asp His Gln Gly
            100   105   110

Val Ile Thr Arg Lys Val Asn Ile Gln Val Gly Asp Val Asn Asp Asn
        115   120   125

Ala Pro Thr Phe His Asn Gln Pro Tyr Ser Val Arg Ile Pro Glu Asn
    130   135   140

Thr Pro Val Gly Thr Pro Ile Phe Ile Val Asn Ala Thr Asp Pro Asp
145   150   155   160

Leu Gly Ala Gly Gly Ser Val Leu Tyr Ser Phe Gln Pro Pro Ser Gln
                165   170   175

Phe Phe Ala Ile Asp Ser Ala Arg Gly Ile Val Thr Val Ile Arg Glu
            180   185   190

Leu Asp Tyr Glu Thr Thr Gln Ala Tyr Gln Leu Thr Val Asn Ala Thr

```
        195                 200                 205

Asp Gln Asp Lys Thr Arg Pro Leu Ser Thr Leu Ala Asn Leu Ala Ile
    210                 215                 220

Ile Ile Thr Asp Val Gln Asp Met Asp Pro Ile Phe Ile Asn Leu Pro
225                 230                 235                 240

Tyr Ser Thr Asn Ile Tyr Glu His Ser Pro Pro Gly Thr Thr Val Arg
                245                 250                 255

Ile Ile Thr Ala Ile Asp Gln Asp Lys Gly Arg Pro Arg Gly Ile Gly
            260                 265                 270

Tyr Thr Ile Val Ser Gly Asn Thr Asn Ser Ile Phe Ala Leu Asp Tyr
        275                 280                 285

Ile Ser Gly Val Leu Thr Leu Asn Gly Leu Leu Asp Arg Glu Asn Pro
    290                 295                 300

Leu Tyr Ser His Gly Phe Ile Leu Thr Val Lys Gly Thr Glu Leu Asn
305                 310                 315                 320

Asp Asp Arg Thr Pro Ser Asp Ala Thr Val Thr Thr Thr Phe Asn Ile
                325                 330                 335

Leu Val Ile Asp Ile Asn Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu
            340                 345                 350

Tyr Ser Val Ala Ile Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro
        355                 360                 365

Leu Phe Ile Gln Val Val Asp Lys Asp Glu Asn Leu Gly Leu Asn Ser
    370                 375                 380

Met Phe Glu Val Tyr Leu Val Gly Asn Asn Ser His His Phe Ile Ile
385                 390                 395                 400

Ser Pro Thr Ser Val Gln Gly Lys Ala Asp Ile Arg Ile Arg Val Ala
                405                 410                 415

Ile Pro Leu Asp Tyr Glu Thr Val Asp Arg Tyr Asp Phe Asp Leu Phe
            420                 425                 430
```

```
Ala Asn Glu Ser Val Pro Asp His Val Gly Tyr Ala Lys Val Lys Ile
        435                 440                 445

Thr Leu Ile Asn Glu Asn Asp Asn Arg Pro Ile Phe Ser Gln Pro Leu
    450                 455                 460

Tyr Asn Ile Ser Leu Tyr Glu Asn Val Thr Val Gly Thr Ser Val Leu
465                 470                 475                 480

Thr Val Leu Ala Thr Asp Asn Asp Ala Gly Thr Phe Gly Glu Val Ser
                485                 490                 495

Tyr Phe Phe Ser Asp Asp Pro Asp Arg Phe Ser Leu Asp Lys Asp Thr
            500                 505                 510

Gly Leu Ile Met Leu Ile Ala Arg Leu Asp Tyr Glu Leu Ile Gln Arg
        515                 520                 525

Phe Thr Leu Thr Ile Ile Ala Arg Asp Gly Gly Gly Glu Glu Thr Thr
    530                 535                 540

Gly Arg Val Arg Ile Asn Val Leu Asp Val Asn Asp Asn Val Pro Thr
545                 550                 555                 560

Phe Gln Lys Asp Ala Tyr Val Gly Ala Leu Arg Glu Asn Glu Pro Ser
                565                 570                 575

Val Thr Gln Leu Val Arg Leu Arg Ala Thr Asp Glu Asp Ser Pro Pro
            580                 585                 590

Asn Asn Gln Ile Thr Tyr Ser Ile Val Ser Ala Ser Ala Phe Gly Ser
        595                 600                 605

Tyr Phe Asp Ile Ser Leu Tyr Glu Gly Tyr Gly Val Ile Ser Val Ser
    610                 615                 620

Arg Pro Leu Asp Tyr Glu Gln Ile Ser Asn Gly Leu Ile Tyr Leu Thr
625                 630                 635                 640

Val Met Ala Met Asp Ala Gly Asn Pro Pro Leu Asn Ser Thr Val Pro
                645                 650                 655
```

```
Val Thr Ile Glu Val Phe Asp Glu Asn Asp Asn Pro Pro Thr Phe Ser
            660                 665                 670

Lys Pro Ala Tyr Phe Val Ser Val Val Glu Asn Ile Met Ala Gly Ala
        675                 680                 685

Thr Val Leu Phe Leu Asn Ala Thr Asp Leu Asp Arg Ser Arg Glu Tyr
    690                 695                 700

Gly Gln Glu Ser Ile Ile Tyr Ser Leu Glu Gly Ser Thr Gln Phe Arg
705                 710                 715                 720

Ile Asn Ala Arg Ser Gly Glu Ile Thr Thr Thr Ser Leu Leu Asp Arg
                725                 730                 735

Glu Thr Lys Ser Glu Tyr Ile Leu Ile Val Arg Ala Val Asp Gly Gly
            740                 745                 750

Val Gly His Asn Gln Lys Thr Gly Ile Ala Thr Val Asn Ile Thr Leu
        755                 760                 765

Leu Asp Ile Asn Asp Asn His Pro Thr Trp Lys Asp Ala Pro Tyr Tyr
    770                 775                 780

Ile Asn Leu Val Glu Met Thr Pro Pro Asp Ser Asp Val Thr Thr Val
785                 790                 795                 800

Val Ala Val Asp Pro Asp Leu Gly Glu Asn Gly Thr Leu Val Tyr Ser
                805                 810                 815

Ile Gln Pro Pro Asn Lys Phe Tyr Ser Leu Asn Ser Thr Thr Gly Lys
            820                 825                 830

Ile Arg Thr Thr His Ala Met Leu Asp Arg Glu Asn Pro Asp Pro His
        835                 840                 845

Glu Ala Glu Leu Met Arg Lys Ile Val Val Ser Val Thr Asp Cys Gly
    850                 855                 860

Arg Pro Pro Leu Lys Ala Thr Ser Ser Ala Thr Val Phe Val Asn Leu
865                 870                 875                 880
```

```
Leu Asp Leu Asn Asp Asn Asp Pro Thr Phe Gln Asn Leu Pro Phe Val
                885                 890                 895

Ala Glu Val Leu Glu Gly Ile Pro Ala Gly Val Ser Ile Tyr Gln Val
            900                 905                 910

Val Ala Ile Asp Leu Asp Glu Gly Leu Asn Gly Leu Val Ser Tyr Arg
        915                 920                 925

Met Pro Val Gly Met Pro Arg Met Asp Phe Leu Ile Asn Ser Ser Ser
    930                 935                 940

Gly Val Val Val Thr Thr Thr Glu Leu Asp Arg Glu Arg Ile Ala Glu
945                 950                 955                 960

Tyr Gln Leu Arg Val Val Ala Ser Asp Ala Gly Thr Pro Thr Lys Ser
                965                 970                 975

Ser Thr Ser Thr Leu Thr Ile His Val Leu Asp Val Asn Asp Glu Thr
            980                 985                 990

Pro Thr Phe Phe Pro Ala Val Tyr  Asn Val Ser Val Ser  Glu Asp
Val
        995                 1000                1005

Pro Arg  Glu Phe Arg Val Val  Trp Leu Asn Cys Thr  Asp Asn Asp
    1010                1015                1020

Val Gly  Leu Asn Ala Glu Leu  Ser Tyr Phe Ile Thr  Gly Ala Ala
    1025                1030                1035

Pro Ala  Ser Ala His Leu Cys  Arg Pro Pro Gly Ala  Leu Pro Pro
    1040                1045                1050

Pro Leu  Pro Asp Gly Gln Pro  Asp
    1055                1060


<210> 10425
<211> 1114
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<223> /note="Gene Name: cadherin-related 23; "

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<220>
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<400> 10425
Met Val Lys Ser Pro Met Asn Arg Glu Leu Val Ala Thr Tyr Glu Val
1   5   10   15

Thr Leu Ser Val Ile Asp Asn Ala Ser Asp Leu Pro Glu Arg Ser Val
            20   25   30

Ser Val Pro Asn Ala Lys Leu Thr Val Asn Val Leu Asp Val Asn Asp
        35   40   45

Asn Thr Pro Gln Phe Lys Pro Phe Gly Ile Thr Tyr Tyr Met Glu Arg
    50   55   60

Ile Leu Glu Gly Ala Thr Pro Gly Thr Thr Leu Ile Ala Val Ala Ala
65   70   75   80

Val Asp Pro Asp Lys Gly Leu Asn Gly Leu Val Thr Tyr Thr Leu Leu
                85   90   95

Asp Leu Val Pro Pro Gly Tyr Val Gln Leu Glu Asp Ser Ser Ala Gly
            100   105   110

Lys Val Ile Ala Asn Arg Thr Val Asp Tyr Glu Glu Val His Trp Leu
        115   120   125

Asn Phe Thr Val Arg Ala Ser Asp Asn Gly Ser Pro Pro Arg Ala Ala
    130   135   140

Glu Ile Pro Val Tyr Leu Glu Ile Val Asp Ile Asn Asp Asn Asn Pro
145   150   155   160

```
Ile Phe Asp Gln Pro Ser Tyr Gln Glu Ala Val Phe Glu Asp Val Pro
                165                 170                 175

Val Gly Thr Ile Ile Leu Thr Val Thr Ala Thr Asp Ala Asp Ser Gly
            180                 185                 190

Asn Phe Ala Leu Ile Glu Tyr Ser Leu Gly Asp Gly Glu Ser Lys Phe
        195                 200                 205

Ala Ile Asn Pro Thr Thr Gly Asp Ile Tyr Val Leu Ser Ser Leu Asp
    210                 215                 220

Arg Glu Lys Lys Asp His Tyr Ile Leu Thr Ala Leu Ala Lys Asp Asn
225                 230                 235                 240

Pro Gly Asp Val Ala Ser Asn Arg Arg Glu Asn Ser Val Gln Val Val
                245                 250                 255

Ile Gln Val Leu Asp Val Asn Asp Cys Arg Pro Gln Phe Ser Lys Pro
            260                 265                 270

Gln Phe Ser Thr Ser Val Tyr Glu Asn Glu Pro Ala Gly Thr Ser Val
        275                 280                 285

Ile Thr Met Met Ala Thr Asp Gln Asp Glu Gly Pro Asn Gly Glu Leu
    290                 295                 300

Thr Tyr Ser Leu Glu Gly Pro Gly Val Glu Ala Phe His Val Asp Met
305                 310                 315                 320

Asp Ser Gly Leu Val Thr Thr Gln Arg Pro Leu Gln Ser Tyr Glu Lys
                325                 330                 335

Phe Ser Leu Thr Val Val Ala Thr Asp Gly Gly Glu Pro Pro Leu Trp
            340                 345                 350

Gly Thr Thr Met Leu Leu Val Glu Val Ile Asp Val Asn Asp Asn Arg
        355                 360                 365

Pro Val Phe Val Arg Pro Pro Asn Gly Thr Ile Leu His Ile Arg Glu
    370                 375                 380
```

```
Glu Ile Pro Leu Arg Ser Asn Val Tyr Glu Val Tyr Ala Thr Asp Lys
385                 390                 395                 400

Asp Glu Gly Leu Asn Gly Ala Val Arg Tyr Ser Phe Leu Lys Thr Ala
                405                 410                 415

Gly Asn Arg Asp Trp Glu Phe Phe Ile Ile Asp Pro Ile Ser Gly Leu
            420                 425                 430

Ile Gln Thr Ala Gln Arg Leu Asp Arg Glu Ser Gln Ala Val Tyr Ser
        435                 440                 445

Leu Ile Leu Val Ala Ser Asp Leu Gly Gln Pro Val Pro Tyr Glu Thr
    450                 455                 460

Met Gln Pro Leu Gln Val Ala Leu Glu Asp Ile Asp Asp Asn Glu Pro
465                 470                 475                 480

Leu Phe Val Arg Pro Pro Lys Gly Ser Pro Gln Tyr Gln Leu Leu Thr
                485                 490                 495

Val Pro Glu His Ser Pro Arg Gly Thr Leu Val Gly Asn Val Thr Gly
            500                 505                 510

Ala Val Asp Ala Asp Glu Gly Pro Asn Ala Ile Val Tyr Tyr Phe Ile
        515                 520                 525

Ala Ala Gly Asn Glu Glu Lys Asn Phe His Leu Gln Pro Asp Gly Cys
    530                 535                 540

Leu Leu Val Leu Arg Asp Leu Asp Arg Glu Arg Glu Ala Ile Phe Ser
545                 550                 555                 560

Phe Ile Val Lys Ala Ser Ser Asn Arg Ser Trp Thr Pro Pro Arg Gly
                565                 570                 575

Pro Ser Pro Thr Leu Asp Leu Val Ala Asp Leu Thr Leu Gln Glu Val
            580                 585                 590

Arg Val Val Leu Glu Asp Ile Asn Asp Gln Pro Pro Arg Phe Thr Lys
        595                 600                 605

Ala Glu Tyr Thr Ala Gly Val Ala Thr Asp Ala Lys Val Gly Ser Glu
```

610 615 620

Leu Ile Gln Val Leu Ala Leu Asp Ala Asp Ile Gly Asn Asn Ser Leu
625 630 635 640

Val Phe Tyr Ser Ile Leu Ala Ile His Tyr Phe Arg Ala Leu Ala Asn
645 650 655

Asp Ser Glu Asp Val Gly Gln Val Phe Thr Met Gly Ser Met Asp Gly
660 665 670

Ile Leu Arg Thr Phe Asp Leu Phe Met Ala Tyr Ser Pro Gly Tyr Phe
675 680 685

Val Val Asp Ile Val Ala Arg Asp Leu Ala Gly His Asn Asp Thr Ala
690 695 700

Ile Ile Gly Ile Tyr Ile Leu Arg Asp Asp Gln Arg Val Lys Ile Val
705 710 715 720

Ile Asn Glu Ile Pro Asp Arg Val Arg Gly Phe Glu Glu Glu Phe Ile
725 730 735

His Leu Leu Ser Asn Ile Thr Gly Ala Ile Val Asn Thr Asp Asn Val
740 745 750

Gln Phe His Val Asp Lys Lys Gly Arg Val Asn Phe Ala Gln Thr Glu
755 760 765

Leu Leu Ile His Val Val Asn Arg Asp Thr Asn Arg Ile Leu Asp Val
770 775 780

Asp Arg Val Ile Gln Met Ile Asp Glu Asn Lys Glu Gln Leu Arg Asn
785 790 795 800

Leu Phe Arg Asn Tyr Asn Val Leu Asp Val Gln Pro Ala Ile Ser Val
805 810 815

Arg Leu Pro Asp Asp Met Ser Ala Leu Gln Met Ala Ile Ile Val Leu
820 825 830

Ala Ile Leu Leu Phe Leu Ala Ala Met Leu Phe Val Leu Met Asn Trp
835 840 845

```
Tyr Tyr Arg Thr Val His Lys Arg Lys Leu Lys Ala Ile Val Ala Gly
    850                 855                 860

Ser Ala Gly Asn Arg Gly Phe Ile Asp Ile Met Asp Met Pro Asn Thr
865                 870                 875                 880

Asn Lys Tyr Ser Phe Asp Gly Ala Asn Pro Val Trp Leu Asp Pro Phe
                885                 890                 895

Cys Arg Asn Leu Glu Leu Ala Ala Gln Ala Glu His Glu Asp Asp Leu
            900                 905                 910

Pro Glu Asn Leu Ser Glu Ile Ala Asp Leu Trp Asn Ser Pro Thr Arg
        915                 920                 925

Thr His Gly Thr Phe Gly Arg Glu Pro Ala Ala Val Lys Pro Asp Asp
    930                 935                 940

Asp Arg Tyr Leu Arg Ala Ala Ile Gln Glu Tyr Asp Asn Ile Ala Lys
945                 950                 955                 960

Leu Gly Gln Ile Ile Arg Glu Gly Pro Ile Lys Gly Ser Leu Leu Lys
                965                 970                 975

Val Val Leu Glu Asp Tyr Leu Arg Leu Lys Lys Leu Phe Ala Gln Arg
            980                 985                 990

Met Val Gln Lys Ala Ser Ser Cys  His Ser Ser Ile Ser  Glu Leu
Ile
        995                 1000                1005

Gln Thr  Glu Leu Asp Glu Glu  Pro Gly Asp His Ser  Pro Gly Gln
    1010                1015                1020

Gly Ser  Leu Arg Phe Arg His  Lys Pro Pro Val Glu  Leu Lys Gly
    1025                1030                1035

Pro Asp  Gly Ile His Val Val  His Gly Ser Thr Gly  Thr Leu Leu
    1040                1045                1050

Ala Thr  Asp Leu Asn Ser Leu  Pro Glu Glu Asp Gln  Lys Gly Leu
    1055                1060                1065
```

Gly Arg Ser Leu Glu Thr Leu Thr Ala Ala Glu Ala Thr Ala Phe
1070 1075 1080

Glu Arg Asn Ala Arg Thr Glu Ser Ala Lys Ser Thr Pro Leu His
1085 1090 1095

Lys Leu Arg Asp Val Ile Met Glu Thr Pro Leu Glu Ile Thr Glu
1100 1105 1110

Leu

<210> 10426
<211> 1380
<212> PRT
<213> Homo sapiens

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<400> 10426
Met Gly Arg His Val Ala Thr Ser Cys His Val Ala Trp Leu Leu Val
1 5 10 15

Leu Ile Ser Gly Cys Trp Gly Gln Val Asn Arg Leu Pro Phe Phe Thr
20 25 30

Asn His Phe Phe Asp Thr Tyr Leu Leu Ile Ser Glu Asp Thr Pro Val
35 40 45

Gly Ser Ser Val Thr Gln Leu Leu Ala Gln Asp Met Asp Asn Asp Pro
50 55 60

Leu Val Phe Gly Val Ser Gly Glu Glu Ala Ser Arg Phe Phe Ala Val

65 70 75 80

Glu Pro Asp Thr Gly Val Val Trp Leu Arg Gln Pro Leu Asp Arg Glu
85 90 95

Thr Lys Ser Glu Phe Thr Val Glu Phe Ser Val Ser Asp His Gln Gly
100 105 110

Val Ile Thr Arg Lys Val Asn Ile Gln Val Gly Asp Val Asn Asp Asn
115 120 125

Ala Pro Thr Phe His Asn Gln Pro Tyr Ser Val Arg Ile Pro Glu Asn
130 135 140

Thr Pro Val Gly Thr Pro Ile Phe Ile Val Asn Ala Thr Asp Pro Asp
145 150 155 160

Leu Gly Ala Gly Gly Ser Val Leu Tyr Ser Phe Gln Pro Pro Ser Gln
165 170 175

Phe Phe Ala Ile Asp Ser Ala Arg Gly Ile Val Thr Val Ile Arg Glu
180 185 190

Leu Asp Tyr Glu Thr Thr Gln Ala Tyr Gln Leu Thr Val Asn Ala Thr
195 200 205

Asp Gln Asp Lys Thr Arg Pro Leu Ser Thr Leu Ala Asn Leu Ala Ile
210 215 220

Ile Ile Thr Asp Val Gln Asp Met Asp Pro Ile Phe Ile Asn Leu Pro
225 230 235 240

Tyr Ser Thr Asn Ile Tyr Glu His Ser Pro Pro Gly Thr Thr Val Arg
245 250 255

Ile Ile Thr Ala Ile Asp Gln Asp Lys Gly Arg Pro Arg Gly Ile Gly
260 265 270

Tyr Thr Ile Val Ser Gly Asn Thr Asn Ser Ile Phe Ala Leu Asp Tyr
275 280 285

Ile Ser Gly Val Leu Thr Leu Asn Gly Leu Leu Asp Arg Glu Asn Pro
290 295 300

Leu Tyr Ser His Gly Phe Ile Leu Thr Val Lys Gly Thr Glu Leu Asn
305 310 315 320

Asp Asp Arg Thr Pro Ser Asp Ala Thr Val Thr Thr Thr Phe Asn Ile
325 330 335

Leu Val Ile Asp Ile Asn Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu
340 345 350

Tyr Ser Val Ala Ile Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro
355 360 365

Leu Phe Ile Gln Val Val Asp Lys Asp Glu Asn Leu Gly Leu Asn Ser
370 375 380

Met Phe Glu Val Tyr Leu Val Gly Asn Asn Ser His His Phe Ile Ile
385 390 395 400

Ser Pro Thr Ser Val Gln Gly Lys Ala Asp Ile Arg Ile Arg Val Ala
405 410 415

Ile Pro Leu Asp Tyr Glu Thr Val Asp Arg Tyr Asp Phe Asp Leu Phe
420 425 430

Ala Asn Glu Ser Val Pro Asp His Val Gly Tyr Ala Lys Val Lys Ile
435 440 445

Thr Leu Ile Asn Glu Asn Asp Asn Arg Pro Ile Phe Ser Gln Pro Leu
450 455 460

Tyr Asn Ile Ser Leu Tyr Glu Asn Val Thr Val Gly Thr Ser Val Leu
465 470 475 480

Thr Val Leu Ala Thr Asp Asn Asp Ala Gly Thr Phe Gly Glu Val Ser
485 490 495

Tyr Phe Phe Ser Asp Asp Pro Asp Arg Phe Ser Leu Asp Lys Asp Thr
500 505 510

Gly Leu Ile Met Leu Ile Ala Arg Leu Asp Tyr Glu Leu Ile Gln Arg
515 520 525

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Phe Thr Leu Thr Ile Ile Ala Arg Asp Gly Gly Gly Glu Glu Thr Thr
    530                 535                 540

Gly Arg Val Arg Ile Asn Val Leu Asp Val Asn Asp Asn Val Pro Thr
545                 550                 555                 560

Phe Gln Lys Asp Ala Tyr Val Gly Ala Leu Arg Glu Asn Glu Pro Ser
                565                 570                 575

Val Thr Gln Leu Val Arg Leu Arg Ala Thr Asp Glu Asp Ser Pro Pro
            580                 585                 590

Asn Asn Gln Ile Thr Tyr Ser Ile Val Ser Ala Ser Ala Phe Gly Ser
        595                 600                 605

Tyr Phe Asp Ile Ser Leu Tyr Glu Gly Tyr Gly Val Ile Ser Val Ser
    610                 615                 620

Arg Pro Leu Asp Tyr Glu Gln Ile Ser Asn Gly Leu Ile Tyr Leu Thr
625                 630                 635                 640

Val Met Ala Met Asp Ala Gly Asn Pro Pro Leu Asn Ser Thr Val Pro
                645                 650                 655

Val Thr Ile Glu Val Phe Asp Glu Asn Asp Asn Pro Pro Thr Phe Ser
            660                 665                 670

Lys Pro Ala Tyr Phe Val Ser Val Val Glu Asn Ile Met Ala Gly Ala
        675                 680                 685

Thr Val Leu Phe Leu Asn Ala Thr Asp Leu Asp Arg Ser Arg Glu Tyr
    690                 695                 700

Gly Gln Glu Ser Ile Ile Tyr Ser Leu Glu Gly Ser Thr Gln Phe Arg
705                 710                 715                 720

Ile Asn Ala Arg Ser Gly Glu Ile Thr Thr Thr Ser Leu Leu Asp Arg
                725                 730                 735

Glu Thr Lys Ser Glu Tyr Ile Leu Ile Val Arg Ala Val Asp Gly Gly
            740                 745                 750
```

```
Val Gly His Asn Gln Lys Thr Gly Ile Ala Thr Val Asn Ile Thr Leu
        755                 760                 765

Leu Asp Ile Asn Asp Asn His Pro Thr Trp Lys Asp Ala Pro Tyr Tyr
    770                 775                 780

Ile Asn Leu Val Glu Met Thr Pro Pro Asp Ser Asp Val Thr Thr Val
785                 790                 795                 800

Val Ala Val Asp Pro Asp Leu Gly Glu Asn Gly Thr Leu Val Tyr Ser
                805                 810                 815

Ile Gln Pro Pro Asn Lys Phe Tyr Ser Leu Asn Ser Thr Thr Gly Lys
            820                 825                 830

Ile Arg Thr Thr His Ala Met Leu Asp Arg Glu Asn Pro Asp Pro His
        835                 840                 845

Glu Ala Glu Leu Met Arg Lys Ile Val Val Ser Val Thr Asp Cys Gly
    850                 855                 860

Arg Pro Pro Leu Lys Ala Thr Ser Ser Ala Thr Val Phe Val Asn Leu
865                 870                 875                 880

Leu Asp Leu Asn Asp Asn Asp Pro Thr Phe Gln Asn Leu Pro Phe Val
                885                 890                 895

Ala Glu Val Leu Glu Gly Ile Pro Ala Gly Val Ser Ile Tyr Gln Val
            900                 905                 910

Val Ala Ile Asp Leu Asp Glu Gly Leu Asn Gly Leu Val Ser Tyr Arg
        915                 920                 925

Met Pro Val Gly Met Pro Arg Met Asp Phe Leu Ile Asn Ser Ser Ser
    930                 935                 940

Gly Val Val Val Thr Thr Thr Glu Leu Asp Arg Glu Arg Ile Ala Glu
945                 950                 955                 960

Tyr Gln Leu Arg Val Val Ala Ser Asp Ala Gly Thr Pro Thr Lys Ser
                965                 970                 975

Ser Thr Ser Thr Leu Thr Ile His Val Leu Asp Val Asn Asp Glu Thr
```

980 985 990

Pro Thr Phe Phe Pro Ala Val Tyr Asn Val Ser Val Ser Glu Asp Val
995 1000 1005

Pro Arg Glu Phe Arg Val Val Trp Leu Asn Cys Thr Asp Asn Asp
1010 1015 1020

Val Gly Leu Asn Ala Glu Leu Ser Tyr Phe Ile Thr Gly Gly Asn
1025 1030 1035

Val Asp Gly Lys Phe Ser Val Gly Tyr Arg Asp Ala Val Val Arg
1040 1045 1050

Thr Val Val Gly Leu Asp Arg Glu Thr Thr Ala Ala Tyr Met Leu
1055 1060 1065

Ile Leu Glu Ala Ile Asp Asn Gly Pro Val Gly Lys Arg His Thr
1070 1075 1080

Gly Thr Ala Thr Val Phe Val Thr Val Leu Asp Val Asn Asp Asn
1085 1090 1095

Arg Pro Ile Phe Leu Gln Ser Ser Tyr Glu Ala Ser Val Pro Glu
1100 1105 1110

Asp Ile Pro Glu Gly His Ser Ile Leu Gln Ala Ala Thr Asp Ala
1115 1120 1125

Asp Glu Gly Glu Phe Gly Arg Val Trp Tyr Arg Ile Leu His Gly
1130 1135 1140

Asn His Gly Asn Asn Phe Arg Ile His Val Ser Asn Gly Leu Leu
1145 1150 1155

Met Arg Gly Pro Arg Pro Leu Asp Arg Glu Arg Asn Ser Ser His
1160 1165 1170

Val Leu Ile Val Glu Ala Tyr Asn His Asp Leu Gly Pro Met Arg
1175 1180 1185

Ser Ser Val Arg Val Ile Val Tyr Val Glu Asp Ile Asn Asp Glu

1190 1195 1200

Ala Pro Val Phe Thr Gln Gln Gln Tyr Ser Arg Leu Gly Leu Arg
1205 1210 1215

Glu Thr Ala Gly Ile Gly Thr Ser Val Ile Val Val Gln Ala Thr
1220 1225 1230

Asp Arg Asp Ser Gly Asp Gly Gly Leu Val Asn Tyr Arg Ile Leu
1235 1240 1245

Ser Gly Ala Glu Gly Lys Phe Glu Ile Asp Glu Ser Thr Gly Leu
1250 1255 1260

Ile Ile Thr Val Asn Tyr Leu Asp Tyr Glu Thr Lys Thr Ser Tyr
1265 1270 1275

Met Met Asn Val Ser Ala Thr Asp Gln Ala Pro Pro Phe Asn Gln
1280 1285 1290

Gly Phe Cys Ser Val Tyr Ile Thr Leu Leu Asn Glu Leu Asp Glu
1295 1300 1305

Ala Val Gln Phe Ser Asn Ala Ser Tyr Glu Ala Ala Ile Leu Glu
1310 1315 1320

Asn Leu Ala Leu Gly Thr Glu Ile Val Arg Val Gln Ala Tyr Ser
1325 1330 1335

Ile Asp Asn Leu Asn Gln Ile Thr Tyr Arg Phe Asn Ala Tyr Thr
1340 1345 1350

Ser Thr Gln Ala Lys Ala Leu Phe Lys Ile Asp Ala Ile Thr Val
1355 1360 1365

Arg Gly Trp Gly Gln Gly Ala Pro Phe Leu Pro Ile
1370 1375 1380

<210> 10427
<211> 445
<212> PRT
<213> Homo sapiens

<220>

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<220>
<221> source
<223> /note="Gene Symbol: CDH23; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related 23; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381822"

<400> 10427

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Met Asp Asn Asp Pro Leu Val Phe Gly Val Ser Gly Glu Glu Ala Ser
1               5                   10                  15


Arg Phe Phe Ala Val Glu Pro Asp Thr Gly Val Val Trp Leu Arg Gln
            20                  25                  30


Pro Leu Asp Arg Glu Thr Lys Ser Glu Phe Thr Val Glu Phe Ser Val
        35                  40                  45


Ser Asp His Gln Gly Val Ile Thr Arg Lys Val Asn Ile Gln Val Gly
    50                  55                  60


Asp Val Asn Asp Asn Ala Pro Thr Phe His Asn Gln Pro Tyr Ser Val
65                  70                  75                  80


Arg Ile Pro Glu Asn Thr Pro Val Gly Thr Pro Ile Phe Ile Val Asn
                85                  90                  95


Ala Thr Asp Pro Asp Leu Gly Ala Gly Gly Ser Val Leu Tyr Ser Phe
            100                 105                 110


Gln Pro Pro Ser Gln Phe Phe Ala Ile Asp Ser Ala Arg Gly Ile Val
        115                 120                 125


Thr Val Ile Arg Glu Leu Asp Tyr Glu Thr Thr Gln Ala Tyr Gln Leu
    130                 135                 140


Thr Val Asn Ala Leu Ala Ile Ile Ile Thr Asn Leu Pro Tyr Ser Thr
145                 150                 155                 160


Asn Ile Tyr Glu His Ser Pro Pro Gly Thr Thr Val Arg Ile Ile Thr
```

```
                165                 170                 175

Ala Ile Asp Gln Asp Lys Gly Arg Pro Arg Gly Ile Gly Tyr Thr Ile
            180                 185                 190

Val Ser Gly Asn Thr Asn Ser Ile Phe Ala Leu Asp Tyr Ile Ser Gly
        195                 200                 205

Val Leu Thr Leu Asn Gly Leu Leu Asp Arg Glu Asn Pro Leu Tyr Ser
    210                 215                 220

His Gly Phe Ile Leu Thr Val Lys Gly Thr Glu Leu Asn Asp Asp Arg
225                 230                 235                 240

Thr Pro Ser Asp Ala Thr Val Thr Thr Thr Phe Asn Ile Leu Val Ile
                245                 250                 255

Asp Ile Asn Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu Tyr Ser Val
            260                 265                 270

Ala Ile Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro Leu Phe Ile
        275                 280                 285

Gln Val Val Asp Lys Asp Glu Gly Leu Asn Ser Met Phe Glu Val Tyr
    290                 295                 300

Leu Val Gly Asn Asn Ser His His Phe Ile Ile Ser Pro Thr Ser Val
305                 310                 315                 320

Gln Gly Lys Ala Asp Ile Arg Ile Arg Val Ala Ile Pro Leu Asp Tyr
                325                 330                 335

Glu Thr Val Asp Arg Tyr Asp Phe Asp Leu Phe Ala Asn Glu Ser Val
            340                 345                 350

Pro Asp His Val Gly Tyr Ala Lys Val Lys Ile Thr Leu Ile Asn Glu
        355                 360                 365

Asn Asp Asn Arg Pro Ile Phe Ser Gln Pro Leu Tyr Asn Ile Ser Leu
    370                 375                 380

Tyr Glu Asn Val Thr Val Gly Thr Ser Val Leu Thr Val Leu Val Ser
385                 390                 395                 400
```

```
Pro Arg Phe Thr Ala Gly Pro Leu Ser Ser Pro Gly Pro Thr Val Val
                405                 410                 415


Arg His Pro Glu Gly Phe Cys Pro Arg Asp Leu Ser Asn Gln Gly Arg
            420                 425                 430


Arg His Pro Gln Ile Pro Glu Leu Cys Leu Leu Val Tyr
        435                 440                 445


<210> 10428
<211> 803
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CDH23; "

<220>
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<223> /note="Gene Name: cadherin-related 23; "

<220>
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<223> /note="ENSP ID: ENSP00000388894"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10428
Xaa Asp Ile Arg Ile Arg Val Ala Ile Pro Leu Asp Tyr Glu Thr Val
1               5                   10                  15


Asp Arg Tyr Asp Phe Asp Leu Phe Ala Asn Glu Ser Val Pro Asp His
            20                  25                  30


Val Gly Tyr Ala Lys Val Lys Ile Thr Leu Ile Asn Glu Asn Asp Asn
        35                  40                  45


Arg Pro Ile Phe Ser Gln Pro Leu Tyr Asn Ile Ser Leu Tyr Glu Asn
    50                  55                  60
```

```
Val Thr Val Gly Thr Ser Val Leu Thr Val Leu Ala Thr Asp Asn Asp
65                  70                  75                  80

Ala Gly Thr Phe Gly Glu Val Ser Tyr Phe Phe Ser Asp Asp Pro Asp
                85                  90                  95

Arg Phe Ser Leu Asp Lys Asp Thr Gly Leu Ile Met Leu Ile Ala Arg
            100                 105                 110

Leu Asp Tyr Glu Leu Ile Gln Arg Phe Thr Leu Thr Ile Ile Ala Arg
        115                 120                 125

Asp Gly Gly Gly Glu Glu Thr Thr Gly Arg Val Arg Ile Asn Val Leu
    130                 135                 140

Asp Val Asn Asp Asn Val Pro Thr Phe Gln Lys Asp Ala Tyr Val Gly
145                 150                 155                 160

Ala Leu Arg Glu Asn Glu Pro Ser Val Thr Gln Leu Val Arg Leu Arg
                165                 170                 175

Ala Thr Asp Glu Asp Ser Pro Pro Asn Asn Gln Ile Thr Tyr Ser Ile
            180                 185                 190

Val Ser Ala Ser Ala Phe Gly Ser Tyr Phe Asp Ile Ser Leu Tyr Glu
        195                 200                 205

Gly Tyr Gly Val Ile Ser Val Ser Arg Pro Leu Asp Tyr Glu Gln Ile
    210                 215                 220

Ser Asn Gly Leu Ile Tyr Leu Thr Val Met Ala Met Asp Ala Gly Asn
225                 230                 235                 240

Pro Pro Leu Asn Ser Thr Val Pro Val Thr Ile Glu Val Phe Asp Glu
                245                 250                 255

Asn Asp Asn Pro Pro Thr Phe Ser Lys Pro Ala Tyr Phe Val Ser Val
            260                 265                 270

Val Glu Asn Ile Met Ala Gly Ala Thr Val Leu Phe Leu Asn Ala Thr
        275                 280                 285
```

```
Asp Leu Asp Arg Ser Arg Glu Tyr Gly Gln Glu Ser Ile Ile Tyr Ser
    290                 295                 300

Leu Glu Gly Ser Thr Gln Phe Arg Ile Asn Ala Arg Ser Gly Glu Ile
305                 310                 315                 320

Thr Thr Thr Ser Leu Leu Asp Arg Glu Thr Lys Ser Glu Tyr Ile Leu
                325                 330                 335

Ile Val Arg Ala Val Asp Gly Gly Val Gly His Asn Gln Lys Thr Gly
            340                 345                 350

Ile Ala Thr Val Asn Ile Thr Leu Leu Asp Ile Asn Asp Asn His Pro
        355                 360                 365

Thr Trp Lys Asp Ala Pro Tyr Tyr Ile Asn Leu Val Glu Met Thr Pro
    370                 375                 380

Pro Asp Ser Asp Val Thr Thr Val Val Ala Val Asp Pro Asp Leu Gly
385                 390                 395                 400

Glu Asn Gly Thr Leu Val Tyr Ser Ile Gln Pro Pro Asn Lys Phe Tyr
                405                 410                 415

Ser Leu Asn Ser Thr Thr Gly Lys Ile Arg Thr Thr His Ala Met Leu
            420                 425                 430

Asp Arg Glu Asn Pro Asp Pro His Glu Ala Glu Leu Met Arg Lys Ile
        435                 440                 445

Val Val Ser Val Thr Asp Cys Gly Arg Pro Pro Leu Lys Ala Thr Ser
    450                 455                 460

Ser Ala Thr Val Phe Val Asn Leu Leu Asp Leu Asn Asp Asn Asp Pro
465                 470                 475                 480

Thr Phe Gln Asn Leu Pro Phe Val Ala Glu Val Leu Glu Gly Ile Pro
                485                 490                 495

Ala Gly Val Ser Ile Tyr Gln Val Val Ala Ile Asp Leu Asp Glu Gly
            500                 505                 510

Leu Asn Gly Leu Val Ser Tyr Arg Met Pro Val Gly Met Pro Arg Met
```

```
        515                 520                 525

Asp Phe Leu Ile Asn Ser Ser Ser Gly Val Val Val Thr Thr Thr Glu
    530                 535                 540

Leu Asp Arg Glu Arg Ile Ala Glu Tyr Gln Leu Arg Val Val Ala Ser
545                 550                 555                 560

Asp Ala Gly Thr Pro Thr Lys Ser Ser Thr Ser Thr Leu Thr Ile His
                565                 570                 575

Val Leu Asp Val Asn Asp Glu Thr Pro Thr Phe Phe Pro Ala Val Tyr
            580                 585                 590

Asn Val Ser Val Ser Glu Asp Val Pro Arg Glu Phe Arg Val Val Trp
        595                 600                 605

Leu Asn Cys Thr Asp Asn Asp Val Gly Leu Asn Ala Glu Leu Ser Tyr
    610                 615                 620

Phe Ile Thr Gly Gly Asn Val Asp Gly Lys Phe Ser Val Gly Tyr Arg
625                 630                 635                 640

Asp Ala Val Val Arg Thr Val Val Gly Leu Asp Arg Glu Thr Thr Ala
                645                 650                 655

Ala Tyr Met Leu Ile Leu Glu Ala Ile Asp Asn Gly Pro Val Gly Lys
            660                 665                 670

Arg His Thr Gly Thr Ala Thr Val Phe Val Thr Val Leu Asp Val Asn
        675                 680                 685

Asp Asn Arg Pro Ile Phe Leu Gln Ser Ser Tyr Glu Ala Ser Val Pro
    690                 695                 700

Glu Asp Ile Pro Glu Gly His Ser Ile Leu Gln Glu Asp Leu Ala Ser
705                 710                 715                 720

Pro Cys Ile Ser Pro Ala Pro Pro Arg Arg Ala Phe Gln Ser Ser Gly
                725                 730                 735

Glu Lys Glu Thr Ser Gln Phe Pro Gly Lys Glu Leu Arg Arg Glu Pro
            740                 745                 750
```

```
Gly Pro Ser Lys Ala Gln Asn Arg Ala Ala Phe Thr Glu Pro Leu Ala
        755                 760                 765

Glu Ala Pro Leu Leu Gly Ser Lys Gln Ala Gln Glu Glu Arg Ala Pro
    770                 775                 780

Leu Pro Arg Glu Gln Ala Gln Gln Leu Gln Gly Ser Glu Gly Glu Lys
785                 790                 795                 800

Gly Gly Pro
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<210> 10429
<211> 530
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: cadherin-related 23; "

<220>
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<223> /note="ENSP ID: ENSP00000473454"

<400> 10429

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Met Gly Arg His Val Ala Thr Ser Cys His Val Ala Trp Leu Leu Val
1               5                  10                  15

Leu Ile Ser Gly Cys Trp Gly Gln Val Asn Arg Leu Pro Phe Phe Thr
            20                  25                  30

Asn His Phe Phe Asp Thr Tyr Leu Leu Ile Ser Glu Asp Thr Pro Val
        35                  40                  45

Gly Ser Ser Val Thr Gln Leu Leu Ala Gln Asp Met Asp Asn Asp Pro
    50                  55                  60

Leu Val Phe Gly Val Ser Gly Glu Glu Ala Ser Arg Phe Phe Ala Val
```

65 70 75 80

Glu Pro Asp Thr Gly Val Val Trp Leu Arg Gln Pro Leu Asp Arg Glu
85 90 95

Thr Lys Ser Glu Phe Thr Val Glu Phe Ser Val Ser Asp His Gln Gly
100 105 110

Val Ile Thr Arg Lys Val Asn Ile Gln Val Gly Asp Val Asn Asp Asn
115 120 125

Ala Pro Thr Phe His Asn Gln Pro Tyr Ser Val Arg Ile Pro Glu Asn
130 135 140

Thr Pro Val Gly Thr Pro Ile Phe Ile Val Asn Ala Thr Asp Pro Asp
145 150 155 160

Leu Gly Ala Gly Gly Ser Val Leu Tyr Ser Phe Gln Pro Pro Ser Gln
165 170 175

Phe Phe Ala Ile Asp Ser Ala Arg Gly Ile Val Thr Val Ile Arg Glu
180 185 190

Leu Asp Tyr Glu Thr Thr Gln Ala Tyr Gln Leu Thr Val Asn Ala Thr
195 200 205

Asp Gln Asp Lys Thr Arg Pro Leu Ser Thr Leu Ala Asn Leu Ala Ile
210 215 220

Ile Ile Thr Asp Val Gln Asp Met Asp Pro Ile Phe Ile Asn Leu Pro
225 230 235 240

Tyr Ser Thr Asn Ile Tyr Glu His Ser Pro Pro Gly Thr Thr Val Arg
245 250 255

Ile Ile Thr Ala Ile Asp Gln Asp Lys Gly Arg Pro Arg Gly Ile Gly
260 265 270

Tyr Thr Ile Val Ser Gly Asn Thr Asn Ser Ile Phe Ala Leu Asp Tyr
275 280 285

Ile Ser Gly Val Leu Thr Leu Asn Gly Leu Leu Asp Arg Glu Asn Pro
290 295 300

```
Leu Tyr Ser His Gly Phe Ile Leu Thr Val Lys Gly Thr Glu Leu Asn
305                 310                 315                 320

Asp Asp Arg Thr Pro Ser Asp Ala Thr Val Thr Thr Thr Phe Asn Ile
                325                 330                 335

Leu Val Ile Asp Ile Asn Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu
            340                 345                 350

Tyr Ser Val Ala Ile Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro
        355                 360                 365

Leu Phe Ile Gln Val Val Asp Lys Asp Glu Asn Leu Gly Leu Asn Ser
    370                 375                 380

Met Phe Glu Val Tyr Leu Val Gly Asn Asn Ser His His Phe Ile Ile
385                 390                 395                 400

Ser Pro Thr Ser Val Gln Gly Lys Ala Asp Ile Arg Ile Arg Val Ala
                405                 410                 415

Ile Pro Leu Asp Tyr Glu Thr Val Asp Arg Tyr Asp Phe Asp Leu Phe
            420                 425                 430

Ala Asn Glu Ser Val Pro Asp His Val Gly Tyr Ala Lys Val Lys Ile
        435                 440                 445

Thr Leu Ile Asn Glu Asn Asp Asn Arg Pro Ile Phe Ser Gln Pro Leu
    450                 455                 460

Tyr Asn Ile Ser Leu Tyr Glu Asn Val Thr Val Gly Thr Ser Val Leu
465                 470                 475                 480

Thr Val Leu Val Ser Pro Arg Phe Thr Ala Gly Pro Leu Ser Ser Pro
                485                 490                 495

Gly Pro Thr Val Val Arg His Pro Glu Gly Phe Cys Pro Arg Asp Leu
            500                 505                 510

Ser Asn Gln Gly Arg Arg His Pro Gln Ile Pro Glu Leu Cys Leu Leu
        515                 520                 525
```

Val Tyr
530

<210> 10430
<211> 954
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: cadherin-related 23; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000473539"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10430
Xaa Asp Lys Thr Arg Pro Leu Ser Thr Leu Ala Asn Leu Ala Ile Ile
1 5 10 15

Ile Thr Asp Val Gln Asp Met Asp Pro Ile Phe Ile Asn Leu Pro Tyr
20 25 30

Ser Thr Asn Ile Tyr Glu His Ser Pro Pro Gly Thr Thr Val Arg Ile
35 40 45

Ile Thr Ala Ile Asp Gln Asp Lys Gly Arg Pro Arg Gly Ile Gly Tyr
50 55 60

Thr Ile Val Ser Gly Asn Thr Asn Ser Ile Phe Ala Leu Asp Tyr Ile
65 70 75 80

Ser Gly Val Leu Thr Leu Asn Gly Leu Leu Asp Arg Glu Asn Pro Leu
85 90 95

```
Tyr Ser His Gly Phe Ile Leu Thr Val Lys Gly Thr Glu Leu Asn Asp
            100                 105                 110

Asp Arg Thr Pro Ser Asp Ala Thr Val Thr Thr Thr Phe Asn Ile Leu
        115                 120                 125

Val Ile Asp Ile Asn Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu Tyr
    130                 135                 140

Ser Val Ala Ile Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro Leu
145                 150                 155                 160

Phe Ile Gln Val Val Asp Lys Asp Glu Glu Asn Gly Gly Trp Leu Gln
                165                 170                 175

Gly Arg Pro Glu Gly Val Gly Glu Gly Leu His Val Gln Asn Leu Gly
            180                 185                 190

Leu Asn Ser Met Phe Glu Val Tyr Leu Val Gly Asn Asn Ser His His
        195                 200                 205

Phe Ile Ile Ser Pro Thr Ser Val Gln Gly Lys Ala Asp Ile Arg Ile
    210                 215                 220

Arg Val Ala Ile Pro Leu Asp Tyr Glu Thr Val Asp Arg Tyr Asp Phe
225                 230                 235                 240

Asp Leu Phe Ala Asn Glu Ser Val Pro Asp His Val Gly Tyr Ala Lys
                245                 250                 255

Val Lys Ile Thr Leu Ile Asn Glu Asn Asp Asn Arg Pro Ile Phe Ser
            260                 265                 270

Gln Pro Leu Tyr Asn Ile Ser Leu Tyr Glu Asn Val Thr Val Gly Thr
        275                 280                 285

Ser Val Leu Thr Val Leu Ala Thr Asp Asn Asp Ala Gly Thr Phe Gly
    290                 295                 300

Glu Val Ser Tyr Phe Phe Ser Asp Asp Pro Asp Arg Phe Ser Leu Asp
305                 310                 315                 320

Lys Asp Thr Gly Leu Ile Met Leu Ile Ala Arg Leu Asp Tyr Glu Leu
```

```
                325                 330                 335

Ile Gln Arg Phe Thr Leu Thr Ile Ile Ala Arg Asp Gly Gly Gly Glu
            340                 345                 350

Glu Thr Thr Gly Arg Val Arg Ile Asn Val Leu Asp Val Asn Asp Asn
        355                 360                 365

Val Pro Thr Phe Gln Lys Asp Ala Tyr Val Gly Ala Leu Arg Glu Asn
    370                 375                 380

Glu Pro Ser Val Thr Gln Leu Val Arg Leu Arg Ala Thr Asp Glu Asp
385                 390                 395                 400

Ser Pro Pro Asn Asn Gln Ile Thr Tyr Ser Ile Val Ser Ala Ser Ala
                405                 410                 415

Phe Gly Ser Tyr Phe Asp Ile Ser Leu Tyr Glu Gly Tyr Gly Val Ile
            420                 425                 430

Ser Val Ser Arg Pro Leu Asp Tyr Glu Gln Ile Ser Asn Gly Leu Ile
        435                 440                 445

Tyr Leu Thr Val Met Ala Met Asp Ala Gly Asn Pro Pro Leu Asn Ser
    450                 455                 460

Thr Val Pro Val Thr Ile Glu Val Phe Asp Glu Asn Asp Asn Pro Pro
465                 470                 475                 480

Thr Phe Ser Lys Pro Ala Tyr Phe Val Ser Val Val Glu Asn Ile Met
                485                 490                 495

Ala Gly Ala Thr Val Leu Phe Leu Asn Ala Thr Asp Leu Asp Arg Ser
            500                 505                 510

Arg Glu Tyr Gly Gln Glu Ser Ile Ile Tyr Ser Leu Glu Gly Ser Thr
        515                 520                 525

Gln Phe Arg Ile Asn Ala Arg Ser Gly Glu Ile Thr Thr Thr Ser Leu
    530                 535                 540

Leu Asp Arg Glu Thr Lys Ser Glu Tyr Ile Leu Ile Val Arg Ala Val
545                 550                 555                 560
```

```
Asp Gly Gly Val Gly His Asn Gln Lys Thr Gly Ile Ala Thr Val Asn
                565                 570                 575

Ile Thr Leu Leu Asp Ile Asn Asp Asn His Pro Thr Trp Lys Asp Ala
            580                 585                 590

Pro Tyr Tyr Ile Asn Leu Val Glu Met Thr Pro Pro Asp Ser Asp Val
        595                 600                 605

Thr Thr Val Val Ala Val Asp Pro Asp Leu Gly Glu Asn Gly Thr Leu
    610                 615                 620

Val Tyr Ser Ile Gln Pro Pro Asn Lys Phe Tyr Ser Leu Asn Ser Thr
625                 630                 635                 640

Thr Gly Lys Ile Arg Thr Thr His Ala Met Leu Asp Arg Glu Asn Pro
                645                 650                 655

Asp Pro His Glu Ala Glu Leu Met Arg Lys Ile Val Val Ser Val Thr
            660                 665                 670

Asp Cys Gly Arg Pro Pro Leu Lys Ala Thr Ser Ser Ala Thr Val Phe
        675                 680                 685

Val Asn Leu Leu Asp Leu Asn Asp Asn Asp Pro Thr Phe Gln Asn Leu
    690                 695                 700

Pro Phe Val Ala Glu Val Leu Glu Gly Ile Pro Ala Gly Val Ser Ile
705                 710                 715                 720

Tyr Gln Val Val Ala Ile Asp Leu Asp Glu Gly Leu Asn Gly Leu Val
                725                 730                 735

Ser Tyr Arg Met Pro Val Gly Met Pro Arg Met Asp Phe Leu Ile Asn
            740                 745                 750

Ser Ser Ser Gly Val Val Val Thr Thr Thr Glu Leu Asp Arg Glu Arg
        755                 760                 765

Ile Ala Glu Tyr Gln Leu Arg Val Val Ala Ser Asp Ala Gly Thr Pro
    770                 775                 780
```

```
Thr Lys Ser Ser Thr Ser Thr Leu Thr Ile His Val Leu Asp Val Asn
785                 790                 795                 800

Asp Glu Thr Pro Thr Phe Phe Pro Ala Val Tyr Asn Val Ser Val Ser
                805                 810                 815

Glu Asp Val Pro Arg Glu Phe Arg Val Val Trp Leu Asn Cys Thr Asp
            820                 825                 830

Asn Asp Val Gly Leu Asn Ala Glu Leu Ser Tyr Phe Ile Thr Gly Gly
        835                 840                 845

Asn Val Asp Gly Lys Phe Ser Val Gly Tyr Arg Asp Ala Val Val Arg
    850                 855                 860

Thr Val Val Gly Leu Asp Arg Glu Thr Thr Ala Ala Tyr Met Leu Ile
865                 870                 875                 880

Leu Glu Ala Ile Asp Asn Gly Pro Val Gly Lys Arg His Thr Gly Thr
                885                 890                 895

Ala Thr Val Phe Val Thr Val Leu Asp Val Asn Asp Asn Arg Pro Ile
            900                 905                 910

Phe Leu Gln Ser Ser Tyr Glu Ala Ser Val Pro Glu Asp Ile Pro Glu
        915                 920                 925

Gly His Ser Ile Leu Gln Ala Ala Pro Ala Leu Ala Ser Glu Gly Ser
    930                 935                 940

Leu Leu Asp His Leu Gln Ser Leu Pro Asp
945                 950


<210> 10431
<211> 1079
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2089; "

<220>
<221> source
<223> /note="Gene Symbol: CDH23; "
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<220>
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<223> /note="Gene Name: cadherin-related 23; "

<220>
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<223> /note="Uniprot ID: Q9H251; "

<220>
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<223> /note="ENSP ID: ENSP00000478374"

<400> 10431
Met Val Lys Ser Pro Met Asn Arg Glu Leu Val Ala Thr Tyr Glu Val
1   5   10   15

Thr Leu Ser Val Ile Asp Asn Ala Ser Asp Leu Pro Glu Arg Ser Val
            20   25   30

Ser Val Pro Asn Ala Lys Leu Thr Val Asn Val Leu Asp Val Asn Asp
        35   40   45

Asn Thr Pro Gln Phe Lys Pro Phe Gly Ile Thr Tyr Tyr Met Glu Arg
    50   55   60

Ile Leu Glu Gly Ala Thr Pro Gly Thr Thr Leu Ile Ala Val Ala Ala
65   70   75   80

Val Asp Pro Asp Lys Gly Leu Asn Gly Leu Val Thr Tyr Thr Leu Leu
                85   90   95

Asp Leu Val Pro Pro Gly Tyr Val Gln Leu Glu Asp Ser Ser Ala Gly
            100   105   110

Lys Val Ile Ala Asn Arg Thr Val Asp Tyr Glu Glu Val His Trp Leu
        115   120   125

Asn Phe Thr Val Arg Ala Ser Asp Asn Gly Ser Pro Pro Arg Ala Ala
    130   135   140

Glu Ile Pro Val Tyr Leu Glu Ile Val Asp Ile Asn Asp Asn Asn Pro
145   150   155   160

Ile Phe Asp Gln Pro Ser Tyr Gln Glu Ala Val Phe Glu Asp Val Pro
                165   170   175

```
Val Gly Thr Ile Ile Leu Thr Val Thr Ala Thr Asp Ala Asp Ser Gly
            180                 185                 190

Asn Phe Ala Leu Ile Glu Tyr Ser Leu Gly Asp Gly Glu Ser Lys Phe
        195                 200                 205

Ala Ile Asn Pro Thr Thr Gly Asp Ile Tyr Val Leu Ser Ser Leu Asp
    210                 215                 220

Arg Glu Lys Lys Asp His Tyr Ile Leu Thr Ala Leu Ala Lys Asp Asn
225                 230                 235                 240

Pro Gly Asp Val Ala Ser Asn Arg Arg Glu Asn Ser Val Gln Val Val
                245                 250                 255

Ile Gln Val Leu Asp Val Asn Asp Cys Arg Pro Gln Phe Ser Lys Pro
            260                 265                 270

Gln Phe Ser Thr Ser Val Tyr Glu Asn Glu Pro Ala Gly Thr Ser Val
        275                 280                 285

Ile Thr Met Met Ala Thr Asp Gln Asp Glu Gly Pro Asn Gly Glu Leu
    290                 295                 300

Thr Tyr Ser Leu Glu Gly Pro Gly Val Glu Ala Phe His Val Asp Met
305                 310                 315                 320

Asp Ser Gly Leu Val Thr Thr Gln Arg Pro Leu Gln Ser Tyr Glu Lys
                325                 330                 335

Phe Ser Leu Thr Val Val Ala Thr Asp Gly Gly Glu Pro Pro Leu Trp
            340                 345                 350

Gly Thr Thr Met Leu Leu Val Glu Val Ile Asp Val Asn Asp Asn Arg
        355                 360                 365

Pro Val Phe Val Arg Pro Pro Asn Gly Thr Ile Leu His Ile Arg Glu
    370                 375                 380

Glu Ile Pro Leu Arg Ser Asn Val Tyr Glu Val Tyr Ala Thr Asp Lys
385                 390                 395                 400
```

```
Asp Glu Gly Leu Asn Gly Ala Val Arg Tyr Ser Phe Leu Lys Thr Ala
                405                 410                 415

Gly Asn Arg Asp Trp Glu Phe Phe Ile Ile Asp Pro Ile Ser Gly Leu
            420                 425                 430

Ile Gln Thr Ala Gln Arg Leu Asp Arg Glu Ser Gln Ala Val Tyr Ser
        435                 440                 445

Leu Ile Leu Val Ala Ser Asp Leu Gly Gln Pro Val Pro Tyr Glu Thr
    450                 455                 460

Met Gln Pro Leu Gln Val Ala Leu Glu Asp Ile Asp Asp Asn Glu Pro
465                 470                 475                 480

Leu Phe Val Arg Pro Pro Lys Gly Ser Pro Gln Tyr Gln Leu Leu Thr
                485                 490                 495

Val Pro Glu His Ser Pro Arg Gly Thr Leu Val Gly Asn Val Thr Gly
            500                 505                 510

Ala Val Asp Ala Asp Glu Gly Pro Asn Ala Ile Val Tyr Tyr Phe Ile
        515                 520                 525

Ala Ala Gly Asn Glu Glu Lys Asn Phe His Leu Gln Pro Asp Gly Cys
    530                 535                 540

Leu Leu Val Leu Arg Asp Leu Asp Arg Glu Arg Glu Ala Ile Phe Ser
545                 550                 555                 560

Phe Ile Val Lys Ala Ser Ser Asn Arg Ser Trp Thr Pro Pro Arg Gly
                565                 570                 575

Pro Ser Pro Thr Leu Asp Leu Val Ala Asp Leu Thr Leu Gln Glu Val
            580                 585                 590

Arg Val Val Leu Glu Asp Ile Asn Asp Gln Pro Pro Arg Phe Thr Lys
        595                 600                 605

Ala Glu Tyr Thr Ala Gly Val Ala Thr Asp Ala Lys Val Gly Ser Glu
    610                 615                 620

Leu Ile Gln Val Leu Ala Leu Asp Ala Asp Ile Gly Asn Asn Ser Leu
```

625 630 635 640

Val Phe Tyr Ser Ile Leu Ala Ile His Tyr Phe Arg Ala Leu Ala Asn
645 650 655

Asp Ser Glu Asp Val Gly Gln Val Phe Thr Met Gly Ser Met Asp Gly
660 665 670

Ile Leu Arg Thr Phe Asp Leu Phe Met Ala Tyr Ser Pro Gly Tyr Phe
675 680 685

Val Val Asp Ile Val Ala Arg Asp Leu Ala Gly His Asn Asp Thr Ala
690 695 700

Ile Ile Gly Ile Tyr Ile Leu Arg Asp Asp Gln Arg Val Lys Ile Val
705 710 715 720

Ile Asn Glu Ile Pro Asp Arg Val Arg Gly Phe Glu Glu Glu Phe Ile
725 730 735

His Leu Leu Ser Asn Ile Thr Gly Ala Ile Val Asn Thr Asp Asn Val
740 745 750

Gln Phe His Val Asp Lys Lys Gly Arg Val Asn Phe Ala Gln Thr Glu
755 760 765

Leu Leu Ile His Val Val Asn Arg Asp Thr Asn Arg Ile Leu Asp Val
770 775 780

Asp Arg Val Ile Gln Met Ile Asp Glu Asn Lys Glu Gln Leu Arg Asn
785 790 795 800

Leu Phe Arg Asn Tyr Asn Val Leu Asp Val Gln Pro Ala Ile Ser Val
805 810 815

Arg Leu Pro Asp Asp Met Ser Ala Leu Gln Met Ala Ile Ile Val Leu
820 825 830

Ala Ile Leu Leu Phe Leu Ala Ala Met Leu Phe Val Leu Met Asn Trp
835 840 845

Tyr Tyr Arg Thr Val His Lys Arg Lys Leu Lys Ala Ile Val Ala Gly
850 855 860

```
Ser Ala Gly Asn Arg Gly Phe Ile Asp Ile Met Asp Met Pro Asn Thr
865                 870                 875                 880

Asn Lys Tyr Ser Phe Asp Gly Ala Asn Pro Val Trp Leu Asp Pro Phe
                885                 890                 895

Cys Arg Asn Leu Glu Leu Ala Ala Gln Ala Glu His Glu Asp Asp Leu
            900                 905                 910

Pro Glu Asn Leu Ser Glu Ile Ala Asp Leu Trp Asn Ser Pro Thr Arg
        915                 920                 925

Thr His Gly Thr Phe Gly Arg Glu Pro Ala Ala Val Lys Pro Asp Asp
    930                 935                 940

Asp Arg Tyr Leu Arg Ala Ala Ile Gln Glu Tyr Asp Asn Ile Ala Lys
945                 950                 955                 960

Leu Gly Gln Ile Ile Arg Glu Gly Pro Ile Lys Leu Ile Gln Thr Glu
                965                 970                 975

Leu Asp Glu Glu Pro Gly Asp His Ser Pro Gly Gln Gly Ser Leu Arg
            980                 985                 990

Phe Arg His Lys Pro Pro Val Glu  Leu Lys Gly Pro Asp  Gly Ile
His
        995                 1000                1005

Val Val  His Gly Ser Thr Gly  Thr Leu Leu Ala Thr  Asp Leu Asn
    1010                1015                1020

Ser Leu  Pro Glu Glu Asp Gln  Lys Gly Leu Gly Arg  Ser Leu Glu
    1025                1030                1035

Thr Leu  Thr Ala Ala Glu Ala  Thr Ala Phe Glu Arg  Asn Ala Arg
    1040                1045                1050

Thr Glu  Ser Ala Lys Ser Thr  Pro Leu His Lys Leu  Arg Asp Val
    1055                1060                1065

Ile Met  Glu Thr Pro Leu Glu  Ile Thr Glu Leu
    1070                1075
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<210> 10432
<211> 165
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2089; "

<220>
<221> source
<223> /note="Gene Symbol: CDH23; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related 23; "

<220>
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10432
Xaa Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu Tyr Ser Val Ala Ile
1 5 10 15

Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro Leu Phe Ile Gln Val
20 25 30

Val Asp Lys Asp Glu Gly Leu Asn Ser Met Phe Glu Val Tyr Leu Val
35 40 45

Gly Asn Asn Ser His His Phe Ile Ile Ser Pro Thr Ser Val Gln Gly
50 55 60

Lys Ala Asp Ile Arg Ile Arg Val Ala Ile Pro Leu Asp Tyr Glu Thr
65 70 75 80

Val Asp Arg Tyr Asp Phe Asp Leu Phe Ala Asn Glu Ser Val Pro Asp
85 90 95

His Val Gly Tyr Ala Lys Val Lys Ile Thr Leu Ile Asn Glu Asn Asp
100 105 110

```
Asn Arg Pro Ile Phe Ser Gln Pro Leu Tyr Asn Ile Ser Leu Tyr Glu
        115                 120                 125

Asn Val Thr Val Gly Thr Ser Val Leu Thr Val Leu Trp Glu Lys Phe
    130                 135                 140

Phe Cys Ser Asn Ser Ser Arg Phe Ser Ser Ala Gln Leu Val Val Ser
145                 150                 155                 160

Ser Trp Asn Gln Leu
                165


<210> 10433
<211> 1381
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000482036"

<400> 10433
Met Gly Arg His Val Ala Thr Ser Cys His Val Ala Trp Leu Leu Val
1               5                   10                  15

Leu Ile Ser Gly Cys Trp Gly Gln Val Asn Arg Leu Pro Phe Phe Thr
            20                  25                  30

Asn His Phe Phe Asp Thr Tyr Leu Leu Ile Ser Glu Asp Thr Pro Val
        35                  40                  45

Gly Ser Ser Val Thr Gln Leu Leu Ala Gln Asp Met Asp Asn Asp Pro
    50                  55                  60

Leu Val Phe Gly Val Ser Gly Glu Glu Ala Ser Arg Phe Phe Ala Val
65                  70                  75                  80
```

```
Glu Pro Asp Thr Gly Val Val Trp Leu Arg Gln Pro Leu Asp Arg Glu
                85                  90                  95

Thr Lys Ser Glu Phe Thr Val Glu Phe Ser Val Ser Asp His Gln Gly
            100                 105                 110

Val Ile Thr Arg Lys Val Asn Ile Gln Val Gly Asp Val Asn Asp Asn
        115                 120                 125

Ala Pro Thr Phe His Asn Gln Pro Tyr Ser Val Arg Ile Pro Glu Asn
    130                 135                 140

Thr Pro Val Gly Thr Pro Ile Phe Ile Val Asn Ala Thr Asp Pro Asp
145                 150                 155                 160

Leu Gly Ala Gly Gly Ser Val Leu Tyr Ser Phe Gln Pro Pro Ser Gln
                165                 170                 175

Phe Phe Ala Ile Asp Ser Ala Arg Gly Ile Val Thr Val Ile Arg Glu
            180                 185                 190

Leu Asp Tyr Glu Thr Thr Gln Ala Tyr Gln Leu Thr Val Asn Ala Thr
        195                 200                 205

Asp Gln Asp Lys Thr Arg Pro Leu Ser Thr Leu Ala Asn Leu Ala Ile
    210                 215                 220

Ile Ile Thr Asp Val Gln Asp Met Asp Pro Ile Phe Ile Asn Leu Pro
225                 230                 235                 240

Tyr Ser Thr Asn Ile Tyr Glu His Ser Pro Pro Gly Thr Thr Val Arg
                245                 250                 255

Ile Ile Thr Ala Ile Asp Gln Asp Lys Gly Arg Pro Arg Gly Ile Gly
            260                 265                 270

Tyr Thr Ile Val Ser Gly Asn Thr Asn Ser Ile Phe Ala Leu Asp Tyr
        275                 280                 285

Ile Ser Gly Val Leu Thr Leu Asn Gly Leu Leu Asp Arg Glu Asn Pro
    290                 295                 300
```

Leu Tyr Ser His Gly Phe Ile Leu Thr Val Lys Gly Thr Glu Leu Asn
305 310 315 320

Asp Asp Arg Thr Pro Ser Asp Ala Thr Val Thr Thr Thr Phe Asn Ile
325 330 335

Leu Val Ile Asp Ile Asn Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu
340 345 350

Tyr Ser Val Ala Ile Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro
355 360 365

Leu Phe Ile Gln Val Val Asp Lys Asp Glu Asn Leu Gly Leu Asn Ser
370 375 380

Met Phe Glu Val Tyr Leu Val Gly Asn Asn Ser His His Phe Ile Ile
385 390 395 400

Ser Pro Thr Ser Val Gln Gly Lys Ala Asp Ile Arg Ile Arg Val Ala
405 410 415

Ile Pro Leu Asp Tyr Glu Thr Val Asp Arg Tyr Asp Phe Asp Leu Phe
420 425 430

Ala Asn Glu Ser Val Pro Asp His Val Gly Tyr Ala Lys Val Lys Ile
435 440 445

Thr Leu Ile Asn Glu Asn Asp Asn Arg Pro Ile Phe Ser Gln Pro Leu
450 455 460

Tyr Asn Ile Ser Leu Tyr Glu Asn Val Thr Val Gly Thr Ser Val Leu
465 470 475 480

Thr Val Leu Ala Thr Asp Asn Asp Ala Gly Thr Phe Gly Glu Val Ser
485 490 495

Tyr Phe Phe Ser Asp Asp Pro Asp Arg Phe Ser Leu Asp Lys Asp Thr
500 505 510

Gly Leu Ile Met Leu Ile Ala Arg Leu Asp Tyr Glu Leu Ile Gln Arg
515 520 525

```
Phe Thr Leu Thr Ile Ile Ala Arg Asp Gly Gly Gly Glu Glu Thr Thr
    530                 535                 540

Gly Arg Val Arg Ile Asn Val Leu Asp Val Asn Asp Asn Val Pro Thr
545                 550                 555                 560

Phe Gln Lys Asp Ala Tyr Val Gly Ala Leu Arg Glu Asn Glu Pro Ser
                565                 570                 575

Val Thr Gln Leu Val Arg Leu Arg Ala Thr Asp Glu Asp Ser Pro Pro
            580                 585                 590

Asn Asn Gln Ile Thr Tyr Ser Ile Val Ser Ala Ser Ala Phe Gly Ser
        595                 600                 605

Tyr Phe Asp Ile Ser Leu Tyr Glu Gly Tyr Gly Val Ile Ser Val Ser
    610                 615                 620

Arg Pro Leu Asp Tyr Glu Gln Ile Ser Asn Gly Leu Ile Tyr Leu Thr
625                 630                 635                 640

Val Met Ala Met Asp Ala Gly Asn Pro Pro Leu Asn Ser Thr Val Pro
                645                 650                 655

Val Thr Ile Glu Val Phe Asp Glu Asn Asp Asn Pro Pro Thr Phe Ser
            660                 665                 670

Lys Pro Ala Tyr Phe Val Ser Val Val Glu Asn Ile Met Ala Gly Ala
        675                 680                 685

Thr Val Leu Phe Leu Asn Ala Thr Asp Leu Asp Arg Ser Arg Glu Tyr
    690                 695                 700

Gly Gln Glu Ser Ile Ile Tyr Ser Leu Glu Gly Ser Thr Gln Phe Arg
705                 710                 715                 720

Ile Asn Ala Arg Ser Gly Glu Ile Thr Thr Thr Ser Leu Leu Asp Arg
                725                 730                 735

Glu Thr Lys Ser Glu Tyr Ile Leu Ile Val Arg Ala Val Asp Gly Gly
            740                 745                 750

Val Gly His Asn Gln Lys Thr Gly Ile Ala Thr Val Asn Ile Thr Leu
```

```
        755                 760                 765

Leu Asp Ile Asn Asp Asn His Pro Thr Trp Lys Asp Ala Pro Tyr Tyr
    770                 775                 780

Ile Asn Leu Val Glu Met Thr Pro Pro Asp Ser Asp Val Thr Thr Val
785                 790                 795                 800

Val Ala Val Asp Pro Asp Leu Gly Glu Asn Gly Thr Leu Val Tyr Ser
                805                 810                 815

Ile Gln Pro Pro Asn Lys Phe Tyr Ser Leu Asn Ser Thr Thr Gly Lys
            820                 825                 830

Ile Arg Thr Thr His Ala Met Leu Asp Arg Glu Asn Pro Asp Pro His
        835                 840                 845

Glu Ala Glu Leu Met Arg Lys Ile Val Val Ser Val Thr Asp Cys Gly
    850                 855                 860

Arg Pro Pro Leu Lys Ala Thr Ser Ser Ala Thr Val Phe Val Asn Leu
865                 870                 875                 880

Leu Asp Leu Asn Asp Asn Asp Pro Thr Phe Gln Asn Leu Pro Phe Val
                885                 890                 895

Ala Glu Val Leu Glu Gly Ile Pro Ala Gly Val Ser Ile Tyr Gln Val
            900                 905                 910

Val Ala Ile Asp Leu Asp Glu Gly Leu Asn Gly Leu Val Ser Tyr Arg
        915                 920                 925

Met Pro Val Gly Met Pro Arg Met Asp Phe Leu Ile Asn Ser Ser Ser
    930                 935                 940

Gly Val Val Val Thr Thr Thr Glu Leu Asp Arg Glu Arg Ile Ala Glu
945                 950                 955                 960

Tyr Gln Leu Arg Val Val Ala Ser Asp Ala Gly Thr Pro Thr Lys Ser
                965                 970                 975

Ser Thr Ser Thr Leu Thr Ile His Val Leu Asp Val Asn Asp Glu Thr
            980                 985                 990
```

Pro Thr Phe Phe Pro Ala Val Tyr Asn Val Ser Val Ser Glu Asp Val
995 1000 1005

Pro Arg Glu Phe Arg Val Val Trp Leu Asn Cys Thr Asp Asn Asp
1010 1015 1020

Val Gly Leu Asn Ala Glu Leu Ser Tyr Phe Ile Thr Gly Gly Asn
1025 1030 1035

Val Asp Gly Lys Phe Ser Val Gly Tyr Arg Asp Ala Val Val Arg
1040 1045 1050

Thr Val Val Gly Leu Asp Arg Glu Thr Thr Ala Ala Tyr Met Leu
1055 1060 1065

Ile Leu Glu Ala Ile Asp Asn Gly Pro Val Gly Lys Arg His Thr
1070 1075 1080

Gly Thr Ala Thr Val Phe Val Thr Val Leu Asp Val Asn Asp Asn
1085 1090 1095

Arg Pro Ile Phe Leu Gln Ser Ser Tyr Glu Ala Ser Val Pro Glu
1100 1105 1110

Asp Ile Pro Glu Gly His Ser Ile Leu Gln Leu Lys Ala Thr Asp
1115 1120 1125

Ala Asp Glu Gly Glu Phe Gly Arg Val Trp Tyr Arg Ile Leu His
1130 1135 1140

Gly Asn His Gly Asn Asn Phe Arg Ile His Val Ser Asn Gly Leu
1145 1150 1155

Leu Met Arg Gly Pro Arg Pro Leu Asp Arg Glu Arg Asn Ser Ser
1160 1165 1170

His Val Leu Ile Val Glu Ala Tyr Asn His Asp Leu Gly Pro Met
1175 1180 1185

Arg Ser Ser Val Arg Val Ile Val Tyr Val Glu Asp Ile Asn Asp
1190 1195 1200

```
Glu Ala  Pro Val Phe Thr Gln  Gln Gln Tyr Ser Arg  Leu Gly Leu
    1205                1210                1215

Arg Glu  Thr Ala Gly Ile Gly  Thr Ser Val Ile Val  Val Gln Ala
    1220                1225                1230

Thr Asp  Arg Asp Ser Gly Asp  Gly Gly Leu Val Asn  Tyr Arg Ile
    1235                1240                1245

Leu Ser  Gly Ala Glu Gly Lys  Phe Glu Ile Asp Glu  Ser Thr Gly
    1250                1255                1260

Leu Ile  Ile Thr Val Asn Tyr  Leu Asp Tyr Glu Thr  Lys Thr Ser
    1265                1270                1275

Tyr Met  Met Asn Val Ser Ala  Thr Asp Gln Ala Pro  Pro Phe Asn
    1280                1285                1290

Gln Gly  Phe Cys Ser Val Tyr  Ile Thr Leu Leu Asn  Glu Leu Asp
    1295                1300                1305

Glu Ala  Val Gln Phe Ser Asn  Ala Ser Tyr Glu Ala  Ala Ile Leu
    1310                1315                1320

Glu Asn  Leu Ala Leu Gly Thr  Glu Ile Val Arg Val  Gln Ala Tyr
    1325                1330                1335

Ser Ile  Asp Asn Leu Asn Gln  Ile Thr Tyr Arg Phe  Asn Ala Tyr
    1340                1345                1350

Thr Ser  Thr Gln Ala Lys Ala  Leu Phe Lys Ile Asp  Ala Ile Thr
    1355                1360                1365

Val Arg  Gly Trp Gly Gln Gly  Ala Pro Phe Leu Pro  Ile
    1370                1375                1380
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<210> 10434
<211> 3354
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2089; "

<220>
<221> source
<223> /note="Gene Symbol: CDH23; "

<220>
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<223> /note="Gene Name: cadherin-related 23; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483211"

<400> 10434

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Met Gly Arg His Val Ala Thr Ser Cys His Val Ala Trp Leu Leu Val
1               5                   10                  15

Leu Ile Ser Gly Cys Trp Gly Gln Val Asn Arg Leu Pro Phe Phe Thr
            20                  25                  30

Asn His Phe Phe Asp Thr Tyr Leu Leu Ile Ser Glu Asp Thr Pro Val
        35                  40                  45

Gly Ser Ser Val Thr Gln Leu Leu Ala Gln Asp Met Asp Asn Asp Pro
    50                  55                  60

Leu Val Phe Gly Val Ser Gly Glu Glu Ala Ser Arg Phe Phe Ala Val
65                  70                  75                  80

Glu Pro Asp Thr Gly Val Val Trp Leu Arg Gln Pro Leu Asp Arg Glu
                85                  90                  95

Thr Lys Ser Glu Phe Thr Val Glu Phe Ser Val Ser Asp His Gln Gly
            100                 105                 110

Val Ile Thr Arg Lys Val Asn Ile Gln Val Gly Asp Val Asn Asp Asn
        115                 120                 125

Ala Pro Thr Phe His Asn Gln Pro Tyr Ser Val Arg Ile Pro Glu Asn
    130                 135                 140

Thr Pro Val Gly Thr Pro Ile Phe Ile Val Asn Ala Thr Asp Pro Asp
145                 150                 155                 160

Leu Gly Ala Gly Gly Ser Val Leu Tyr Ser Phe Gln Pro Pro Ser Gln
                165                 170                 175
```

```
Phe Phe Ala Ile Asp Ser Ala Arg Gly Ile Val Thr Val Ile Arg Glu
            180                 185                 190

Leu Asp Tyr Glu Thr Thr Gln Ala Tyr Gln Leu Thr Val Asn Ala Thr
        195                 200                 205

Asp Gln Asp Lys Thr Arg Pro Leu Ser Thr Leu Ala Asn Leu Ala Ile
    210                 215                 220

Ile Ile Thr Asp Val Gln Asp Met Asp Pro Ile Phe Ile Asn Leu Pro
225                 230                 235                 240

Tyr Ser Thr Asn Ile Tyr Glu His Ser Pro Pro Gly Thr Thr Val Arg
                245                 250                 255

Ile Ile Thr Ala Ile Asp Gln Asp Lys Gly Arg Pro Arg Gly Ile Gly
            260                 265                 270

Tyr Thr Ile Val Ser Gly Asn Thr Asn Ser Ile Phe Ala Leu Asp Tyr
        275                 280                 285

Ile Ser Gly Val Leu Thr Leu Asn Gly Leu Leu Asp Arg Glu Asn Pro
    290                 295                 300

Leu Tyr Ser His Gly Phe Ile Leu Thr Val Lys Gly Thr Glu Leu Asn
305                 310                 315                 320

Asp Asp Arg Thr Pro Ser Asp Ala Thr Val Thr Thr Thr Phe Asn Ile
                325                 330                 335

Leu Val Ile Asp Ile Asn Asp Asn Ala Pro Glu Phe Asn Ser Ser Glu
            340                 345                 350

Tyr Ser Val Ala Ile Thr Glu Leu Ala Gln Val Gly Phe Ala Leu Pro
        355                 360                 365

Leu Phe Ile Gln Val Val Asp Lys Asp Glu Thr Gln Gly Leu Asn Ser
    370                 375                 380

Met Phe Glu Val Tyr Leu Val Gly Asn Asn Ser His His Phe Ile Ile
385                 390                 395                 400
```

Ser Pro Thr Ser Val Gln Gly Lys Ala Asp Ile Arg Ile Arg Val Ala
405 410 415

Ile Pro Leu Asp Tyr Glu Thr Val Asp Arg Tyr Asp Phe Asp Leu Phe
420 425 430

Ala Asn Glu Ser Val Pro Asp His Val Gly Tyr Ala Lys Val Lys Ile
435 440 445

Thr Leu Ile Asn Glu Asn Asp Asn Arg Pro Ile Phe Ser Gln Pro Leu
450 455 460

Tyr Asn Ile Ser Leu Tyr Glu Asn Val Thr Val Gly Thr Ser Val Leu
465 470 475 480

Thr Val Leu Ala Thr Asp Asn Asp Ala Gly Thr Phe Gly Glu Val Ser
485 490 495

Tyr Phe Phe Ser Asp Asp Pro Asp Arg Phe Ser Leu Asp Lys Asp Thr
500 505 510

Gly Leu Ile Met Leu Ile Ala Arg Leu Asp Tyr Glu Leu Ile Gln Arg
515 520 525

Phe Thr Leu Thr Ile Ile Ala Arg Asp Gly Gly Gly Glu Glu Thr Thr
530 535 540

Gly Arg Val Arg Ile Asn Val Leu Asp Val Asn Asp Asn Val Pro Thr
545 550 555 560

Phe Gln Lys Asp Ala Tyr Val Gly Ala Leu Arg Glu Asn Glu Pro Ser
565 570 575

Val Thr Gln Leu Val Arg Leu Arg Ala Thr Asp Glu Asp Ser Pro Pro
580 585 590

Asn Asn Gln Ile Thr Tyr Ser Ile Val Ser Ala Ser Ala Phe Gly Ser
595 600 605

Tyr Phe Asp Ile Ser Leu Tyr Glu Gly Tyr Gly Val Ile Ser Val Ser
610 615 620

```
Arg Pro Leu Asp Tyr Glu Gln Ile Ser Asn Gly Leu Ile Tyr Leu Thr
625                 630                 635                 640

Val Met Ala Met Asp Ala Gly Asn Pro Pro Leu Asn Ser Thr Val Pro
                645                 650                 655

Val Thr Ile Glu Val Phe Asp Glu Asn Asp Asn Pro Pro Thr Phe Ser
            660                 665                 670

Lys Pro Ala Tyr Phe Val Ser Val Val Glu Asn Ile Met Ala Gly Ala
        675                 680                 685

Thr Val Leu Phe Leu Asn Ala Thr Asp Leu Asp Arg Ser Arg Glu Tyr
    690                 695                 700

Gly Gln Glu Ser Ile Ile Tyr Ser Leu Glu Gly Ser Thr Gln Phe Arg
705                 710                 715                 720

Ile Asn Ala Arg Ser Gly Glu Ile Thr Thr Thr Ser Leu Leu Asp Arg
                725                 730                 735

Glu Thr Lys Ser Glu Tyr Ile Leu Ile Val Arg Ala Val Asp Gly Gly
            740                 745                 750

Val Gly His Asn Gln Lys Thr Gly Ile Ala Thr Val Asn Ile Thr Leu
        755                 760                 765

Leu Asp Ile Asn Asp Asn His Pro Thr Trp Lys Asp Ala Pro Tyr Tyr
    770                 775                 780

Ile Asn Leu Val Glu Met Thr Pro Pro Asp Ser Asp Val Thr Thr Val
785                 790                 795                 800

Val Ala Val Asp Pro Asp Leu Gly Glu Asn Gly Thr Leu Val Tyr Ser
                805                 810                 815

Ile Gln Pro Pro Asn Lys Phe Tyr Ser Leu Asn Ser Thr Thr Gly Lys
            820                 825                 830

Ile Arg Thr Thr His Ala Met Leu Asp Arg Glu Asn Pro Asp Pro His
        835                 840                 845

Glu Ala Glu Leu Met Arg Lys Ile Val Val Ser Val Thr Asp Cys Gly
```

```
    850                 855                 860

Arg Pro Pro Leu Lys Ala Thr Ser Ser Ala Thr Val Phe Val Asn Leu
865                 870                 875                 880

Leu Asp Leu Asn Asp Asn Asp Pro Thr Phe Gln Asn Leu Pro Phe Val
                885                 890                 895

Ala Glu Val Leu Glu Gly Ile Pro Ala Gly Val Ser Ile Tyr Gln Val
            900                 905                 910

Val Ala Ile Asp Leu Asp Glu Gly Leu Asn Gly Leu Val Ser Tyr Arg
        915                 920                 925

Met Pro Val Gly Met Pro Arg Met Asp Phe Leu Ile Asn Ser Ser Ser
    930                 935                 940

Gly Val Val Val Thr Thr Thr Glu Leu Asp Arg Glu Arg Ile Ala Glu
945                 950                 955                 960

Tyr Gln Leu Arg Val Val Ala Ser Asp Ala Gly Thr Pro Thr Lys Ser
                965                 970                 975

Ser Thr Ser Thr Leu Thr Ile His Val Leu Asp Val Asn Asp Glu Thr
            980                 985                 990

Pro Thr Phe Phe Pro Ala Val Tyr  Asn Val Ser Val Ser  Glu Asp
Val
        995                 1000                1005

Pro Arg  Glu Phe Arg Val Val  Trp Leu Asn Cys Thr  Asp Asn Asp
    1010                1015                1020

Val Gly  Leu Asn Ala Glu Leu  Ser Tyr Phe Ile Thr  Gly Gly Asn
    1025                1030                1035

Val Asp  Gly Lys Phe Ser Val  Gly Tyr Arg Asp Ala  Val Val Arg
    1040                1045                1050

Thr Val  Val Gly Leu Asp Arg  Glu Thr Thr Ala Ala  Tyr Met Leu
    1055                1060                1065

Ile Leu  Glu Ala Ile Asp Asn  Gly Pro Val Gly Lys  Arg His Thr
```

1070 1075 1080

Gly Thr Ala Thr Val Phe Val Thr Val Leu Asp Val Asn Asp Asn
1085 1090 1095

Arg Pro Ile Phe Leu Gln Ser Ser Tyr Glu Ala Ser Val Pro Glu
1100 1105 1110

Asp Ile Pro Glu Gly His Ser Ile Leu Gln Leu Lys Ala Thr Asp
1115 1120 1125

Ala Asp Glu Gly Glu Phe Gly Arg Val Trp Tyr Arg Ile Leu His
1130 1135 1140

Gly Asn His Gly Asn Asn Phe Arg Ile His Val Ser Asn Gly Leu
1145 1150 1155

Leu Met Arg Gly Pro Arg Pro Leu Asp Arg Glu Arg Asn Ser Ser
1160 1165 1170

His Val Leu Ile Val Glu Ala Tyr Asn His Asp Leu Gly Pro Met
1175 1180 1185

Arg Ser Ser Val Arg Val Ile Val Tyr Val Glu Asp Ile Asn Asp
1190 1195 1200

Glu Ala Pro Val Phe Thr Gln Gln Gln Tyr Ser Arg Leu Gly Leu
1205 1210 1215

Arg Glu Thr Ala Gly Ile Gly Thr Ser Val Ile Val Val Gln Ala
1220 1225 1230

Thr Asp Arg Asp Ser Gly Asp Gly Gly Leu Val Asn Tyr Arg Ile
1235 1240 1245

Leu Ser Gly Ala Glu Gly Lys Phe Glu Ile Asp Glu Ser Thr Gly
1250 1255 1260

Leu Ile Ile Thr Val Asn Tyr Leu Asp Tyr Glu Thr Lys Thr Ser
1265 1270 1275

Tyr Met Met Asn Val Ser Ala Thr Asp Gln Ala Pro Pro Phe Asn
1280 1285 1290

```
Gln Gly  Phe Cys Ser Val Tyr  Ile Thr Leu Leu Asn  Glu Leu Asp
    1295                1300                1305

Glu Ala  Val Gln Phe Ser Asn  Ala Ser Tyr Glu Ala  Ala Ile Leu
    1310                1315                1320

Glu Asn  Leu Ala Leu Gly Thr  Glu Ile Val Arg Val  Gln Ala Tyr
    1325                1330                1335

Ser Ile  Asp Asn Leu Asn Gln  Ile Thr Tyr Arg Phe  Asn Ala Tyr
    1340                1345                1350

Thr Ser  Thr Gln Ala Lys Ala  Leu Phe Lys Ile Asp  Ala Ile Thr
    1355                1360                1365

Gly Val  Ile Thr Val Gln Gly  Leu Val Asp Arg Glu  Lys Gly Asp
    1370                1375                1380

Phe Tyr  Thr Leu Thr Val Val  Ala Asp Asp Gly Gly  Pro Lys Val
    1385                1390                1395

Asp Ser  Thr Val Gln Val Tyr  Ile Thr Val Leu Asp  Glu Asn Asp
    1400                1405                1410

Asn Ser  Pro Arg Phe Asp Phe  Thr Ser Asp Ser Ala  Val Ser Ile
    1415                1420                1425

Pro Glu  Asp Cys Pro Val Gly  Gln Arg Val Ala Thr  Val Lys Ala
    1430                1435                1440

Trp Asp  Pro Asp Ala Gly Ser  Asn Gly Gln Val Val  Phe Ser Leu
    1445                1450                1455

Ala Ser  Gly Asn Ile Ala Gly  Ala Phe Glu Ile Val  Thr Thr Asn
    1460                1465                1470

Asp Ser  Ile Gly Glu Val Phe  Val Ala Arg Pro Leu  Asp Arg Glu
    1475                1480                1485

Glu Leu  Asp His Tyr Ile Leu  Gln Val Val Ala Ser  Asp Arg Gly
    1490                1495                1500
```

```
Thr Pro  Pro Arg Lys Lys Asp  His Ile Leu Gln Val  Thr Ile Leu
    1505                1510                1515

Asp Ile  Asn Asp Asn Pro Pro  Val Ile Glu Ser Pro  Phe Gly Tyr
    1520                1525                1530

Asn Val  Ser Val Asn Glu Asn  Val Gly Gly Gly Thr  Ala Val Val
    1535                1540                1545

Gln Val  Arg Ala Thr Asp Arg  Asp Ile Gly Ile Asn  Ser Val Leu
    1550                1555                1560

Ser Tyr  Tyr Ile Thr Glu Gly  Asn Lys Asp Met Ala  Phe Arg Met
    1565                1570                1575

Asp Arg  Ile Ser Gly Glu Ile  Ala Thr Arg Pro Ala  Pro Pro Asp
    1580                1585                1590

Arg Glu  Arg Gln Ser Phe Tyr  His Leu Val Ala Thr  Val Glu Asp
    1595                1600                1605

Glu Gly  Thr Pro Thr Leu Ser  Ala Thr Thr His Val  Tyr Val Thr
    1610                1615                1620

Ile Val  Asp Glu Asn Asp Asn  Ala Pro Met Phe Gln  Gln Pro His
    1625                1630                1635

Tyr Glu  Val Leu Leu Asp Glu  Gly Pro Asp Thr Leu  Asn Thr Ser
    1640                1645                1650

Leu Ile  Thr Ile Gln Ala Leu  Asp Leu Asp Glu Gly  Pro Asn Gly
    1655                1660                1665

Thr Val  Thr Tyr Ala Ile Val  Ala Gly Asn Ile Val  Asn Thr Phe
    1670                1675                1680

Arg Ile  Asp Arg His Met Gly  Val Ile Thr Ala Ala  Lys Glu Leu
    1685                1690                1695

Asp Tyr  Glu Ile Ser His Gly  Arg Tyr Thr Leu Ile  Val Thr Ala
    1700                1705                1710
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Thr Asp  Gln Cys Pro Ile Leu  Ser His Arg Leu Thr  Ser Thr Thr
    1715                1720                1725

Thr Val  Leu Val Asn Val Asn  Asp Ile Asn Asp Asn  Val Pro Thr
    1730                1735                1740

Phe Pro  Arg Asp Tyr Glu Gly  Pro Phe Glu Val Thr  Glu Gly Gln
    1745                1750                1755

Pro Gly  Pro Arg Val Trp Thr  Phe Leu Ala His Asp  Arg Asp Ser
    1760                1765                1770

Gly Pro  Asn Gly Gln Val Glu  Tyr Ser Ile Met Asp  Gly Asp Pro
    1775                1780                1785

Leu Gly  Glu Phe Val Ile Ser  Pro Val Glu Gly Val  Leu Arg Val
    1790                1795                1800

Arg Lys  Asp Val Glu Leu Asp  Arg Glu Thr Ile Ala  Phe Tyr Asn
    1805                1810                1815

Leu Thr  Ile Cys Ala Arg Asp  Arg Gly Met Pro Pro  Leu Ser Ser
    1820                1825                1830

Thr Met  Leu Val Gly Ile Arg  Val Leu Asp Ile Asn  Asp Asn Asp
    1835                1840                1845

Pro Val  Leu Leu Asn Leu Pro  Met Asn Ile Thr Ile  Ser Glu Asn
    1850                1855                1860

Ser Pro  Val Ser Ser Phe Val  Ala His Val Leu Ala  Ser Asp Ala
    1865                1870                1875

Asp Ser  Gly Cys Asn Ala Arg  Leu Thr Phe Asn Ile  Thr Ala Gly
    1880                1885                1890

Asn Arg  Glu Arg Ala Phe Phe  Ile Asn Ala Thr Thr  Gly Ile Val
    1895                1900                1905

Thr Val  Asn Arg Pro Leu Asp  Arg Glu Arg Ile Pro  Glu Tyr Lys
    1910                1915                1920

Leu Thr  Ile Ser Val Lys Asp  Asn Pro Glu Asn Pro  Arg Ile Ala
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1925 1930 1935

Arg Arg Asp Tyr Asp Leu Leu Leu Ile Phe Leu Ser Asp Glu Asn
1940 1945 1950

Asp Asn His Pro Leu Phe Thr Lys Ser Thr Tyr Gln Ala Glu Val
1955 1960 1965

Met Glu Asn Ser Pro Ala Gly Thr Pro Leu Thr Val Leu Asn Gly
1970 1975 1980

Pro Ile Leu Ala Leu Asp Ala Asp Gln Asp Ile Tyr Ala Val Val
1985 1990 1995

Thr Tyr Gln Leu Leu Gly Ala Gln Ser Gly Leu Phe Asp Ile Asn
2000 2005 2010

Ser Ser Thr Gly Val Val Thr Val Arg Ser Gly Val Ile Ile Asp
2015 2020 2025

Arg Glu Ala Phe Ser Pro Pro Ile Leu Glu Leu Leu Leu Leu Ala
2030 2035 2040

Glu Asp Ile Gly Leu Leu Asn Ser Thr Ala His Leu Leu Ile Thr
2045 2050 2055

Ile Leu Asp Asp Asn Asp Asn Arg Pro Thr Phe Ser Pro Ala Thr
2060 2065 2070

Leu Thr Val His Leu Leu Glu Asn Cys Pro Pro Gly Phe Ser Val
2075 2080 2085

Leu Gln Val Thr Ala Thr Asp Glu Asp Ser Gly Leu Asn Gly Glu
2090 2095 2100

Leu Val Tyr Arg Ile Glu Ala Gly Ala Gln Asp Arg Phe Leu Ile
2105 2110 2115

His Leu Val Thr Gly Val Ile Arg Val Gly Asn Ala Thr Ile Asp
2120 2125 2130

Arg Glu Glu Gln Glu Ser Tyr Arg Leu Thr Val Val Ala Thr Asp
2135 2140 2145

Arg Gly Thr Val Pro Leu Ser Gly Thr Ala Ile Val Thr Ile Leu
2150 2155 2160

Ile Asp Asp Ile Asn Asp Ser Arg Pro Glu Phe Leu Asn Pro Ile
2165 2170 2175

Gln Thr Val Ser Val Leu Glu Ser Ala Glu Pro Gly Thr Val Ile
2180 2185 2190

Ala Asn Ile Thr Ala Ile Asp His Asp Leu Asn Pro Lys Leu Glu
2195 2200 2205

Tyr His Ile Val Gly Ile Val Ala Lys Asp Asp Thr Asp Arg Leu
2210 2215 2220

Val Pro Asn Gln Glu Asp Ala Phe Ala Val Asn Ile Asn Thr Gly
2225 2230 2235

Ser Val Met Val Lys Ser Pro Met Asn Arg Glu Leu Val Ala Thr
2240 2245 2250

Tyr Glu Val Thr Leu Ser Val Ile Asp Asn Ala Ser Asp Leu Pro
2255 2260 2265

Glu Arg Ser Val Ser Val Pro Asn Ala Lys Leu Thr Val Asn Val
2270 2275 2280

Leu Asp Val Asn Asp Asn Thr Pro Gln Phe Lys Pro Phe Gly Ile
2285 2290 2295

Thr Tyr Tyr Met Glu Arg Ile Leu Glu Gly Ala Thr Pro Gly Thr
2300 2305 2310

Thr Leu Ile Ala Val Ala Ala Val Asp Pro Asp Lys Gly Leu Asn
2315 2320 2325

Gly Leu Val Thr Tyr Thr Leu Leu Asp Leu Val Pro Pro Gly Tyr
2330 2335 2340

Val Gln Leu Glu Asp Ser Ser Ala Gly Lys Val Ile Ala Asn Arg
2345 2350 2355

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Thr Val  Asp Tyr Glu Glu Val  His Trp Leu Asn Phe  Thr Val Arg
    2360                2365                2370

Ala Ser  Asp Asn Gly Ser Pro  Pro Arg Ala Ala Glu  Ile Pro Val
    2375                2380                2385

Tyr Leu  Glu Ile Val Asp Ile  Asn Asp Asn Asn Pro  Ile Phe Asp
    2390                2395                2400

Gln Pro  Ser Tyr Gln Glu Ala  Val Phe Glu Asp Val  Pro Val Gly
    2405                2410                2415

Thr Ile  Ile Leu Thr Val Thr  Ala Thr Asp Ala Asp  Ser Gly Asn
    2420                2425                2430

Phe Ala  Leu Ile Glu Tyr Ser  Leu Gly Asp Gly Glu  Ser Lys Phe
    2435                2440                2445

Ala Ile  Asn Pro Thr Thr Gly  Asp Ile Tyr Val Leu  Ser Ser Leu
    2450                2455                2460

Asp Arg  Glu Lys Lys Asp His  Tyr Ile Leu Thr Ala  Leu Ala Lys
    2465                2470                2475

Asp Asn  Pro Gly Asp Val Ala  Ser Asn Arg Arg Glu  Asn Ser Val
    2480                2485                2490

Gln Val  Val Ile Gln Val Leu  Asp Val Asn Asp Cys  Arg Pro Gln
    2495                2500                2505

Phe Ser  Lys Pro Gln Phe Ser  Thr Ser Val Tyr Glu  Asn Glu Pro
    2510                2515                2520

Ala Gly  Thr Ser Val Ile Thr  Met Met Ala Thr Asp  Gln Asp Glu
    2525                2530                2535

Gly Pro  Asn Gly Glu Leu Thr  Tyr Ser Leu Glu Gly  Pro Gly Val
    2540                2545                2550

Glu Ala  Phe His Val Asp Met  Asp Ser Gly Leu Val  Thr Thr Gln
    2555                2560                2565
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Arg Pro Leu Gln Ser Tyr Glu Lys Phe Ser Leu Thr Val Val Ala
2570 2575 2580

Thr Asp Gly Gly Glu Pro Pro Leu Trp Gly Thr Thr Met Leu Leu
2585 2590 2595

Val Glu Val Ile Asp Val Asn Asp Asn Arg Pro Val Phe Val Arg
2600 2605 2610

Pro Pro Asn Gly Thr Ile Leu His Ile Arg Glu Glu Ile Pro Leu
2615 2620 2625

Arg Ser Asn Val Tyr Glu Val Tyr Ala Thr Asp Lys Asp Glu Gly
2630 2635 2640

Leu Asn Gly Ala Val Arg Tyr Ser Phe Leu Lys Thr Ala Gly Asn
2645 2650 2655

Arg Asp Trp Glu Phe Phe Ile Ile Asp Pro Ile Ser Gly Leu Ile
2660 2665 2670

Gln Thr Ala Gln Arg Leu Asp Arg Glu Ser Gln Ala Val Tyr Ser
2675 2680 2685

Leu Ile Leu Val Ala Ser Asp Leu Gly Gln Pro Val Pro Tyr Glu
2690 2695 2700

Thr Met Gln Pro Leu Gln Val Ala Leu Glu Asp Ile Asp Asp Asn
2705 2710 2715

Glu Pro Leu Phe Val Arg Pro Pro Lys Gly Ser Pro Gln Tyr Gln
2720 2725 2730

Leu Leu Thr Val Pro Glu His Ser Pro Arg Gly Thr Leu Val Gly
2735 2740 2745

Asn Val Thr Gly Ala Val Asp Ala Asp Glu Gly Pro Asn Ala Ile
2750 2755 2760

Val Tyr Tyr Phe Ile Ala Ala Gly Asn Glu Glu Lys Asn Phe His
2765 2770 2775

Leu Gln Pro Asp Gly Cys Leu Leu Val Leu Arg Asp Leu Asp Arg

2780 2785 2790

Glu Arg Glu Ala Ile Phe Ser Phe Ile Val Lys Ala Ser Ser Asn
2795 2800 2805

Arg Ser Trp Thr Pro Pro Arg Gly Pro Ser Pro Thr Leu Asp Leu
2810 2815 2820

Val Ala Asp Leu Thr Leu Gln Glu Val Arg Val Val Leu Glu Asp
2825 2830 2835

Ile Asn Asp Gln Pro Pro Arg Phe Thr Lys Ala Glu Tyr Thr Ala
2840 2845 2850

Gly Val Ala Thr Asp Ala Lys Val Gly Ser Glu Leu Ile Gln Val
2855 2860 2865

Leu Ala Leu Asp Ala Asp Ile Gly Asn Asn Ser Leu Val Phe Tyr
2870 2875 2880

Ser Ile Leu Ala Ile His Tyr Phe Arg Ala Leu Ala Asn Asp Ser
2885 2890 2895

Glu Asp Val Gly Gln Val Phe Thr Met Gly Ser Met Asp Gly Ile
2900 2905 2910

Leu Arg Thr Phe Asp Leu Phe Met Ala Tyr Ser Pro Gly Tyr Phe
2915 2920 2925

Val Val Asp Ile Val Ala Arg Asp Leu Ala Gly His Asn Asp Thr
2930 2935 2940

Ala Ile Ile Gly Ile Tyr Ile Leu Arg Asp Asp Gln Arg Val Lys
2945 2950 2955

Ile Val Ile Asn Glu Ile Pro Asp Arg Val Arg Gly Phe Glu Glu
2960 2965 2970

Glu Phe Ile His Leu Leu Ser Asn Ile Thr Gly Ala Ile Val Asn
2975 2980 2985

Thr Asp Asn Val Gln Phe His Val Asp Lys Lys Gly Arg Val Asn
2990 2995 3000

Phe Ala Gln Thr Glu Leu Leu Ile His Val Val Asn Arg Asp Thr
3005 3010 3015

Asn Arg Ile Leu Asp Val Asp Arg Val Ile Gln Met Ile Asp Glu
3020 3025 3030

Asn Lys Glu Gln Leu Arg Asn Leu Phe Arg Asn Tyr Asn Val Leu
3035 3040 3045

Asp Val Gln Pro Ala Ile Ser Val Arg Leu Pro Asp Asp Met Ser
3050 3055 3060

Ala Leu Gln Met Ala Ile Ile Val Leu Ala Ile Leu Leu Phe Leu
3065 3070 3075

Ala Ala Met Leu Phe Val Leu Met Asn Trp Tyr Tyr Arg Thr Val
3080 3085 3090

His Lys Arg Lys Leu Lys Ala Ile Val Ala Gly Ser Ala Gly Asn
3095 3100 3105

Arg Gly Phe Ile Asp Ile Met Asp Met Pro Asn Thr Asn Lys Tyr
3110 3115 3120

Ser Phe Asp Gly Ala Asn Pro Val Trp Leu Asp Pro Phe Cys Arg
3125 3130 3135

Asn Leu Glu Leu Ala Ala Gln Ala Glu His Glu Asp Asp Leu Pro
3140 3145 3150

Glu Asn Leu Ser Glu Ile Ala Asp Leu Trp Asn Ser Pro Thr Arg
3155 3160 3165

Thr His Gly Thr Phe Gly Arg Glu Pro Ala Ala Val Lys Pro Asp
3170 3175 3180

Asp Asp Arg Tyr Leu Arg Ala Ala Ile Gln Glu Tyr Asp Asn Ile
3185 3190 3195

Ala Lys Leu Gly Gln Ile Ile Arg Glu Gly Pro Ile Lys Gly Ser
3200 3205 3210

```
Leu Leu  Lys Val Val Leu Glu  Asp Tyr Leu Arg Leu  Lys Lys Leu
    3215                3220                3225

Phe Ala  Gln Arg Met Val Gln  Lys Ala Ser Ser Cys  His Ser Ser
    3230                3235                3240

Ile Ser  Glu Leu Ile Gln Thr  Glu Leu Asp Glu Glu  Pro Gly Asp
    3245                3250                3255

His Ser  Pro Gly Gln Gly Ser  Leu Arg Phe Arg His  Lys Pro Pro
    3260                3265                3270

Val Glu  Leu Lys Gly Pro Asp  Gly Ile His Val Val  His Gly Ser
    3275                3280                3285

Thr Gly  Thr Leu Leu Ala Thr  Asp Leu Asn Ser Leu  Pro Glu Glu
    3290                3295                3300

Asp Gln  Lys Gly Leu Gly Arg  Ser Leu Glu Thr Leu  Thr Ala Ala
    3305                3310                3315

Glu Ala  Thr Ala Phe Glu Arg  Asn Ala Arg Thr Glu  Ser Ala Lys
    3320                3325                3330

Ser Thr  Pro Leu His Lys Leu  Arg Asp Val Ile Met  Glu Thr Pro
    3335                3340                3345

Leu Glu  Ile Thr Glu Leu
    3350


<210> 10435
<211> 745
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2090; "

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<220>
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<223> /note="Gene Name: cadherin-related family
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member 1; "

<220>
<221> source
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<220>
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<400> 10435
Met Arg Arg Cys Arg Trp Ala Ala Leu Ala Leu Gly Leu Leu Arg Leu
1   5   10   15

Cys Leu Ala Gln Ala Asn Phe Ala Pro His Phe Phe Asp Asn Gly Val
            20   25   30

Gly Ser Thr Asn Gly Asn Met Ala Leu Phe Ser Leu Pro Glu Asp Thr
        35   40   45

Pro Val Gly Ser His Val Tyr Thr Leu Asn Gly Thr Asp Pro Glu Gly
    50   55   60

Asp Pro Ile Ser Tyr His Ile Ser Phe Asp Pro Ser Thr Arg Ser Val
65   70   75   80

Phe Ser Val Asp Pro Thr Phe Gly Asn Ile Thr Leu Val Glu Glu Leu
                85   90   95

Asp Arg Glu Arg Glu Asp Glu Ile Glu Ala Ile Ile Ser Ile Ser Asp
            100   105   110

Gly Leu Asn Leu Val Ala Glu Lys Val Val Ile Leu Val Thr Asp Ala
        115   120   125

Asn Asp Glu Ala Pro Arg Phe Ile Gln Glu Pro Tyr Val Ala Leu Val
    130   135   140

Pro Glu Asp Ile Pro Ala Gly Ser Ile Ile Phe Lys Val His Ala Val
145   150   155   160

Asp Arg Asp Thr Gly Ser Gly Gly Ser Val Thr Tyr Phe Leu Gln Asn
                165   170   175

Leu His Ser Pro Phe Ala Val Asp Arg His Ser Gly Val Leu Arg Leu
            180   185   190

```
Gln Ala Gly Ala Thr Leu Asp Tyr Glu Arg Ser Arg Thr His Tyr Ile
        195                 200                 205

Thr Val Val Ala Lys Asp Gly Gly Gly Arg Leu His Gly Ala Asp Val
    210                 215                 220

Val Phe Ser Ala Thr Thr Thr Val Thr Val Asn Val Glu Asp Val Gln
225                 230                 235                 240

Asp Met Ala Pro Val Phe Val Gly Thr Pro Tyr Tyr Gly Tyr Val Tyr
                245                 250                 255

Glu Asp Thr Leu Pro Gly Ser Glu Val Leu Lys Val Val Ala Met Asp
            260                 265                 270

Gly Asp Arg Gly Lys Pro Asn Arg Ile Leu Tyr Ser Leu Val Asn Gly
        275                 280                 285

Asn Asp Gly Ala Phe Glu Ile Asn Glu Thr Ser Gly Ala Ile Ser Ile
    290                 295                 300

Thr Gln Ser Pro Ala Gln Leu Gln Arg Glu Val Tyr Glu Leu His Val
305                 310                 315                 320

Gln Val Thr Glu Met Ser Pro Ala Gly Ser Pro Ala Ala Gln Ala Thr
                325                 330                 335

Val Pro Val Thr Ile Arg Ile Val Asp Leu Asn Asn His Pro Pro Thr
            340                 345                 350

Phe Tyr Gly Glu Ser Gly Pro Gln Asn Arg Phe Glu Leu Ser Met Asn
        355                 360                 365

Glu His Pro Pro Gln Gly Glu Ile Leu Arg Gly Leu Lys Ile Thr Val
    370                 375                 380

Asn Asp Ser Asp Gln Gly Ala Asn Ala Lys Phe Asn Leu Gln Leu Val
385                 390                 395                 400

Gly Pro Arg Gly Ile Phe Arg Val Val Pro Gln Thr Val Leu Asn Glu
                405                 410                 415
```

```
Ala Gln Val Thr Ile Ile Val Glu Asn Ser Ala Ala Ile Asp Phe Glu
            420                 425                 430

Lys Ser Lys Val Leu Thr Phe Lys Leu Leu Ala Val Glu Val Asn Thr
        435                 440                 445

Pro Glu Lys Phe Ser Ser Thr Ala Asp Val Val Ile Gln Leu Leu Asp
    450                 455                 460

Thr Asn Asp Asn Val Pro Lys Phe Asp Ser Leu Tyr Tyr Val Ala Arg
465                 470                 475                 480

Ile Pro Glu Asn Ala Pro Gly Gly Ser Ser Val Val Ala Val Thr Ala
                485                 490                 495

Val Asp Pro Asp Thr Gly Pro Trp Gly Glu Val Lys Tyr Ser Thr Tyr
            500                 505                 510

Gly Thr Gly Ala Asp Leu Phe Leu Ile His Pro Ser Thr Gly Leu Ile
        515                 520                 525

Tyr Thr Gln Pro Trp Ala Ser Leu Asp Ala Glu Ala Thr Ala Arg Tyr
    530                 535                 540

Asn Phe Tyr Val Lys Ala Glu Asp Met Glu Gly Lys Tyr Ser Val Ala
545                 550                 555                 560

Glu Val Phe Ile Thr Leu Leu Asp Val Asn Asp His Pro Pro Gln Phe
                565                 570                 575

Gly Lys Ser Val Gln Lys Lys Thr Met Val Leu Gly Thr Pro Val Lys
            580                 585                 590

Ile Glu Ala Ile Asp Glu Asp Ala Glu Glu Pro Asn Asn Leu Val Asp
        595                 600                 605

Tyr Ser Ile Thr His Ala Glu Pro Ala Asn Val Phe Asp Ile Asn Ser
    610                 615                 620

His Thr Gly Glu Ile Trp Leu Lys Asn Ser Ile Arg Ser Leu Asp Ala
625                 630                 635                 640
```

Leu His Asn Ile Thr Pro Gly Arg Asp Cys Leu Trp Ser Leu Glu Val
645 650 655

Gln Ala Lys Asp Arg Gly Ser Pro Ser Phe Ser Thr Thr Ala Leu Leu
660 665 670

Lys Ile Asp Ile Thr Asp Ala Glu Val Arg Arg Leu Arg Tyr Met Lys
675 680 685

Asn Ser Asn Phe Pro Gly Thr Thr Lys Ser Val Arg Lys Pro Lys Phe
690 695 700

Lys Pro Lys Lys Pro His Ser Ser Gln Gly Leu Phe Leu His Pro His
705 710 715 720

Cys Glu Ile Ala Leu Phe Asn Leu Ser Asn Val Asn Leu Tyr Ser Arg
725 730 735

Val Phe Gln Gly Ala Ala Gln Ala Ser
740 745

<210> 10436
<211> 598
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CDHR1; "

<220>
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<223> /note="Gene Name: cadherin-related family
member 1; "

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10436

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Xaa Ile Thr Val Val Ala Lys Asp Gly Gly Gly Arg Leu His Gly Ala
1               5                  10                  15

Asp Val Val Phe Ser Ala Thr Thr Thr Val Thr Val Asn Val Glu Asp
            20                  25                  30

Val Gln Asp Met Ala Pro Val Phe Val Gly Thr Pro Tyr Tyr Gly Tyr
        35                  40                  45

Val Tyr Glu Asp Thr Leu Pro Gly Ser Glu Val Leu Lys Val Val Ala
    50                  55                  60

Met Asp Gly Asp Arg Gly Lys Pro Asn Arg Ile Leu Tyr Ser Leu Val
65                  70                  75                  80

Asn Gly Asn Asp Gly Ala Phe Glu Ile Asn Glu Thr Ser Gly Ala Ile
                85                  90                  95

Ser Ile Thr Gln Ser Pro Ala Gln Leu Gln Arg Glu Val Tyr Glu Leu
            100                 105                 110

His Val Gln Val Thr Glu Met Ser Pro Ala Gly Ser Pro Ala Ala Gln
        115                 120                 125

Ala Thr Val Pro Val Thr Ile Arg Ile Val Asp Leu Asn Asn His Pro
    130                 135                 140

Pro Thr Phe Tyr Gly Glu Ser Gly Pro Gln Asn Arg Phe Glu Leu Ser
145                 150                 155                 160

Met Asn Glu His Pro Pro Gln Gly Glu Ile Leu Arg Gly Leu Lys Ile
                165                 170                 175

Thr Val Asn Asp Ser Asp Gln Gly Ala Asn Ala Lys Phe Asn Leu Gln
            180                 185                 190

Leu Val Gly Pro Arg Gly Ile Phe Arg Val Val Pro Gln Thr Val Leu
        195                 200                 205

Asn Glu Ala Gln Val Thr Ile Ile Val Glu Asn Ser Ala Ala Ile Asp
    210                 215                 220

Phe Glu Lys Ser Lys Val Leu Thr Phe Lys Ala Val Asp Pro Asp Thr
```

225 230 235 240

Gly Pro Trp Gly Glu Val Lys Tyr Ser Thr Tyr Gly Thr Gly Ala Asp
245 250 255

Leu Phe Leu Ile His Pro Ser Thr Gly Leu Ile Tyr Thr Gln Pro Trp
260 265 270

Ala Ser Leu Asp Ala Glu Ala Thr Ala Arg Tyr Asn Phe Tyr Val Lys
275 280 285

Ala Glu Asp Met Glu Gly Lys Tyr Ser Val Ala Glu Val Phe Ile Thr
290 295 300

Leu Leu Asp Val Asn Asp His Pro Pro Gln Phe Gly Lys Ser Val Gln
305 310 315 320

Lys Lys Thr Met Val Leu Gly Thr Pro Val Lys Ile Glu Ala Ile Asp
325 330 335

Glu Asp Ala Glu Glu Pro Asn Asn Leu Val Asp Tyr Ser Ile Thr His
340 345 350

Ala Glu Pro Ala Asn Val Phe Asp Ile Asn Ser His Thr Gly Glu Ile
355 360 365

Trp Leu Lys Asn Ser Ile Arg Ser Leu Asp Ala Leu His Asn Ile Thr
370 375 380

Pro Gly Arg Asp Cys Leu Trp Ser Leu Glu Val Gln Ala Lys Asp Arg
385 390 395 400

Gly Ser Pro Ser Phe Ser Thr Thr Ala Leu Leu Lys Ile Asp Ile Thr
405 410 415

Asp Ala Glu Thr Leu Ser Arg Ser Pro Met Ala Ala Phe Leu Ile Gln
420 425 430

Thr Lys Asp Asn Pro Met Lys Ala Val Gly Val Leu Ala Gly Thr Met
435 440 445

Ala Thr Val Val Ala Ile Thr Val Leu Ile Ser Thr Ala Thr Phe Trp
450 455 460

```
Arg Asn Lys Lys Ser Asn Lys Val Leu Pro Met Arg Arg Val Leu Arg
465                 470                 475                 480

Lys Arg Pro Ser Pro Ala Pro Arg Thr Ile Arg Ile Glu Trp Leu Lys
                485                 490                 495

Ser Lys Ser Thr Lys Ala Ala Thr Lys Phe Met Leu Lys Glu Lys Pro
            500                 505                 510

Pro Asn Glu Asn Cys Asn Asn Asn Ser Pro Glu Ser Ser Leu Leu Pro
        515                 520                 525

Arg Ala Pro Ala Leu Pro Pro Pro Pro Ser Val Ala Pro Ser Thr Gly
    530                 535                 540

Ala Ala Gln Trp Thr Val Pro Thr Val Ser Gly Ser Leu Thr Pro Gln
545                 550                 555                 560

Pro Thr Gln Pro Pro Pro Lys Pro Lys Thr Met Gly Ser Pro Val Gln
                565                 570                 575

Ser Thr Leu Ile Ser Glu Leu Lys Gln Lys Phe Glu Lys Lys Ser Val
            580                 585                 590

His Asn Lys Ala Tyr Phe
        595


<210> 10437
<211> 135
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2090; "

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<221> source
<223> /note="ENSP ID: ENSP00000485151"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10437
Xaa Glu Asn Ser Ala Ala Ile Asp Phe Glu Lys Ser Lys Val Leu Thr
1 5 10 15

Phe Lys Leu Leu Ala Val Glu Val Asn Thr Pro Glu Lys Phe Ser Ser
20 25 30

Thr Ala Asp Val Val Ile Gln Leu Leu Asp Thr Asn Asp Asn Val Pro
35 40 45

Lys Phe Asp Ser Leu Tyr Tyr Val Ala Arg Ile Pro Glu Asn Ala Pro
50 55 60

Gly Gly Ser Ser Val Val Ala Val Thr Ala Val Asp Pro Asp Thr Gly
65 70 75 80

Pro Trp Gly Glu Val Lys Tyr Ser Thr Tyr Gly Thr Gly Ala Asp Leu
85 90 95

Phe Leu Ile His Pro Ser Thr Gly Leu Ile Tyr Thr Gln Pro Trp Ala
100 105 110

Ser Leu Asp Ala Glu Ala Thr Ala Arg Tyr Asn Phe Tyr Val Lys Ala
115 120 125

Glu Asp Met Glu Gly Lys Pro
130 135

<210> 10438
<211> 78
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CDHR1; "

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<223> /note="ENSP ID: ENSP00000485245"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10438
Xaa Ile Thr His Ala Glu Pro Ala Asn Val Phe Asp Ile Asn Ser His
1 5 10 15

Thr Gly Glu Ile Trp Leu Lys Asn Ser Ile Arg Ser Leu Asp Ala Leu
20 25 30

His Asn Ile Thr Pro Gly Arg Asp Cys Leu Trp Ser Leu Glu Val Gln
35 40 45

Ala Lys Asp Arg Gly Ser Pro Ser Phe Ser Thr Thr Ala Leu Leu Lys
50 55 60

Ile Asp Ile Thr Asp Ala Glu Val Arg Arg Leu Arg Ser Asn
65 70 75

<210> 10439
<211> 48
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<221> source
<223> /note="ENSP ID: ENSP00000485460"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10439
Xaa Met Asp Gly Asp Arg Gly Lys Pro Asn Arg Ile Leu Tyr Ser Leu
1 5 10 15

Val Asn Asp Phe Pro Arg Gln Cys Arg Thr Ile Leu Trp His Asp Ser
20 25 30

Pro Ala Pro Pro Cys Gly Pro Val Gln Asn Phe Arg Val His Leu Pro
35 40 45

<210> 10440
<211> 859
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
<221> source
<223> /note="Uniprot ID: Q96JP9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485478"

<400> 10440
Met Arg Arg Cys Arg Trp Ala Ala Leu Ala Leu Gly Leu Leu Arg Leu
1 5 10 15

Cys Leu Ala Gln Ala Asn Phe Ala Pro His Phe Phe Asp Asn Gly Val
20 25 30

```
Gly Ser Thr Asn Gly Asn Met Ala Leu Phe Ser Leu Pro Glu Asp Thr
        35                  40                  45

Pro Val Gly Ser His Val Tyr Thr Leu Asn Gly Thr Asp Pro Glu Gly
    50                  55                  60

Asp Pro Ile Ser Tyr His Ile Ser Phe Asp Pro Ser Thr Arg Ser Val
65                  70                  75                  80

Phe Ser Val Asp Pro Thr Phe Gly Asn Ile Thr Leu Val Glu Glu Leu
                85                  90                  95

Asp Arg Glu Arg Glu Asp Glu Ile Glu Ala Ile Ile Ser Ile Ser Asp
            100                 105                 110

Gly Leu Asn Leu Val Ala Glu Lys Val Val Ile Leu Val Thr Asp Ala
        115                 120                 125

Asn Asp Glu Ala Pro Arg Phe Ile Gln Glu Pro Tyr Val Ala Leu Val
    130                 135                 140

Pro Glu Asp Ile Pro Ala Gly Ser Ile Ile Phe Lys Val His Ala Val
145                 150                 155                 160

Asp Arg Asp Thr Gly Ser Gly Gly Ser Val Thr Tyr Phe Leu Gln Asn
                165                 170                 175

Leu His Ser Pro Phe Ala Val Asp Arg His Ser Gly Val Leu Arg Leu
            180                 185                 190

Gln Ala Gly Ala Thr Leu Asp Tyr Glu Arg Ser Arg Thr His Tyr Ile
        195                 200                 205

Thr Val Val Ala Lys Asp Gly Gly Gly Arg Leu His Gly Ala Asp Val
    210                 215                 220

Val Phe Ser Ala Thr Thr Thr Val Thr Val Asn Val Glu Asp Val Gln
225                 230                 235                 240

Asp Met Ala Pro Val Phe Val Gly Thr Pro Tyr Tyr Gly Tyr Val Tyr
                245                 250                 255

Glu Asp Thr Leu Pro Gly Ser Glu Val Leu Lys Val Val Ala Met Asp
```

260 265 270

Gly Asp Arg Gly Lys Pro Asn Arg Ile Leu Tyr Ser Leu Val Asn Gly
275 280 285

Asn Asp Gly Ala Phe Glu Ile Asn Glu Thr Ser Gly Ala Ile Ser Ile
290 295 300

Thr Gln Ser Pro Ala Gln Leu Gln Arg Glu Val Tyr Glu Leu His Val
305 310 315 320

Gln Val Thr Glu Met Ser Pro Ala Gly Ser Pro Ala Ala Gln Ala Thr
325 330 335

Val Pro Val Thr Ile Arg Ile Val Asp Leu Asn Asn His Pro Pro Thr
340 345 350

Phe Tyr Gly Glu Ser Gly Pro Gln Asn Arg Phe Glu Leu Ser Met Asn
355 360 365

Glu His Pro Pro Gln Gly Glu Ile Leu Arg Gly Leu Lys Ile Thr Val
370 375 380

Asn Asp Ser Asp Gln Gly Ala Asn Ala Lys Phe Asn Leu Gln Leu Val
385 390 395 400

Gly Pro Arg Gly Ile Phe Arg Val Val Pro Gln Thr Val Leu Asn Glu
405 410 415

Ala Gln Val Thr Ile Ile Val Glu Asn Ser Ala Ala Ile Asp Phe Glu
420 425 430

Lys Ser Lys Val Leu Thr Phe Lys Leu Leu Ala Val Glu Val Asn Thr
435 440 445

Pro Glu Lys Phe Ser Ser Thr Ala Asp Val Val Ile Gln Leu Leu Asp
450 455 460

Thr Asn Asp Asn Val Pro Lys Phe Asp Ser Leu Tyr Tyr Val Ala Arg
465 470 475 480

Ile Pro Glu Asn Ala Pro Gly Gly Ser Ser Val Val Ala Val Thr Ala
485 490 495

```
Val Asp Pro Asp Thr Gly Pro Trp Gly Glu Val Lys Tyr Ser Thr Tyr
            500                 505                 510

Gly Thr Gly Ala Asp Leu Phe Leu Ile His Pro Ser Thr Gly Leu Ile
        515                 520                 525

Tyr Thr Gln Pro Trp Ala Ser Leu Asp Ala Glu Ala Thr Ala Arg Tyr
    530                 535                 540

Asn Phe Tyr Val Lys Ala Glu Asp Met Glu Gly Lys Tyr Ser Val Ala
545                 550                 555                 560

Glu Val Phe Ile Thr Leu Leu Asp Val Asn Asp His Pro Pro Gln Phe
                565                 570                 575

Gly Lys Ser Val Gln Lys Lys Thr Met Val Leu Gly Thr Pro Val Lys
            580                 585                 590

Ile Glu Ala Ile Asp Glu Asp Ala Glu Glu Pro Asn Asn Leu Val Asp
        595                 600                 605

Tyr Ser Ile Thr His Ala Glu Pro Ala Asn Val Phe Asp Ile Asn Ser
    610                 615                 620

His Thr Gly Glu Ile Trp Leu Lys Asn Ser Ile Arg Ser Leu Asp Ala
625                 630                 635                 640

Leu His Asn Ile Thr Pro Gly Arg Asp Cys Leu Trp Ser Leu Glu Val
                645                 650                 655

Gln Ala Lys Asp Arg Gly Ser Pro Ser Phe Ser Thr Thr Ala Leu Leu
            660                 665                 670

Lys Ile Asp Ile Thr Asp Ala Glu Thr Leu Ser Arg Ser Pro Met Ala
        675                 680                 685

Ala Phe Leu Ile Gln Thr Lys Asp Asn Pro Met Lys Ala Val Gly Val
    690                 695                 700

Leu Ala Gly Thr Met Ala Thr Val Val Ala Ile Thr Val Leu Ile Ser
705                 710                 715                 720
```

```
Thr Ala Thr Phe Trp Arg Asn Lys Lys Ser Asn Lys Val Leu Pro Met
                725                 730                 735

Arg Arg Val Leu Arg Lys Arg Pro Ser Pro Ala Pro Arg Thr Ile Arg
            740                 745                 750

Ile Glu Trp Leu Lys Ser Lys Ser Thr Lys Ala Ala Thr Lys Phe Met
        755                 760                 765

Leu Lys Glu Lys Pro Pro Asn Glu Asn Cys Asn Asn Asn Ser Pro Glu
    770                 775                 780

Ser Ser Leu Leu Pro Arg Ala Pro Ala Leu Pro Pro Pro Pro Ser Val
785                 790                 795                 800

Ala Pro Ser Thr Gly Ala Ala Gln Trp Thr Val Pro Thr Val Ser Gly
                805                 810                 815

Ser Leu Thr Pro Gln Pro Thr Gln Pro Pro Pro Lys Pro Lys Thr Met
            820                 825                 830

Gly Ser Pro Val Gln Ser Thr Leu Ile Ser Glu Leu Lys Gln Lys Phe
        835                 840                 845

Glu Lys Lys Ser Val His Asn Lys Ala Tyr Phe
    850                 855


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<400> 10441
Met Ala Gln Leu Trp Leu Ser Cys Phe Leu Leu Pro Ala Leu Val Val
1   5   10   15

Ser Val Ala Ala Asn Val Ala Pro Lys Phe Leu Ala Asn Met Thr Ser
            20   25   30

Val Ile Leu Pro Glu Asp Leu Pro Val Gly Ala Gln Ala Phe Trp Leu
        35   40   45

Val Ala Glu Asp Gln Asp Asn Asp Pro Leu Thr Tyr Gly Met Ser Gly
    50   55   60

Pro Asn Ala Tyr Phe Phe Ala Val Thr Pro Lys Thr Gly Glu Val Lys
65   70   75   80

Leu Ala Ser Ala Leu Asp Tyr Glu Thr Leu Tyr Thr Phe Lys Val Thr
                85   90   95

Ile Ser Val Ser Asp Pro Tyr Ile Gln Val Gln Arg Glu Met Leu Val
            100   105   110

Ile Val Glu Asp Arg Asn Asp Asn Ala Pro Val Phe Gln Asn Thr Ala
        115   120   125

Phe Ser Thr Ser Ile Asn Glu Thr Leu Pro Val Gly Ser Val Val Phe
    130   135   140

Ser Val Leu Ala Val Asp Lys Asp Met Gly Ser Ala Gly Met Val Val
145   150   155   160

Tyr Ser Ile Glu Lys Val Ile Pro Ser Thr Gly Asp Ser Glu His Leu
                165   170   175

Phe Arg Ile Leu Ala Asn Gly Ser Ile Val Leu Asn Gly Ser Leu Ser
            180   185   190

Tyr Asn Asn Lys Ser Ala Phe Tyr Gln Leu Glu Leu Lys Ala Cys Asp
        195   200   205

```
Leu Gly Gly Met Tyr His Asn Thr Phe Thr Ile Gln Cys Ser Leu Pro
    210                 215                 220

Val Phe Leu Ser Ile Ser Val Val Asp Gln Pro Asp Leu Asp Pro Gln
225                 230                 235                 240

Phe Val Arg Glu Phe Tyr Ser Ala Ser Val Ala Glu Asp Ala Ala Lys
                245                 250                 255

Gly Thr Ser Val Leu Thr Val Glu Ala Val Asp Gly Asp Lys Gly Ile
            260                 265                 270

Asn Asp Pro Val Ile Tyr Ser Ile Ser Tyr Ser Thr Arg Pro Gly Trp
        275                 280                 285

Phe Asp Ile Gly Ala Asp Gly Val Ile Arg Val Asn Gly Ser Leu Asp
    290                 295                 300

Arg Glu Gln Leu Leu Glu Ala Asp Glu Glu Val Gln Leu Gln Val Thr
305                 310                 315                 320

Ala Thr Glu Thr His Leu Asn Ile Tyr Gly Gln Glu Ala Lys Val Ser
                325                 330                 335

Ile Trp Val Thr Val Arg Val Met Asp Val Asn Asp His Lys Pro Glu
            340                 345                 350

Phe Tyr Asn Cys Ser Leu Pro Ala Cys Thr Phe Thr Pro Glu Glu Ala
        355                 360                 365

Gln Val Asn Phe Thr Gly Tyr Val Asp Glu His Ala Ser Pro Arg Ile
    370                 375                 380

Pro Ile Asp Asp Leu Thr Met Val Val Tyr Asp Pro Asp Lys Gly Ser
385                 390                 395                 400

Asn Gly Thr Phe Leu Leu Ser Leu Gly Gly Pro Asp Ala Glu Ala Phe
                405                 410                 415

Ser Val Ser Pro Glu Arg Ala Val Gly Ser Ala Ser Val Gln Val Leu
            420                 425                 430
```

```
Val Arg Val Ser Ala Leu Val Asp Tyr Glu Arg Gln Thr Ala Met Ala
        435                 440                 445

Val Gln Val Val Ala Thr Asp Ser Val Ser Gln Asn Phe Ser Val Ala
    450                 455                 460

Met Val Thr Ile His Leu Arg Asp Ile Asn Asp His Arg Pro Thr Phe
465                 470                 475                 480

Pro Gln Ser Leu Tyr Val Leu Thr Val Pro Glu His Ser Ala Thr Gly
                485                 490                 495

Ser Val Val Thr Asp Ser Ile His Ala Thr Asp Pro Asp Thr Gly Ala
            500                 505                 510

Trp Gly Gln Ile Thr Tyr Ser Leu Leu Pro Gly Asn Gly Ala Asp Leu
        515                 520                 525

Phe Gln Val Asp Pro Val Ser Gly Thr Val Thr Val Arg Asn Gly Glu
    530                 535                 540

Leu Leu Asp Arg Glu Ser Gln Ala Val Tyr Tyr Leu Thr Leu Gln Ala
545                 550                 555                 560

Thr Asp Gly Gly Asn Leu Ser Ser Ser Thr Thr Leu Gln Ile His Leu
                565                 570                 575

Leu Asp Ile Asn Asp Asn Ala Pro Val Val Ser Gly Ser Tyr Asn Ile
            580                 585                 590

Phe Val Gln Glu Glu Glu Gly Asn Val Ser Val Thr Ile Gln Ala His
        595                 600                 605

Asp Asn Asp Glu Pro Gly Thr Asn Asn Ser Arg Leu Leu Phe Asn Leu
    610                 615                 620

Leu Pro Gly Pro Tyr Ser His Asn Phe Ser Leu Asp Pro Asp Thr Gly
625                 630                 635                 640

Leu Leu Arg Asn Leu Gly Pro Leu Asp Arg Glu Ala Ile Asp Pro Ala
                645                 650                 655
```

```
Leu Glu Gly Arg Ile Val Leu Thr Val Leu Val Ser Asp Cys Gly Glu
            660                 665                 670

Pro Val Leu Gly Thr Lys Val Asn Val Thr Ile Thr Val Glu Asp Ile
        675                 680                 685

Asn Asp Asn Leu Pro Ile Phe Asn Gln Ser Ser Tyr Asn Phe Thr Val
    690                 695                 700

Lys Glu Glu Asp Pro Gly Val Leu Val Gly Val Val Lys Ala Trp Asp
705                 710                 715                 720

Ala Asp Gln Thr Glu Ala Asn Asn Arg Ile Ser Phe Ser Leu Ser Gly
                725                 730                 735

Ser Gly Ala Asn Tyr Phe Met Ile Arg Gly Leu Val Leu Gly Ala Gly
            740                 745                 750

Trp Ala Glu Gly Tyr Leu Arg Leu Pro Pro Asp Val Ser Leu Asp Tyr
        755                 760                 765

Glu Thr Gln Pro Val Phe Asn Leu Thr Val Ser Ala Glu Asn Pro Asp
    770                 775                 780

Pro Gln Gly Gly Glu Thr Ile Val Asp Val Cys Val Asn Val Lys Asp
785                 790                 795                 800

Val Asn Asp Asn Pro Pro Thr Leu Asp Val Ala Ser Leu Arg Gly Ile
                805                 810                 815

Arg Val Ala Glu Asn Gly Ser Gln His Gly Gln Val Ala Val Val Val
            820                 825                 830

Ala Ser Asp Val Asp Thr Ser Ala Gln Leu Glu Ile Gln Leu Val Asn
        835                 840                 845

Ile Leu Cys Thr Lys Ala Gly Val Asp Val Gly Ser Leu Cys Trp Gly
    850                 855                 860

Trp Phe Ser Val Ala Ala Asn Gly Ser Val Tyr Ile Asn Gln Ser Lys
865                 870                 875                 880

Ala Ile Asp Tyr Glu Ala Cys Asp Leu Val Thr Leu Val Val Arg Ala
```

885 890 895

Cys Asp Leu Ala Thr Asp Pro Gly Phe Gln Ala Tyr Ser Asn Asn Gly
900 905 910

Ser Leu Leu Ile Thr Ile Glu Asp Val Asn Asp Asn Ala Pro Tyr Phe
915 920 925

Leu Pro Glu Asn Lys Thr Phe Val Ile Ile Pro Glu Leu Val Leu Pro
930 935 940

Asn Arg Glu Val Ala Ser Val Arg Ala Arg Asp Asp Asp Ser Gly Asn
945 950 955 960

Asn Gly Val Ile Leu Phe Ser Ile Leu Arg Val Asp Phe Ile Ser Lys
965 970 975

Asp Gly Ala Thr Ile Pro Phe Gln Gly Val Phe Ser Ile Phe Thr Ser
980 985 990

Ser Glu Ala Asp Val Phe Ala Gly Ser Ile Gln Pro Val Thr Ser
Leu
995 1000 1005

Asp Ser Thr Leu Gln Gly Thr Tyr Gln Val Thr Val Gln Ala Arg
1010 1015 1020

Asp Arg Pro Ser Leu Gly Pro Phe Leu Glu Ala Thr Thr Thr Leu
1025 1030 1035

Asn Leu Phe Thr Val Asp Gln Ser Tyr Arg Ser Arg Leu Gln Phe
1040 1045 1050

Ser Thr Pro Lys Glu Glu Val Gly Ala Asn Arg Gln Ala Ile Asn
1055 1060 1065

Ala Ala Leu Thr Gln Ala Thr Arg Thr Thr Val Tyr Ile Val Asp
1070 1075 1080

Ile Gln Asp Ile Asp Ser Ala Ala Arg Ala Arg Pro His Ser Tyr
1085 1090 1095

Leu Asp Ala Tyr Phe Val Phe Pro Asn Gly Ser Ala Leu Thr Leu

1100 1105 1110

Asp Glu Leu Ser Val Met Ile Arg Asn Asp Gln Asp Ser Leu Thr
1115 1120 1125

Gln Leu Leu Gln Leu Gly Leu Val Val Leu Gly Ser Gln Glu Ser
1130 1135 1140

Gln Glu Ser Asp Leu Ser Lys Gln Leu Ile Ser Val Ile Ile Gly
1145 1150 1155

Leu Gly Val Ala Leu Leu Leu Val Leu Val Ile Met Thr Met Ala
1160 1165 1170

Phe Val Cys Val Arg Lys Ser Tyr Asn Arg Lys Leu Gln Ala Met
1175 1180 1185

Lys Ala Ala Lys Glu Ala Arg Lys Thr Ala Ala Gly Val Met Pro
1190 1195 1200

Ser Ala Pro Ala Ile Pro Gly Thr Asn Met Tyr Asn Thr Glu Arg
1205 1210 1215

Ala Asn Pro Met Leu Asn Leu Pro Asn Lys Asp Leu Gly Leu Glu
1220 1225 1230

Tyr Leu Ser Pro Ser Asn Asp Leu Asp Ser Val Ser Val Asn Ser
1235 1240 1245

Leu Asp Asp Asn Ser Val Asp Val Asp Lys Asn Ser Gln Glu Ile
1250 1255 1260

Lys Glu His Arg Pro Pro His Thr Pro Pro Glu Pro Asp Pro Glu
1265 1270 1275

Pro Leu Ser Val Val Leu Leu Gly Arg Gln Ala Gly Ala Ser Gly
1280 1285 1290

Gln Leu Glu Gly Pro Ser Tyr Thr Asn Ala Gly Leu Asp Thr Thr
1295 1300 1305

Asp Leu
1310

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Met Ala Gln Leu Trp Leu Ser Cys Phe Leu Leu Pro Ala Leu Val Val
1   5   10   15

Ser Val Ala Ala Asn Val Ala Pro Lys Phe Leu Ala Asn Met Thr Ser
            20   25   30

Val Ile Leu Pro Glu Asp Leu Pro Val Gly Ala Gln Ala Phe Trp Leu
        35   40   45

Val Ala Glu Asp Gln Asp Asn Asp Pro Leu Thr Tyr Gly Met Ser Gly
    50   55   60

Pro Asn Ala Tyr Phe Phe Ala Val Thr Pro Lys Thr Gly Glu Val Lys
65   70   75   80

Leu Ala Ser Ala Leu Asp Tyr Glu Thr Leu Tyr Thr Phe Lys Val Thr
                85   90   95

Ile Ser Val Ser Asp Pro Tyr Ile Gln Val Gln Arg Glu Met Leu Val
            100   105   110

```
Ile Val Glu Asp Arg Asn Asp Asn Ala Pro Val Phe Gln Asn Thr Ala
        115                 120                 125

Phe Ser Thr Ser Ile Asn Glu Thr Leu Pro Val Gly Ser Val Val Phe
    130                 135                 140

Ser Val Leu Ala Val Asp Lys Asp Met Gly Ser Ala Gly Met Val Val
145                 150                 155                 160

Tyr Ser Ile Glu Lys Val Ile Pro Ser Thr Gly Asp Ser Glu His Leu
                165                 170                 175

Phe Arg Ile Leu Ala Asn Gly Ser Ile Val Leu Asn Gly Ser Leu Ser
            180                 185                 190

Tyr Asn Asn Lys Ser Ala Phe Tyr Gln Leu Glu Leu Lys Ala Cys Asp
        195                 200                 205

Leu Gly Gly Met Tyr His Asn Thr Phe Thr Ile Gln Cys Ser Leu Pro
    210                 215                 220

Val Phe Leu Ser Ile Ser Val Val Asp Gln Pro Asp Leu Asp Pro Gln
225                 230                 235                 240

Phe Val Arg Glu Phe Tyr Ser Ala Ser Val Ala Glu Asp Ala Ala Lys
                245                 250                 255

Gly Thr Ser Val Leu Thr Val Glu Ala Val Asp Gly Asp Lys Gly Ile
            260                 265                 270

Asn Asp Pro Val Ile Tyr Ser Ile Ser Tyr Ser Thr Arg Pro Gly Trp
        275                 280                 285

Phe Asp Ile Gly Ala Asp Gly Val Ile Arg Val Asn Gly Ser Leu Asp
    290                 295                 300

Arg Glu Gln Leu Leu Glu Ala Asp Glu Glu Val Gln Leu Gln Val Thr
305                 310                 315                 320

Ala Thr Glu Thr His Leu Asn Ile Tyr Gly Gln Glu Ala Lys Val Ser
                325                 330                 335

Ile Trp Val Thr Val Arg Val Met Asp Val Asn Asp His Lys Pro Glu
```

```
            340                 345                 350

Phe Tyr Asn Cys Ser Leu Pro Ala Cys Thr Phe Thr Pro Glu Glu Ala
        355                 360                 365

Gln Val Asn Phe Thr Gly Tyr Val Asp Glu His Ala Ser Pro Arg Ile
    370                 375                 380

Pro Ile Asp Asp Leu Thr Met Val Val Tyr Asp Pro Asp Lys Gly Ser
385                 390                 395                 400

Asn Gly Thr Phe Leu Leu Ser Leu Gly Gly Pro Asp Ala Glu Ala Phe
                405                 410                 415

Ser Val Ser Pro Glu Arg Ala Val Gly Ser Ala Ser Val Gln Val Leu
            420                 425                 430

Val Arg Val Ser Ala Leu Val Asp Tyr Glu Arg Gln Thr Ala Met Ala
        435                 440                 445

Val Gln Val Val Ala Thr Asp Ser Val Ser Gln Asn Phe Ser Val Ala
    450                 455                 460

Met Val Thr Ile His Leu Arg Asp Ile Asn Asp His Arg Pro Thr Phe
465                 470                 475                 480

Pro Gln Ser Leu Tyr Val Leu Thr Val Pro Glu His Ser Ala Thr Gly
                485                 490                 495

Ser Val Val Thr Asp Ser Ile His Ala Thr Asp Pro Asp Thr Gly Ala
            500                 505                 510

Trp Gly Gln Ile Thr Tyr Ser Leu Leu Pro Gly Asn Gly Ala Asp Leu
        515                 520                 525

Phe Gln Val Asp Pro Val Ser Gly Thr Val Thr Val Arg Asn Gly Glu
    530                 535                 540

Leu Leu Asp Arg Glu Ser Gln Ala Val Tyr Tyr Leu Thr Leu Gln Ala
545                 550                 555                 560

Thr Asp Gly Gly Asn Leu Ser Ser Ser Thr Thr Leu Gln Ile His Leu
                565                 570                 575
```

```
Leu Asp Ile Asn Asp Asn Ala Pro Val Val Ser Gly Ser Tyr Asn Ile
            580                 585                 590

Phe Val Gln Glu Glu Glu Gly Asn Val Ser Val Thr Ile Gln Ala His
        595                 600                 605

Asp Asn Asp Glu Pro Gly Thr Asn Asn Ser Arg Leu Leu Phe Asn Leu
    610                 615                 620

Leu Pro Gly Pro Tyr Ser His Asn Phe Ser Leu Asp Pro Asp Thr Gly
625                 630                 635                 640

Leu Leu Arg Asn Leu Gly Pro Leu Asp Arg Glu Ala Ile Asp Pro Ala
                645                 650                 655

Leu Glu Gly Arg Ile Val Leu Thr Val Leu Val Ser Asp Cys Gly Glu
            660                 665                 670

Pro Val Leu Gly Thr Lys Val Asn Val Thr Ile Thr Val Glu Asp Ile
        675                 680                 685

Asn Asp Asn Leu Pro Ile Phe Asn Gln Ser Ser Tyr Asn Phe Thr Val
    690                 695                 700

Lys Glu Glu Asp Pro Gly Val Leu Val Gly Val Val Lys Ala Trp Asp
705                 710                 715                 720

Ala Asp Gln Thr Glu Ala Asn Asn Arg Ile Ser Phe Ser Leu Ser Gly
                725                 730                 735

Ser Gly Ala Asn Tyr Phe Met Ile Arg Gly Leu Val Leu Gly Ala Gly
            740                 745                 750

Trp Ala Glu Gly Tyr Leu Arg Leu Pro Pro Asp Val Ser Leu Asp Tyr
        755                 760                 765

Glu Thr Gln Pro Val Phe Asn Leu Thr Val Ser Ala Glu Asn Pro Asp
    770                 775                 780

Pro Gln Gly Gly Glu Thr Ile Val Asp Val Cys Val Asn Val Lys Asp
785                 790                 795                 800
```

```
Val Asn Asp Asn Pro Pro Thr Leu Asp Val Ala Ser Leu Arg Gly Ile
                805                 810                 815

Arg Val Ala Glu Asn Gly Ser Gln His Gly Gln Val Ala Val Val Val
            820                 825                 830

Ala Ser Asp Val Asp Thr Ser Ala Gln Leu Glu Ile Gln Leu Val Asn
        835                 840                 845

Ile Leu Cys Thr Lys Ala Gly Val Asp Val Gly Ser Leu Cys Trp Gly
    850                 855                 860

Trp Phe Ser Val Ala Ala Asn Gly Ser Val Tyr Ile Asn Gln Ser Lys
865                 870                 875                 880

Ala Ile Asp Tyr Glu Ala Cys Asp Leu Val Thr Leu Val Val Arg Ala
                885                 890                 895

Cys Asp Leu Ala Thr Asp Pro Gly Phe Gln Ala Tyr Ser Asn Asn Gly
            900                 905                 910

Ser Leu Leu Ile Thr Ile Glu Asp Val Asn Asp Asn Ala Pro Tyr Phe
        915                 920                 925

Leu Pro Glu Asn Lys Thr Phe Val Ile Ile Pro Glu Leu Val Leu Pro
    930                 935                 940

Asn Arg Glu Val Ala Ser Val Arg Ala Arg Asp Asp Asp Ser Gly Asn
945                 950                 955                 960

Asn Gly Val Ile Leu Phe Ser Ile Leu Arg Val Asp Phe Ile Ser Lys
                965                 970                 975

Asp Gly Ala Thr Ile Pro Phe Gln Gly Val Phe Ser Ile Phe Thr Ser
            980                 985                 990

Ser Glu Ala Asp Val Phe Ala Gly  Ser Ile Gln Pro Val  Thr Ser
Leu
        995                 1000                1005

Asp Ser  Thr Leu Gln Gly Thr  Tyr Gln Val Thr Val  Gln Ala Arg
    1010                1015                1020
```

```
Asp Arg  Pro Ser Leu Gly Pro  Phe Leu Glu Ala Thr  Thr Thr Leu
    1025                1030                1035

Asn Leu  Phe Thr Val Asp Gln  Ser Tyr Arg Ser Arg  Leu Gln Phe
    1040                1045                1050

Ser Thr  Pro Lys Glu Glu Val  Gly Ala Asn Arg Gln  Ala Ile Asn
    1055                1060                1065

Ala Ala  Leu Thr Gln Ala Thr  Arg Thr Thr Val Tyr  Ile Val Asp
    1070                1075                1080

Ile Gln  Asp Ile Asp Ser Ala  Ala Arg Ala Arg Pro  His Ser Tyr
    1085                1090                1095

Leu Asp  Ala Tyr Phe Val Phe  Pro Asn Gly Ser Ala  Leu Thr Leu
    1100                1105                1110

Asp Glu  Leu Ser Val Met Ile  Arg Asn Asp Gln Asp  Ser Leu Thr
    1115                1120                1125

Gln Leu  Leu Gln Leu Gly Leu  Val Val Leu Gly Ser  Gln Glu Ser
    1130                1135                1140

Gln Glu  Ser Asp Leu Ser Lys  Gln Leu Ile Ser Val  Ile Ile Gly
    1145                1150                1155

Leu Gly  Val Ala Leu Leu Leu  Val Leu Val Ile Met  Thr Met Ala
    1160                1165                1170

Phe Val  Cys Val Arg Lys Ser  Tyr Asn Arg Lys Leu  Gln Ala Met
    1175                1180                1185

Lys Ala  Ala Lys Glu Ala Arg  Lys Thr Ala Ala Gly  Val Met Pro
    1190                1195                1200

Ser Ala  Pro Ala Ile Pro Gly  Thr Asn Met Tyr Asn  Thr Glu Arg
    1205                1210                1215

Ala Asn  Pro Met Leu Asn Leu  Pro Asn Lys Asp Leu  Gly Leu Glu
    1220                1225                1230
```

```
Tyr Leu  Ser Pro Ser Asn Asp  Leu Asp Ser Val Ser  Val Asn Ser
    1235                1240                1245


Leu Asp  Asp Asn Ser Val Asp  Val Asp Lys Asn Ser  Gln Glu Ile
    1250                1255                1260


Lys Glu  His Arg Pro Pro His  Thr Pro Pro Glu Pro  Asp Pro Glu
    1265                1270                1275


Pro Leu  Ser Val Val Leu Leu  Gly Arg Gln Ala Gly  Ala Ser Gly
    1280                1285                1290


Gln Leu  Glu Gly Pro Ser Tyr  Thr Asn Ala Gly Leu  Asp Thr Thr
    1295                1300                1305


Asp Leu
    1310


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<400> 10443
Met Ala Gln Leu Trp Leu Ser Cys Phe Leu Leu Pro Ala Leu Val Val
1               5                  10                  15


Ser Val Ala Ala Asn Val Ala Pro Lys Phe Leu Ala Asn Met Thr Ser
            20                  25                  30
```

```
Val Ile Leu Pro Glu Asp Leu Pro Val Gly Ala Gln Ala Phe Trp Leu
        35                  40                  45

Val Ala Glu Asp Gln Asp Asn Asp Pro Leu Thr Tyr Gly Met Ser Gly
    50                  55                  60

Pro Asn Ala Tyr Phe Phe Ala Val Thr Pro Lys Thr Gly Glu Val Lys
65                  70                  75                  80

Leu Ala Ser Ala Leu Asp Tyr Glu Thr Leu Tyr Thr Phe Lys Val Thr
                85                  90                  95

Ile Ser Val Ser Asp Pro Tyr Ile Gln Val Gln Arg Glu Met Leu Val
            100                 105                 110

Ile Val Glu Asp Arg Asn Asp Asn Ala Pro Val Phe Gln Asn Thr Ala
        115                 120                 125

Phe Ser Thr Ser Ile Asn Glu Thr Leu Pro Val Gly Ser Val Val Phe
    130                 135                 140

Ser Val Leu Ala Val Asp Lys Asp Met Gly Ser Ala Gly Met Val Val
145                 150                 155                 160

Tyr Ser Ile Glu Lys Val Ile Pro Ser Thr Gly Asp Ser Glu His Leu
                165                 170                 175

Phe Arg Ile Leu Ala Asn Gly Ser Ile Val Leu Asn Gly Ser Leu Ser
            180                 185                 190

Tyr Asn Asn Lys Ser Ala Phe Tyr Gln Leu Glu Leu Lys Ala Cys Asp
        195                 200                 205

Leu Gly Gly Met Tyr His Asn Thr Phe Thr Ile Gln Cys Ser Leu Pro
    210                 215                 220

Val Phe Leu Ser Ile Ser Val Val Asp Gln Pro Asp Leu Asp Pro Gln
225                 230                 235                 240

Phe Val Arg Glu Phe Tyr Ser Ala Ser Val Ala Glu Asp Ala Ala Lys
                245                 250                 255
```

```
Gly Thr Ser Val Leu Thr Val Glu Ala Val Asp Gly Asp Lys Gly Ile
            260                 265                 270

Asn Asp Pro Val Ile Tyr Ser Ile Ser Tyr Ser Thr Arg Pro Gly Trp
        275                 280                 285

Phe Asp Ile Gly Ala Asp Gly Val Ile Arg Val Asn Gly Ser Leu Asp
    290                 295                 300

Arg Glu Gln Leu Leu Glu Ala Asp Glu Glu Val Gln Leu Gln Val Thr
305                 310                 315                 320

Ala Thr Glu Thr His Leu Asn Ile Tyr Gly Gln Glu Ala Lys Val Ser
                325                 330                 335

Ile Trp Val Thr Val Arg Val Met Asp Val Asn Asp His Lys Pro Glu
            340                 345                 350

Phe Tyr Asn Cys Ser Leu Pro Ala Cys Thr Phe Thr Pro Glu Glu Ala
        355                 360                 365

Gln Val Asn Phe Thr Gly Tyr Val Asp Glu His Ala Ser Pro Arg Ile
    370                 375                 380

Pro Ile Asp Asp Leu Thr Met Val Val Tyr Asp Pro Asp Lys Gly Ser
385                 390                 395                 400

Asn Gly Thr Phe Leu Leu Ser Leu Gly Gly Pro Asp Ala Glu Ala Phe
                405                 410                 415

Ser Val Ser Pro Glu Arg Ala Val Gly Ser Ala Ser Val Gln Val Leu
            420                 425                 430

Val Arg Val Ser Ala Leu Val Asp Tyr Glu Arg Gln Thr Ala Met Ala
        435                 440                 445

Val Gln Val Val Ala Thr Asp Ser Val Ser Gln Asn Phe Ser Val Ala
    450                 455                 460

Met Val Thr Ile His Leu Arg Asp Ile Asn Asp His Arg Pro Thr Phe
465                 470                 475                 480
```

```
Pro Gln Ser Leu Tyr Val Leu Thr Val Pro Glu His Ser Ala Thr Gly
                485                 490                 495

Ser Val Val Thr Asp Ser Ile His Ala Thr Asp Pro Asp Thr Gly Ala
            500                 505                 510

Trp Gly Gln Ile Thr Tyr Ser Leu Leu Pro Gly Asn Gly Ala Asp Leu
        515                 520                 525

Phe Gln Val Asp Pro Val Ser Gly Thr Val Thr Val Arg Asn Gly Glu
    530                 535                 540

Leu Leu Asp Arg Glu Ser Gln Ala Val Tyr Tyr Leu Thr Leu Gln Ala
545                 550                 555                 560

Thr Asp Gly Gly Asn Leu Ser Ser Ser Thr Thr Leu Gln Ile His Leu
                565                 570                 575

Leu Asp Ile Asn Asp Asn Ala Pro Val Val Ser Gly Ser Tyr Asn Ile
            580                 585                 590

Phe Val Gln Glu Glu Glu Gly Asn Val Ser Val Thr Ile Gln Ala His
        595                 600                 605

Asp Asn Asp Glu Pro Gly Thr Asn Asn Ser Arg Leu Leu Phe Asn Leu
    610                 615                 620

Leu Pro Gly Pro Tyr Ser His Asn Phe Ser Leu Asp Pro Asp Thr Gly
625                 630                 635                 640

Leu Leu Arg Asn Leu Gly Pro Leu Asp Arg Glu Ala Ile Asp Pro Ala
                645                 650                 655

Leu Glu Gly Arg Ile Val Leu Thr Val Leu Val Ser Asp Cys Gly Glu
            660                 665                 670

Pro Val Leu Gly Thr Lys Val Asn Val Thr Ile Thr Val Glu Asp Ile
        675                 680                 685

Asn Asp Asn Leu Pro Ile Phe Asn Gln Ser Ser Tyr Asn Phe Thr Val
    690                 695                 700

Lys Glu Glu Asp Pro Gly Val Leu Val Gly Val Val Lys Ala Trp Asp
```

705 710 715 720

Ala Asp Gln Thr Glu Ala Asn Asn Arg Ile Ser Phe Ser Leu Ser Gly
725 730 735

Ser Gly Ala Asn Tyr Phe Met Ile Arg Gly Leu Val Leu Gly Ala Gly
740 745 750

Trp Ala Glu Gly Tyr Leu Arg Leu Pro Pro Asp Val Ser Leu Asp Tyr
755 760 765

Glu Thr Gln Pro Val Phe Asn Leu Thr Val Ser Ala Glu Asn Pro Asp
770 775 780

Pro Gln Gly Gly Glu Thr Ile Val Asp Val Cys Val Asn Val Lys Asp
785 790 795 800

Val Asn Asp Asn Pro Pro Thr Leu Asp Val Ala Ser Leu Arg Gly Ile
805 810 815

Arg Val Ala Glu Asn Gly Ser Gln His Gly Gln Val Ala Val Val Val
820 825 830

Ala Ser Asp Val Asp Thr Ser Ala Gln Leu Glu Ile Gln Leu Val Asn
835 840 845

Ile Leu Cys Thr Lys Ala Gly Val Asp Val Gly Ser Leu Cys Trp Gly
850 855 860

Trp Phe Ser Val Ala Ala Asn Gly Ser Val Tyr Ile Asn Gln Ser Lys
865 870 875 880

Ala Ile Asp Tyr Glu Ala Cys Asp Leu Val Thr Leu Val Val Arg Ala
885 890 895

Cys Asp Leu Ala Thr Asp Pro Gly Phe Gln Ala Tyr Ser Asn Asn Gly
900 905 910

Ser Leu Leu Ile Thr Ile Glu Asp Val Asn Asp Asn Ala Pro Tyr Phe
915 920 925

Leu Pro Glu Asn Lys Thr Phe Val Ile Ile Pro Glu Leu Val Leu Pro
930 935 940

```
Asn Arg Glu Val Ala Ser Val Arg Ala Arg Asp Asp Asp Ser Gly Asn
945                 950                 955                 960

Asn Gly Val Ile Leu Phe Ser Ile Leu Arg Val Asp Phe Ile Ser Lys
                965                 970                 975

Asp Gly Ala Thr Ile Pro Phe Gln Gly Val Phe Ser Ile Phe Thr Ser
            980                 985                 990

Ser Glu Ala Asp Val Phe Ala Gly  Ser Ile Gln Pro Val  Thr Ser
Leu
        995                 1000                1005

Asp Ser  Thr Leu Gln Gly Thr  Tyr Gln Val Thr Val  Gln Ala Arg
    1010                1015                1020

Asp Arg  Pro Ser Leu Gly Pro  Phe Leu Glu Ala Thr  Thr Thr Leu
    1025                1030                1035

Asn Leu  Phe Thr Val Asp Gln  Ser Tyr Arg Ser Arg  Leu Gln Phe
    1040                1045                1050

Ser Thr  Pro Lys Glu Glu Val  Gly Ala Asn Arg Gln  Ala Ile Asn
    1055                1060                1065

Ala Ala  Leu Thr Gln Ala Thr  Arg Thr Thr Val Tyr  Ile Val Asp
    1070                1075                1080

Ile Gln  Asp Ile Asp Ser Ala  Ala Arg Ala Arg Pro  His Ser Tyr
    1085                1090                1095

Leu Asp  Ala Tyr Phe Val Phe  Pro Asn Gly Ser Ala  Leu Thr Leu
    1100                1105                1110

Asp Glu  Leu Ser Val Met Ile  Arg Asn Asp Gln Asp  Ser Leu Thr
    1115                1120                1125

Gln Leu  Leu Gln Leu Gly Leu  Val Val Leu Gly Ser  Gln Glu Ser
    1130                1135                1140

Gln Glu  Ser Asp Leu Ser Lys  Gln Leu Ile Ser Val  Ile Ile Gly
    1145                1150                1155
```

```
Leu Gly  Val Ala Leu Leu Leu  Val Leu Val Ile Met  Thr Met Ala
    1160                1165                1170

Phe Val  Cys Val Arg Lys Ser  Tyr Asn Arg Lys Leu  Gln Ala Met
    1175                1180                1185

Lys Ala  Ala Lys Glu Ala Arg  Lys Thr Ala Ala Gly  Val Met Pro
    1190                1195                1200

Ser Ala  Pro Ala Ile Pro Gly  Thr Asn Met Tyr Asn  Thr Glu Arg
    1205                1210                1215

Ala Asn  Pro Met Leu Asn Leu  Pro Asn Lys Asp Leu  Gly Leu Glu
    1220                1225                1230

Tyr Leu  Ser Pro Ser Asn Asp  Leu Asp Ser Val Ser  Val Asn Ser
    1235                1240                1245

Leu Asp  Asp Asn Ser Val Asp  Val Asp Lys Asn Ser  Gln Glu Ile
    1250                1255                1260

Lys Glu  His Arg Pro Pro His  Thr Pro Pro Glu Pro  Asp Pro Glu
    1265                1270                1275

Pro Leu  Ser Val Val Leu Leu  Gly Arg Gln Ala Gly  Ala Ser Gly
    1280                1285                1290

Gln Leu  Glu Gly Pro Ser Tyr  Thr Asn Ala Gly Leu  Asp Thr Thr
    1295                1300                1305

Asp Leu
    1310
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<210> 10444
<211> 62
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2091; "

<220>
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<223> /note="Gene Symbol: CDHR2; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 2; "

<220>
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<223> /note="ENSP ID: ENSP00000426838"

<400> 10444
Met Ala Gln Leu Trp Leu Ser Cys Phe Leu Leu Pro Ala Leu Val Val
1 5 10 15

Ser Val Ala Ala Asn Val Ala Pro Lys Phe Leu Ala Asn Met Thr Ser
20 25 30

Val Ile Leu Pro Glu Asp Leu Pro Val Val Gln Asn Gly Ile Gln Glu
35 40 45

Cys Arg Lys Leu Pro Asp Glu Thr Arg Asp Thr Lys Gly Tyr
50 55 60

<210> 10445
<211> 885
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2092; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR3; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q6ZTQ4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000325954"

<400> 10445
Met Gln Glu Ala Ile Ile Leu Leu Ala Leu Leu Gly Ala Met Ser Gly
1 5 10 15

```
Gly Glu Ala Leu His Leu Ile Leu Leu Pro Ala Thr Gly Asn Val Ala
            20                  25                  30

Glu Asn Ser Pro Pro Gly Thr Ser Val His Lys Phe Ser Val Lys Leu
        35                  40                  45

Ser Ala Ser Leu Ser Pro Val Ile Pro Gly Phe Pro Gln Ile Val Asn
    50                  55                  60

Ser Asn Pro Leu Thr Glu Ala Phe Arg Val Asn Trp Leu Ser Gly Thr
65                  70                  75                  80

Tyr Phe Glu Val Val Thr Thr Gly Met Glu Gln Leu Asp Phe Glu Thr
                85                  90                  95

Gly Pro Asn Ile Phe Asp Leu Gln Ile Tyr Val Lys Asp Glu Val Gly
            100                 105                 110

Val Thr Asp Leu Gln Val Leu Thr Val Gln Val Thr Asp Val Asn Glu
        115                 120                 125

Pro Pro Gln Phe Gln Gly Asn Leu Ala Glu Gly Leu His Leu Tyr Ile
    130                 135                 140

Val Glu Arg Ala Asn Pro Gly Phe Ile Tyr Gln Val Glu Ala Phe Asp
145                 150                 155                 160

Pro Glu Asp Thr Ser Arg Asn Ile Pro Leu Ser Tyr Phe Leu Ile Ser
                165                 170                 175

Pro Pro Lys Ser Phe Arg Met Ser Ala Asn Gly Thr Leu Phe Ser Thr
            180                 185                 190

Thr Glu Leu Asp Phe Glu Ala Gly His Arg Ser Phe His Leu Ile Val
        195                 200                 205

Glu Val Arg Asp Ser Gly Gly Leu Lys Ala Ser Thr Glu Leu Gln Val
    210                 215                 220

Asn Ile Val Asn Leu Asn Asp Glu Val Pro Arg Phe Thr Ser Pro Thr
225                 230                 235                 240
```

```
Arg Val Tyr Thr Val Leu Glu Glu Leu Ser Pro Gly Thr Ile Val Ala
                245                 250                 255

Asn Ile Thr Ala Glu Asp Pro Asp Asp Glu Gly Phe Pro Ser His Leu
            260                 265                 270

Leu Tyr Ser Ile Thr Thr Val Ser Lys Tyr Phe Met Ile Asn Gln Leu
        275                 280                 285

Thr Gly Thr Ile Gln Val Ala Gln Arg Ile Asp Arg Asp Ala Gly Glu
    290                 295                 300

Leu Arg Gln Asn Pro Thr Ile Ser Leu Glu Val Leu Val Lys Asp Arg
305                 310                 315                 320

Pro Tyr Gly Gly Gln Glu Asn Arg Ile Gln Ile Thr Phe Ile Val Glu
                325                 330                 335

Asp Val Asn Asp Asn Pro Ala Thr Cys Gln Lys Phe Thr Phe Ser Ile
            340                 345                 350

Met Val Pro Glu Arg Thr Ala Lys Gly Thr Leu Leu Leu Asp Leu Asn
        355                 360                 365

Lys Phe Cys Phe Asp Asp Asp Ser Glu Ala Pro Asn Asn Arg Phe Asn
    370                 375                 380

Phe Thr Met Pro Ser Gly Val Gly Ser Gly Ser Arg Phe Leu Gln Asp
385                 390                 395                 400

Pro Ala Gly Ser Gly Lys Ile Val Leu Ile Gly Asp Leu Asp Tyr Glu
                405                 410                 415

Asn Pro Ser Asn Leu Ala Ala Gly Asn Lys Tyr Thr Val Ile Ile Gln
            420                 425                 430

Val Gln Asp Val Ala Pro Pro Tyr Tyr Lys Asn Asn Val Tyr Val Tyr
        435                 440                 445

Ile Leu Thr Ser Pro Glu Asn Glu Phe Pro Leu Ile Phe Asp Arg Pro
    450                 455                 460
```

```
Ser Tyr Val Phe Asp Val Ser Glu Arg Arg Pro Ala Arg Thr Arg Val
465                 470                 475                 480

Gly Gln Val Arg Ala Thr Asp Lys Asp Leu Pro Gln Ser Ser Leu Leu
                485                 490                 495

Tyr Ser Ile Ser Thr Gly Gly Ala Ser Leu Gln Tyr Pro Asn Val Phe
            500                 505                 510

Trp Ile Asn Pro Lys Thr Gly Glu Leu Gln Leu Val Thr Lys Val Asp
        515                 520                 525

Cys Glu Thr Thr Pro Ile Tyr Ile Leu Arg Ile Gln Ala Thr Asn Asn
    530                 535                 540

Glu Asp Thr Ser Ser Val Thr Val Thr Val Asn Ile Leu Glu Glu Asn
545                 550                 555                 560

Asp Glu Lys Pro Ile Cys Thr Pro Asn Ser Tyr Phe Leu Ala Leu Pro
                565                 570                 575

Val Asp Leu Lys Val Gly Thr Asn Ile Gln Asn Phe Lys Leu Thr Cys
            580                 585                 590

Thr Asp Leu Asp Ser Ser Pro Arg Ser Phe Arg Tyr Ser Ile Gly Pro
        595                 600                 605

Gly Asn Val Asn Asn His Phe Thr Phe Ser Pro Asn Ala Gly Ser Asn
    610                 615                 620

Val Thr Arg Leu Leu Leu Thr Ser Arg Phe Asp Tyr Ala Gly Gly Phe
625                 630                 635                 640

Asp Lys Ile Trp Asp Tyr Lys Leu Leu Val Tyr Val Thr Asp Asp Asn
                645                 650                 655

Leu Met Ser Asp Arg Lys Lys Ala Glu Ala Leu Val Glu Thr Gly Thr
            660                 665                 670

Val Thr Leu Ser Ile Lys Val Ile Pro His Pro Thr Thr Ile Ile Thr
        675                 680                 685

Thr Thr Pro Arg Pro Arg Val Thr Tyr Gln Val Leu Arg Lys Asn Val
```

690 695 700

Tyr Ser Pro Ser Ala Trp Tyr Val Pro Phe Val Ile Thr Leu Gly Ser
705 710 715 720

Ile Leu Leu Leu Gly Leu Leu Val Tyr Leu Val Val Leu Leu Ala Lys
725 730 735

Ala Ile His Arg His Cys Pro Cys Lys Thr Gly Lys Asn Lys Glu Pro
740 745 750

Leu Thr Lys Lys Gly Glu Thr Lys Thr Ala Glu Arg Asp Val Val Val
755 760 765

Glu Thr Ile Gln Met Asn Thr Ile Phe Asp Gly Glu Ala Ile Asp Pro
770 775 780

Val Thr Gly Glu Thr Tyr Glu Phe Asn Ser Lys Thr Gly Ala Arg Lys
785 790 795 800

Trp Lys Asp Pro Leu Thr Gln Met Pro Lys Trp Lys Glu Ser Ser His
805 810 815

Gln Gly Ala Ala Pro Arg Arg Val Thr Ala Gly Glu Gly Met Gly Ser
820 825 830

Leu Arg Ser Ala Asn Trp Glu Glu Asp Glu Leu Ser Gly Lys Ala Trp
835 840 845

Ala Glu Asp Ala Gly Leu Gly Ser Arg Asn Glu Gly Gly Lys Leu Gly
850 855 860

Asn Pro Lys Asn Arg Asn Pro Ala Phe Met Asn Arg Ala Tyr Pro Lys
865 870 875 880

Pro His Pro Gly Lys
885

<210> 10446
<211> 149
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2092; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR3; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417198"

<400> 10446
Met Gln Glu Ala Ile Ile Leu Leu Ala Leu Leu Gly Ala Met Ser Gly
1 5 10 15

Gly Glu Ala Leu His Leu Ile Leu Leu Pro Ala Thr Gly Asn Val Ala
20 25 30

Glu Asn Ser Pro Pro Gly Thr Ser Val His Lys Phe Ser Val Lys Leu
35 40 45

Ser Ala Ser Leu Ser Pro Val Ile Pro Gly Phe Pro Gln Ile Val Asn
50 55 60

Ser Asn Pro Leu Thr Glu Ala Phe Arg Val Asn Trp Leu Ser Gly Thr
65 70 75 80

Tyr Phe Glu Val Val Thr Thr Gly Met Glu Gln Leu Asp Phe Glu Thr
85 90 95

Gly Pro Asn Ile Phe Asp Leu Gln Ile Tyr Val Lys Asp Glu Val Gly
100 105 110

Val Thr Asp Leu Gln Val Leu Thr Val Gln Val Thr Asp Val Asn Glu
115 120 125

Pro Pro Gln Phe Gln Gly Asn Leu Ala Glu Ala Arg His Glu Cys Thr
130 135 140

Gln Ser Trp Arg Asn
145

<210> 10447
<211> 797
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2092; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR3; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000417771"

<400> 10447
Met Glu Gln Leu Asp Phe Glu Thr Gly Pro Asn Ile Phe Asp Leu Gln
1 5 10 15

Ile Tyr Val Lys Asp Glu Val Gly Val Thr Asp Leu Gln Val Leu Thr
20 25 30

Val Gln Val Thr Asp Val Asn Glu Pro Pro Gln Phe Gln Gly Asn Leu
35 40 45

Ala Glu Gly Leu His Leu Tyr Ile Val Glu Arg Ala Asn Pro Gly Phe
50 55 60

Ile Tyr Gln Val Glu Ala Phe Asp Pro Glu Asp Thr Ser Arg Asn Ile
65 70 75 80

Pro Leu Ser Tyr Phe Leu Ile Ser Pro Pro Lys Ser Phe Arg Met Ser
85 90 95

Ala Asn Gly Thr Leu Phe Ser Thr Thr Glu Leu Asp Phe Glu Ala Gly
100 105 110

His Arg Ser Phe His Leu Ile Val Glu Val Arg Asp Ser Gly Gly Leu
115 120 125

Lys Ala Ser Thr Glu Leu Gln Val Asn Ile Val Asn Leu Asn Asp Glu
130 135 140

```
Val Pro Arg Phe Thr Ser Pro Thr Arg Val Tyr Thr Val Leu Glu Glu
145                 150                 155                 160

Leu Ser Pro Gly Thr Ile Val Ala Asn Ile Thr Ala Glu Asp Pro Asp
                165                 170                 175

Asp Glu Gly Phe Pro Ser His Leu Leu Tyr Ser Ile Thr Thr Val Ser
            180                 185                 190

Lys Tyr Phe Met Ile Asn Gln Leu Thr Gly Thr Ile Gln Val Ala Gln
        195                 200                 205

Arg Ile Asp Arg Asp Ala Gly Glu Leu Arg Gln Asn Pro Thr Ile Ser
    210                 215                 220

Leu Glu Val Leu Val Lys Asp Arg Pro Tyr Gly Gly Gln Glu Asn Arg
225                 230                 235                 240

Ile Gln Ile Thr Phe Ile Val Glu Asp Val Asn Asp Asn Pro Ala Thr
                245                 250                 255

Cys Gln Lys Phe Thr Phe Ser Ile Met Val Pro Glu Arg Thr Ala Lys
            260                 265                 270

Gly Thr Leu Leu Leu Asp Leu Asn Lys Phe Cys Phe Asp Asp Asp Ser
        275                 280                 285

Glu Ala Pro Asn Asn Arg Phe Asn Phe Thr Met Pro Ser Gly Val Gly
    290                 295                 300

Ser Gly Ser Arg Phe Leu Gln Asp Pro Ala Gly Ser Gly Lys Ile Val
305                 310                 315                 320

Leu Ile Gly Asp Leu Asp Tyr Glu Asn Pro Ser Asn Leu Ala Ala Gly
                325                 330                 335

Asn Lys Tyr Thr Val Ile Ile Gln Val Gln Asp Val Ala Pro Pro Tyr
            340                 345                 350

Tyr Lys Asn Asn Val Tyr Val Tyr Ile Leu Thr Ser Pro Glu Asn Glu
        355                 360                 365
```

```
Phe Pro Leu Ile Phe Asp Arg Pro Ser Tyr Val Phe Asp Val Ser Glu
    370                 375                 380

Arg Arg Pro Ala Arg Thr Arg Val Gly Gln Val Arg Ala Thr Asp Lys
385                 390                 395                 400

Asp Leu Pro Gln Ser Ser Leu Leu Tyr Ser Ile Ser Thr Gly Gly Ala
                405                 410                 415

Ser Leu Gln Tyr Pro Asn Val Phe Trp Ile Asn Pro Lys Thr Gly Glu
            420                 425                 430

Leu Gln Leu Val Thr Lys Val Asp Cys Glu Thr Thr Pro Ile Tyr Ile
        435                 440                 445

Leu Arg Ile Gln Ala Thr Asn Asn Glu Asp Thr Ser Ser Val Thr Val
    450                 455                 460

Thr Val Asn Ile Leu Glu Glu Asn Asp Glu Lys Pro Ile Cys Thr Pro
465                 470                 475                 480

Asn Ser Tyr Phe Leu Ala Leu Pro Val Asp Leu Lys Val Gly Thr Asn
                485                 490                 495

Ile Gln Asn Phe Lys Leu Thr Cys Thr Asp Leu Asp Ser Ser Pro Arg
            500                 505                 510

Ser Phe Arg Tyr Ser Ile Gly Pro Gly Asn Val Asn Asn His Phe Thr
        515                 520                 525

Phe Ser Pro Asn Ala Gly Ser Asn Val Thr Arg Leu Leu Leu Thr Ser
    530                 535                 540

Arg Phe Asp Tyr Ala Gly Gly Phe Asp Lys Ile Trp Asp Tyr Lys Leu
545                 550                 555                 560

Leu Val Tyr Val Thr Asp Asp Asn Leu Met Ser Asp Arg Lys Lys Ala
                565                 570                 575

Glu Ala Leu Val Glu Thr Gly Thr Val Thr Leu Ser Ile Lys Val Ile
            580                 585                 590
```

```
Pro His Pro Thr Thr Ile Ile Thr Thr Thr Pro Arg Pro Arg Val Thr
        595                 600                 605

Tyr Gln Val Leu Arg Lys Asn Val Tyr Ser Pro Ser Ala Trp Tyr Val
    610                 615                 620

Pro Phe Val Ile Thr Leu Gly Ser Ile Leu Leu Leu Gly Leu Leu Val
625                 630                 635                 640

Tyr Leu Val Val Leu Leu Ala Lys Ala Ile His Arg His Cys Pro Cys
                645                 650                 655

Lys Thr Gly Lys Asn Lys Glu Pro Leu Thr Lys Lys Gly Glu Thr Lys
            660                 665                 670

Thr Ala Glu Arg Asp Val Val Val Glu Thr Ile Gln Met Asn Thr Ile
        675                 680                 685

Phe Asp Gly Glu Ala Ile Asp Pro Val Thr Gly Glu Thr Tyr Glu Phe
    690                 695                 700

Asn Ser Lys Thr Gly Ala Arg Lys Trp Lys Asp Pro Leu Thr Gln Met
705                 710                 715                 720

Pro Lys Trp Lys Glu Ser Ser His Gln Gly Ala Ala Pro Arg Arg Val
                725                 730                 735

Thr Ala Gly Glu Gly Met Gly Ser Leu Arg Ser Ala Asn Trp Glu Glu
            740                 745                 750

Asp Glu Leu Ser Gly Lys Ala Trp Ala Glu Asp Ala Gly Leu Gly Ser
        755                 760                 765

Arg Asn Glu Gly Gly Lys Leu Gly Asn Pro Lys Asn Arg Asn Pro Ala
    770                 775                 780

Phe Met Asn Arg Ala Tyr Pro Lys Pro His Pro Gly Lys
785                 790                 795
```

<210> 10448
<211> 161
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2092; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR3; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418958"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10448
Xaa Asp Tyr Glu Asn Pro Ser Asn Leu Ala Ala Gly Asn Lys Tyr Thr
1 5 10 15

Val Ile Ile Gln Val Thr Val Asn Ile Leu Glu Glu Asn Asp Glu Lys
20 25 30

Pro Ile Cys Thr Pro Asn Ser Tyr Phe Leu Ala Leu Pro Val Asp Leu
35 40 45

Lys Val Gly Thr Asn Ile Gln Asn Phe Lys Leu Thr Cys Thr Asp Leu
50 55 60

Asp Ser Ser Pro Arg Ser Phe Arg Tyr Ser Ile Gly Pro Gly Asn Val
65 70 75 80

Asn Asn His Phe Thr Phe Ser Pro Asn Ala Gly Ser Asn Val Thr Arg
85 90 95

Leu Leu Leu Thr Ser Arg Phe Asp Tyr Ala Gly Gly Phe Asp Lys Ile
100 105 110

Trp Asp Tyr Lys Leu Leu Val Tyr Val Thr Asp Asp Asn Leu Met Ser
115 120 125

Asp Arg Lys Lys Ala Glu Ala Leu Val Glu Thr Gly Thr Val Thr Leu

130 135 140

Ser Ile Lys Val Ile Pro His Pro Thr Thr Ile Ile Thr Thr Thr Pro
145 150 155 160

Arg

<210> 10449
<211> 318
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2092; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR3; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419017"

<400> 10449
Tyr Thr Val Leu Glu Glu Leu Ser Pro Gly Thr Ile Val Ala Asn Ile
1 5 10 15

Thr Ala Glu Asp Pro Asp Asp Glu Gly Phe Pro Ser His Leu Leu Tyr
20 25 30

Ser Ile Thr Thr Val Ser Lys Tyr Phe Met Ile Asn Gln Leu Thr Gly
35 40 45

Thr Ile Gln Val Ala Gln Arg Ile Asp Arg Asp Ala Gly Glu Leu Arg
50 55 60

Gln Asn Pro Thr Ile Ser Leu Glu Val Leu Val Lys Asp Arg Pro Tyr
65 70 75 80

Gly Gly Gln Glu Asn Arg Ile Gln Ile Thr Phe Ile Val Glu Asp Val
85 90 95

```
Asn Asp Asn Pro Ala Thr Cys Gln Lys Phe Thr Phe Ser Ile Met Val
            100                 105                 110

Pro Glu Arg Thr Ala Lys Gly Thr Leu Leu Leu Asp Leu Asn Lys Phe
        115                 120                 125

Cys Phe Asp Asp Asp Ser Glu Ala Pro Asn Asn Arg Phe Asn Phe Thr
    130                 135                 140

Met Pro Ser Gly Val Gly Ser Gly Ser Arg Phe Leu Gln Asp Pro Ala
145                 150                 155                 160

Gly Ser Gly Lys Ile Val Leu Ile Gly Asp Leu Asp Tyr Glu Asn Pro
                165                 170                 175

Ser Asn Leu Ala Ala Gly Asn Lys Tyr Thr Val Ile Ile Gln Val Gln
            180                 185                 190

Asp Val Ala Pro Pro Tyr Tyr Lys Asn Asn Val Tyr Val Tyr Ile Leu
        195                 200                 205

Thr Ser Pro Glu Asn Glu Phe Pro Leu Ile Phe Asp Arg Pro Ser Tyr
    210                 215                 220

Val Phe Asp Val Ser Glu Arg Arg Pro Ala Gln Gly His Leu Ser Gly
225                 230                 235                 240

Pro Glu Glu Lys Arg Leu Leu Ser Ile Cys Met Val Arg Ala Val Cys
                245                 250                 255

His His Phe Gly Leu His Ile Ala Ser Gly Ser Pro Arg Val Pro Gly
            260                 265                 270

Arg Pro Ile Gly Gln Ser His Pro Gln Thr Leu Pro Leu Gln Asp Trp
        275                 280                 285

Glu Glu Gln Gly Thr Ser Asp Lys Glu Arg Arg Asn Glu Asp Cys Arg
    290                 295                 300

Glu Arg Arg Arg Gly Gly Asn Tyr Pro Asp Glu His Tyr Leu
305                 310                 315
```

<210> 10450
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2092; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR3; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000419593"

<400> 10450
Met Glu Gln Leu Asp Phe Glu Thr Gly Pro Asn Ile Phe Asp Leu Gln
1 5 10 15

Ile Tyr Val Lys Asp Glu Val Gly Val Thr Asp Leu Gln Val Leu Thr
20 25 30

Val Gln Val Thr Asp Val Asn Glu Pro Pro Gln Phe Gln Gly Asn Leu
35 40 45

Ala Glu Ala Arg His Glu Cys Thr Gln Ser Trp Arg Asn
50 55 60

<210> 10451
<211> 199
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2093; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR4; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 4; "

<220>
<221> source
<223> /note="Uniprot ID: A6H8M9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000341302"

<400> 10451
Met Val Leu Leu Arg Leu Leu Val Phe Leu Phe Ala Pro Val Val Ser
1   5   10   15

Asp Leu Cys Ser Leu Pro Cys Phe Ile Asn Val Ser Glu Ser Gln Gly
            20   25   30

Pro Gly Thr Val Leu Gln Phe Leu Ser Phe Asn Cys Ser Ser Tyr Thr
        35   40   45

Pro Thr Pro Thr Leu Glu Leu Leu Asn Val Gln Pro Pro Thr Thr Phe
    50   55   60

Phe Asn Pro Pro Ser Leu Ala Arg Trp Gln Gly Thr Tyr Val Gly Lys
65   70   75   80

Leu Thr Leu Ser Ser Ser Ala Gln Leu Asp Ala Leu Met Val Asn His
                85   90   95

Tyr Lys Val Gln Leu Lys Phe Thr Cys Gly Asn His Val Met Glu Gly
            100   105   110

Ser Leu Ser Val Asp Val Gln Arg Asp Leu Ser His Ile Gln Cys Ala
        115   120   125

Gly Gln Phe Ala Ser Pro Gly Glu Ala Arg Gly Ser Arg Gln Gly Gly
    130   135   140

Gly Arg His Gly Leu Ser Arg Ser Ser Leu Thr Ser Thr Leu Ala Ser
145   150   155   160

Trp Gly Asn Asp Ser Gly Ala Arg Asp Ser His Thr Trp Gly Ser Ala
                165   170   175

Val His Ser Ala Pro Pro Arg Pro Arg Thr Pro Arg Ser Ala Gly Lys
            180   185   190

Pro Arg Thr Trp Asp Gly Gly
        195

<210> 10452
<211> 788
<212> PRT
<213> Homo sapiens

<220>
<221> source
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      member 4; "

<220>
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<223> /note="Uniprot ID: A6H8M9; "

<220>
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<223> /note="ENSP ID: ENSP00000391409"

<400> 10452
Met Val Leu Leu Arg Leu Leu Val Phe Leu Phe Ala Pro Val Val Ser
1   5   10   15

Asp Leu Cys Ser Leu Pro Cys Phe Ile Asn Val Ser Glu Ser Gln Gly
            20   25   30

Pro Gly Thr Val Leu Gln Phe Leu Ser Phe Asn Cys Ser Ser Tyr Thr
        35   40   45

Pro Thr Pro Thr Leu Glu Leu Leu Asn Val Gln Pro Pro Thr Thr Phe
    50   55   60

Phe Asn Pro Pro Ser Leu Ala Arg Trp Gln Gly Thr Tyr Val Gly Lys
65   70   75   80

Leu Thr Leu Ser Ser Ser Ala Gln Leu Asp Ala Leu Met Val Asn His
                85   90   95

Tyr Lys Val Gln Leu Lys Phe Thr Cys Gly Asn His Val Met Glu Gly
            100   105   110

Ser Leu Ser Val Asp Val Gln Arg Asp Leu Ser His Ile Gln Cys Ala
115 120 125

Gly Gln Phe Ala Ser Pro Ala Gly Glu Met Ile Gln Val Pro Glu Thr
130 135 140

Val Thr Pro Gly Ala Arg Leu Tyr Thr Leu Leu Leu Pro Gly Leu Glu
145 150 155 160

Leu His Gly Ala Gln Met Ser Ile Ile Ser Ala Gln Asp Leu Pro His
165 170 175

Phe Pro Gly Pro Phe Ser Ile Asn Glu Gln Gly Trp Leu Gln Ala Pro
180 185 190

Ser Gln Gly Leu Leu Gly Gln Ala Gln Lys Val Phe Gln Leu Gln Ile
195 200 205

Ser Val Ser Phe Gly Gln Arg Gln Ser Cys Gln Gly Met Val Ile Val
210 215 220

Lys Val Leu Pro Val Pro Ser Ser Gln Val Ser Phe Leu Glu Gln Ala
225 230 235 240

Gln Asn Ile Thr Ile Pro Glu Asn Leu Ala Pro Gly Ser Glu Val Val
245 250 255

Gln Val Gln Ala Arg Gly Val Asp Leu Arg Tyr Glu Ile Leu Ser Pro
260 265 270

Val Pro Ser Pro Leu Phe Ser Ile Gly Arg Ala Asp Gly Val Val Arg
275 280 285

Thr Thr Thr Pro Leu Glu Leu Ala Arg Thr Ser Gly Thr Ala Val Ser
290 295 300

Arg Leu Gln Val Lys Ala Phe Glu Gln Gly Gln Leu Trp Ala Ser Ala
305 310 315 320

Lys Leu Asn Leu Thr Met Asn Val Gln Leu Val Asn Leu Trp Pro Pro
325 330 335

```
Arg Cys Leu Pro Ala Leu Leu Val Ser Gln Ile Pro Glu Thr Ala Pro
            340                 345                 350

Val Gly Thr Val Leu Asn Thr Leu Thr Cys Glu Asp Pro Asp Ser Val
        355                 360                 365

Gly Ala Thr Leu Asp Tyr Lys Leu Trp Phe Arg Ser Ser Ser Asn Pro
    370                 375                 380

Ala Ser Leu Cys Leu Tyr Asp Arg Val Leu Glu Val Asn Ala Thr Leu
385                 390                 395                 400

Asp Cys Asp Thr Pro Gly Ala Cys Phe Gln His Ala Ala Ser Ile Leu
                405                 410                 415

Val Leu Asp Gly Gly Gln Pro Gln Met Thr Thr Glu Val Pro Val Leu
            420                 425                 430

Val Met Val Thr Pro Ile Asn Glu Phe Ser Pro Ala Cys Ala Pro Arg
        435                 440                 445

Thr Phe Arg Val Gln Glu Asp Ala Ala Pro His Thr Leu Leu Gly Ser
    450                 455                 460

Val Val Gly Thr Asp Met Asp Tyr Pro His Asp Asn Ile Glu Tyr Tyr
465                 470                 475                 480

Thr Ser Gly Gly Pro Thr Thr Phe Ala Val Asp Arg Leu Ser Gly Glu
                485                 490                 495

Val His Leu Leu Gly Pro Leu Asp Tyr Glu Gln Gln Arg Leu Tyr Arg
            500                 505                 510

Leu Thr Val Leu Val Ile Asp His Gly Gln Asp Gln Asn Pro Asn His
        515                 520                 525

His Leu Ser Gly Ser Cys Thr Ile Thr Ile Glu Val Glu Asp Val Asn
    530                 535                 540

Asp His Ala Pro Glu Cys Glu Pro Pro Phe Gln Glu Leu Thr Ile Tyr
545                 550                 555                 560
```

```
Ala Pro Leu Gly Arg Ser Val Glu Val Thr Lys Met Ser Cys Gln Ile
                565                 570                 575

Pro Gln Glu Pro Gln Arg Leu Ile Tyr Ser Tyr Ser Ile Val Gly Gly
            580                 585                 590

Asn Ser Gln Asn Arg Phe Ile Leu Gln Gly Ala Ile Leu Val His Ser
        595                 600                 605

Asp Leu Val Leu Gly Pro Phe Trp Pro Glu Gln Pro Arg Thr Tyr Glu
    610                 615                 620

Leu Leu Ile Cys Val Ala Asp Ala Gly Pro Ser Thr Pro His Leu Ser
625                 630                 635                 640

Thr Thr Ala Thr Ile Ile Val His Leu Val Pro Arg Arg Ala Ser Thr
                645                 650                 655

Val Ala Thr Ser Thr His Arg Thr Thr Val Pro Ser Thr Met Thr Pro
            660                 665                 670

Met Leu Val Thr Asp Thr Glu Ala Phe Trp Gln Pro Gln Pro Trp Phe
        675                 680                 685

Val Val Val Leu Thr Ala Thr Gly Ala Leu Leu Leu Leu Ala Leu Gly
    690                 695                 700

Trp Leu Leu Gly Arg Leu Leu Gln Gly Leu Ala Gln Leu Leu Gln Ala
705                 710                 715                 720

Pro Ser Lys Pro Ala Gln Ala Leu Leu Leu Asn Ser Ile Gln Gly Thr
                725                 730                 735

Glu Gly Ser Ile Glu Gly Phe Leu Glu Ala Pro Lys Met Glu Met Ser
            740                 745                 750

Gln Ala Pro Ser Ser Val Met Ser Leu His Phe Asp Gly Arg Ala Gln
        755                 760                 765

Asp Ser Arg Thr Gly Arg Asp Tyr Leu Phe Asn Thr His Thr Gly Ala
    770                 775                 780

Arg Arg Trp Leu
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785

<210> 10453
<211> 134
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: cadherin-related family
member 4; "

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<223> /note="ENSP ID: ENSP00000417753"

<400> 10453
Gln Glu Leu Thr Ile Tyr Ala Pro Leu Gly Arg Ser Val Glu Val Thr
1 5 10 15

Lys Met Ser Cys Gln Ile Pro Gln Glu Pro Gln Arg Leu Ile Tyr Ser
20 25 30

Tyr Ser Ile Val Gly Gly Asn Ser Gln Asn Arg Phe Ile Leu Gln Gly
35 40 45

Ala Ile Leu Val His Ser Asp Leu Val Leu Gly Pro Phe Trp Pro Glu
50 55 60

Gln Pro Arg Thr Tyr Glu Leu Leu Ile Cys Val Ala Asp Ala Gly Pro
65 70 75 80

Ser Thr Pro His Leu Ser Thr Thr Ala Thr Ile Ile Val His Leu Val
85 90 95

Pro Arg Arg Ala Ser Thr Val Ala Thr Ser Thr His Arg Thr Thr Val
100 105 110

Gly Pro Ala Ala Ala Ser Thr Gln Gln Thr Ser Pro Gly Phe Ala Ala
115 120 125

Lys Gln His Pro Gly Asn
    130

<210> 10454
<211> 151
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2093; "

<220>
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<223> /note="Gene Symbol: CDHR4; "

<220>
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<223> /note="Gene Name: cadherin-related family
      member 4; "

<220>
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<223> /note="ENSP ID: ENSP00000419433"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10454
Xaa Ser Thr Thr Ala Thr Ile Ile Val His Leu Val Pro Arg Arg Ala
1   5   10   15

Ser Thr Val Ala Thr Ser Thr His Arg Thr Thr Val Pro Ser Thr Met
            20   25   30

Thr Pro Met Leu Val Thr Asp Thr Glu Ala Phe Trp Gln Pro Gln Pro
        35   40   45

Trp Phe Val Val Val Leu Thr Ala Thr Gly Ala Leu Leu Leu Leu Ala
    50   55   60

Leu Gly Trp Leu Leu Gly Arg Leu Leu Gln Gly Leu Ala Gln Leu Leu
65   70   75   80

Gln Ala Pro Ser Lys Pro Ala Gln Ala Leu Leu Leu Asn Ser Ile Gln
                85   90   95

```
Gly Thr Glu Gly Ser Ile Glu Gly Phe Leu Glu Ala Pro Lys Met Glu
            100                 105                 110

Met Ser Gln Ala Pro Ser Ser Val Met Ser Leu Gln His Phe Asp Gly
        115                 120                 125

Arg Ala Gln Asp Ser Arg Thr Gly Arg Asp Tyr Leu Phe Asn Thr His
    130                 135                 140

Thr Gly Ala Arg Arg Trp Leu
145                 150


<210> 10455
<211> 184
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: cadherin-related family
      member 4; "

<220>
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<223> /note="ENSP ID: ENSP00000420677"

<400> 10455
Met Val Leu Leu Arg Leu Leu Val Phe Leu Phe Ala Pro Val Val Ser
1               5                   10                  15

Asp Leu Cys Ser Leu Pro Cys Phe Ile Asn Val Ser Glu Ser Gln Gly
            20                  25                  30

Pro Gly Thr Val Leu Gln Phe Leu Ser Phe Asn Cys Ser Ser Tyr Thr
        35                  40                  45

Pro Thr Pro Thr Leu Glu Leu Leu Asn Val Gln Pro Pro Thr Thr Phe
    50                  55                  60

Phe Asn Pro Pro Ser Leu Ala Arg Trp Gln Gly Thr Tyr Val Gly Lys
```

65 70 75 80

Leu Thr Leu Ser Ser Ser Ala Gln Leu Asp Ala Leu Met Val Asn His
85 90 95

Tyr Lys Val Gln Leu Lys Phe Thr Cys Gly Asn His Val Met Glu Gly
100 105 110

Ser Leu Ser Val Asp Val Gln Arg Asp Leu Ser His Ile Gln Cys Ala
115 120 125

Gly Gln Phe Ala Ser Pro Ala Gly Glu Met Ile Gln Val Pro Glu Thr
130 135 140

Val Thr Pro Gly Ala Arg Leu Tyr Thr Leu Leu Leu Pro Gly Leu Glu
145 150 155 160

Leu His Gly Ala Gln Val Ser Pro Glu His Gly Thr Val Gly Asp Arg
165 170 175

Met Gly Val Gly Gly Trp Arg Glu
180

<210> 10456
<211> 651
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: cadherin-related family
member 5; "

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<221> source
<223> /note="Uniprot ID: Q9HBB8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000345726"

<400> 10456
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
85 90 95

Leu Cys Gln Ser Gly Gly Thr Leu Val Thr Gln Leu Arg Val Phe Val
100 105 110

Ser Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Phe Lys Thr
115 120 125

Lys Glu Ile Arg Val Glu Glu Asp Thr Lys Val Asn Ser Thr Val Ile
130 135 140

Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile Leu
145 150 155 160

Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser
165 170 175

Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu Asp
180 185 190

Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Asp Thr
195 200 205

Pro Gly Glu Asn Val Glu Pro Ser His Thr Ala Thr Ala Thr Leu Val
210 215 220

```
Leu Asn Val Val Pro Ala Asp Leu Arg Pro Pro Trp Phe Leu Pro Cys
225                 230                 235                 240

Thr Phe Ser Asp Gly Tyr Val Cys Ile Gln Ala Gln Tyr His Gly Ala
                245                 250                 255

Val Pro Thr Gly His Ile Leu Pro Ser Pro Leu Val Leu Arg Pro Gly
            260                 265                 270

Pro Ile Tyr Ala Glu Asp Gly Asp Arg Gly Ile Asn Gln Pro Ile Ile
        275                 280                 285

Tyr Ser Ile Phe Arg Gly Asn Val Asn Gly Thr Phe Ile Ile His Pro
    290                 295                 300

Asp Ser Gly Asn Leu Thr Val Ala Arg Ser Val Pro Ser Pro Met Thr
305                 310                 315                 320

Phe Leu Leu Leu Val Lys Gly Gln Gln Ala Asp Leu Ala Arg Tyr Ser
                325                 330                 335

Val Thr Gln Val Thr Val Glu Ala Val Ala Ala Ala Gly Ser Pro Pro
            340                 345                 350

Arg Phe Pro Gln Arg Leu Tyr Arg Gly Thr Val Ala Arg Gly Ala Gly
        355                 360                 365

Ala Gly Val Val Val Lys Asp Ala Ala Ala Pro Ser Gln Pro Leu Arg
    370                 375                 380

Ile Gln Ala Gln Asp Pro Glu Phe Ser Asp Leu Asn Ser Ala Ile Thr
385                 390                 395                 400

Tyr Arg Ile Thr Asn His Ser His Phe Arg Met Glu Gly Glu Val Val
                405                 410                 415

Leu Thr Thr Thr Thr Leu Ala Gln Ala Gly Ala Phe Tyr Ala Glu Val
            420                 425                 430

Glu Ala His Asn Thr Val Thr Ser Gly Thr Ala Thr Thr Val Ile Glu
        435                 440                 445

Ile Gln Val Ser Glu Gln Glu Pro Pro Ser Thr Gly Gly Gly Pro Ser
```

```
    450                 455                 460

Glu Asp Lys Arg Phe Ser Val Val Asp Met Ala Ala Leu Gly Gly Val
465                 470                 475                 480

Leu Gly Ala Leu Leu Leu Leu Ala Leu Leu Gly Leu Ala Val Leu Val
                485                 490                 495

His Lys His Tyr Gly Pro Arg Leu Lys Cys Cys Cys Gly Lys Ala Pro
            500                 505                 510

Glu Pro Gln Pro Gln Gly Phe Asp Asn Gln Ala Phe Leu Pro Asp His
        515                 520                 525

Lys Ala Asn Trp Ala Pro Val Pro Ser Pro Thr His Asp Pro Lys Pro
    530                 535                 540

Ala Glu Ala Pro Met Pro Ala Glu Pro Ala Pro Pro Gly Pro Ala Ser
545                 550                 555                 560

Pro Gly Gly Ala Pro Glu Pro Pro Ala Ala Ala Arg Ala Gly Gly Ser
                565                 570                 575

Pro Thr Ala Val Arg Ser Ile Leu Thr Lys Glu Arg Arg Pro Glu Gly
            580                 585                 590

Gly Tyr Lys Ala Val Trp Phe Gly Glu Asp Ile Gly Thr Glu Ala Asp
        595                 600                 605

Val Val Val Leu Asn Ala Pro Thr Leu Asp Val Asp Gly Ala Ser Asp
    610                 615                 620

Ser Gly Ser Gly Asp Glu Gly Glu Gly Ala Gly Arg Gly Gly Gly Pro
625                 630                 635                 640

Tyr Asp Ala Pro Gly Gly Asp Asp Ser Tyr Ile
                645                 650
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<210> 10457
<211> 845
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2094; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HBB8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000351118"

<400> 10457
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1   5   10   15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
            20   25   30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
        35   40   45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
    50   55   60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65   70   75   80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
                85   90   95

Leu Cys Gln Ser Gly Gly Thr Leu Val Thr Gln Leu Arg Val Phe Val
            100   105   110

Ser Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Phe Lys Thr
        115   120   125

Lys Glu Ile Arg Val Glu Glu Asp Thr Lys Val Asn Ser Thr Val Ile
    130   135   140

```
Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile Leu
145                 150                 155                 160

Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser
                165                 170                 175

Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu Asp
            180                 185                 190

Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Asp Thr
        195                 200                 205

Pro Gly Glu Asn Val Glu Pro Ser His Thr Ala Thr Ala Thr Leu Val
    210                 215                 220

Leu Asn Val Val Pro Ala Asp Leu Arg Pro Pro Trp Phe Leu Pro Cys
225                 230                 235                 240

Thr Phe Ser Asp Gly Tyr Val Cys Ile Gln Ala Gln Tyr His Gly Ala
                245                 250                 255

Val Pro Thr Gly His Ile Leu Pro Ser Pro Leu Val Leu Arg Pro Gly
            260                 265                 270

Pro Ile Tyr Ala Glu Asp Gly Asp Arg Gly Ile Asn Gln Pro Ile Ile
        275                 280                 285

Tyr Ser Ile Phe Arg Gly Asn Val Asn Gly Thr Phe Ile Ile His Pro
    290                 295                 300

Asp Ser Gly Asn Leu Thr Val Ala Arg Ser Val Pro Ser Pro Met Thr
305                 310                 315                 320

Phe Leu Leu Leu Val Lys Gly Gln Gln Ala Asp Leu Ala Arg Tyr Ser
                325                 330                 335

Val Thr Gln Val Thr Val Glu Ala Val Ala Ala Ala Gly Ser Pro Pro
            340                 345                 350

Arg Phe Pro Gln Arg Leu Tyr Arg Gly Thr Val Ala Arg Gly Ala Gly
        355                 360                 365

Ala Gly Val Val Val Lys Asp Ala Ala Ala Pro Ser Gln Pro Leu Arg
```

370 375 380

Ile Gln Ala Gln Asp Pro Glu Phe Ser Asp Leu Asn Ser Ala Ile Thr
385 390 395 400

Tyr Arg Ile Thr Asn His Ser His Phe Arg Met Glu Gly Glu Val Val
405 410 415

Leu Thr Thr Thr Thr Leu Ala Gln Ala Gly Ala Phe Tyr Ala Glu Val
420 425 430

Glu Ala His Asn Thr Val Thr Ser Gly Thr Ala Thr Thr Val Ile Glu
435 440 445

Ile Gln Val Ser Glu Gln Glu Pro Pro Ser Thr Asp Val Pro Pro Ser
450 455 460

Pro Glu Ala Gly Gly Thr Thr Gly Pro Trp Thr Ser Thr Thr Ser Glu
465 470 475 480

Val Pro Arg Pro Pro Glu Pro Ser Gln Gly Pro Ser Thr Thr Ser Ser
485 490 495

Gly Gly Gly Thr Gly Pro His Pro Pro Ser Gly Thr Thr Leu Arg Pro
500 505 510

Pro Thr Ser Ser Thr Pro Gly Gly Pro Pro Gly Ala Glu Asn Ser Thr
515 520 525

Ser His Gln Pro Ala Thr Pro Gly Gly Asp Thr Ala Gln Thr Pro Lys
530 535 540

Pro Gly Thr Ser Gln Pro Met Pro Pro Gly Val Gly Thr Ser Thr Ser
545 550 555 560

His Gln Pro Ala Thr Pro Ser Gly Gly Thr Ala Gln Thr Pro Glu Pro
565 570 575

Gly Thr Ser Gln Pro Met Pro Pro Ser Met Gly Thr Ser Thr Ser His
580 585 590

Gln Pro Ala Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Ala Gly
595 600 605

```
Thr Ser Gln Pro Met Pro Pro Gly Met Gly Thr Ser Thr Ser His Gln
    610                 615                 620

Pro Thr Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Pro Gly Thr
625                 630                 635                 640

Ser Gln Pro Met Pro Leu Ser Lys Ser Thr Pro Ser Ser Gly Gly Gly
                645                 650                 655

Pro Ser Glu Asp Lys Arg Phe Ser Val Val Asp Met Ala Ala Leu Gly
            660                 665                 670

Gly Val Leu Gly Ala Leu Leu Leu Leu Ala Leu Leu Gly Leu Ala Val
        675                 680                 685

Leu Val His Lys His Tyr Gly Pro Arg Leu Lys Cys Cys Cys Gly Lys
    690                 695                 700

Ala Pro Glu Pro Gln Pro Gln Gly Phe Asp Asn Gln Ala Phe Leu Pro
705                 710                 715                 720

Asp His Lys Ala Asn Trp Ala Pro Val Pro Ser Pro Thr His Asp Pro
                725                 730                 735

Lys Pro Ala Glu Ala Pro Met Pro Ala Glu Pro Ala Pro Pro Gly Pro
            740                 745                 750

Ala Ser Pro Gly Gly Ala Pro Glu Pro Pro Ala Ala Ala Arg Ala Gly
        755                 760                 765

Gly Ser Pro Thr Ala Val Arg Ser Ile Leu Thr Lys Glu Arg Arg Pro
    770                 775                 780

Glu Gly Gly Tyr Lys Ala Val Trp Phe Gly Glu Asp Ile Gly Thr Glu
785                 790                 795                 800

Ala Asp Val Val Val Leu Asn Ala Pro Thr Leu Asp Val Asp Gly Ala
                805                 810                 815

Ser Asp Ser Gly Ser Gly Asp Glu Gly Glu Gly Ala Gly Arg Gly Gly
            820                 825                 830
```

Gly Pro Tyr Asp Ala Pro Gly Gly Asp Asp Ser Tyr Ile
835 840 845

<210> 10458
<211> 845
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2094; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HBB8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380676"

<400> 10458
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
85 90 95

Leu Cys Gln Ser Gly Gly Thr Leu Val Thr Gln Leu Arg Val Phe Val

```
            100                 105                 110

Ser Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Phe Lys Thr
        115                 120                 125

Lys Glu Ile Arg Val Glu Glu Asp Thr Lys Val Asn Ser Thr Val Ile
    130                 135                 140

Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile Leu
145                 150                 155                 160

Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser
                165                 170                 175

Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu Asp
            180                 185                 190

Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Asp Thr
        195                 200                 205

Pro Gly Glu Asn Val Glu Pro Ser His Thr Ala Thr Ala Thr Leu Val
    210                 215                 220

Leu Asn Val Val Pro Ala Asp Leu Arg Pro Pro Trp Phe Leu Pro Cys
225                 230                 235                 240

Thr Phe Ser Asp Gly Tyr Val Cys Ile Gln Ala Gln Tyr His Gly Ala
                245                 250                 255

Val Pro Thr Gly His Ile Leu Pro Ser Pro Leu Val Leu Arg Pro Gly
            260                 265                 270

Pro Ile Tyr Ala Glu Asp Gly Asp Arg Gly Ile Asn Gln Pro Ile Ile
        275                 280                 285

Tyr Ser Ile Phe Arg Gly Asn Val Asn Gly Thr Phe Ile Ile His Pro
    290                 295                 300

Asp Ser Gly Asn Leu Thr Val Ala Arg Ser Val Pro Ser Pro Met Thr
305                 310                 315                 320

Phe Leu Leu Leu Val Lys Gly Gln Gln Ala Asp Leu Ala Arg Tyr Ser
                325                 330                 335
```

```
Val Thr Gln Val Thr Val Glu Ala Val Ala Ala Ala Gly Ser Pro Pro
            340                 345                 350

Arg Phe Pro Gln Arg Leu Tyr Arg Gly Thr Val Ala Arg Gly Ala Gly
        355                 360                 365

Ala Gly Val Val Val Lys Asp Ala Ala Ala Pro Ser Gln Pro Leu Arg
    370                 375                 380

Ile Gln Ala Gln Asp Pro Glu Phe Ser Asp Leu Asn Ser Ala Ile Thr
385                 390                 395                 400

Tyr Arg Ile Thr Asn His Ser His Phe Arg Met Glu Gly Glu Val Val
                405                 410                 415

Leu Thr Thr Thr Thr Leu Ala Gln Ala Gly Ala Phe Tyr Ala Glu Val
            420                 425                 430

Glu Ala His Asn Thr Val Thr Ser Gly Thr Ala Thr Thr Val Ile Glu
        435                 440                 445

Ile Gln Val Ser Glu Gln Glu Pro Pro Ser Thr Asp Val Pro Pro Ser
    450                 455                 460

Pro Glu Ala Gly Gly Thr Thr Gly Pro Trp Thr Ser Thr Thr Ser Glu
465                 470                 475                 480

Val Pro Arg Pro Pro Glu Pro Ser Gln Gly Pro Ser Thr Thr Ser Ser
                485                 490                 495

Gly Gly Gly Thr Gly Pro His Pro Pro Ser Gly Thr Thr Leu Arg Pro
            500                 505                 510

Pro Thr Ser Ser Thr Pro Gly Gly Pro Pro Gly Ala Glu Asn Ser Thr
        515                 520                 525

Ser His Gln Pro Ala Thr Pro Gly Gly Asp Thr Ala Gln Thr Pro Lys
    530                 535                 540

Pro Gly Thr Ser Gln Pro Met Pro Pro Gly Val Gly Thr Ser Thr Ser
545                 550                 555                 560
```

```
His Gln Pro Ala Thr Pro Ser Gly Gly Thr Ala Gln Thr Pro Glu Pro
                565                 570                 575

Gly Thr Ser Gln Pro Met Pro Pro Ser Met Gly Thr Ser Thr Ser His
            580                 585                 590

Gln Pro Ala Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Ala Gly
        595                 600                 605

Thr Ser Gln Pro Met Pro Pro Gly Met Gly Thr Ser Thr Ser His Gln
    610                 615                 620

Pro Thr Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Pro Gly Thr
625                 630                 635                 640

Ser Gln Pro Met Pro Leu Ser Lys Ser Thr Pro Ser Ser Gly Gly Gly
                645                 650                 655

Pro Ser Glu Asp Lys Arg Phe Ser Val Val Asp Met Ala Ala Leu Gly
            660                 665                 670

Gly Val Leu Gly Ala Leu Leu Leu Leu Ala Leu Leu Gly Leu Ala Val
        675                 680                 685

Leu Val His Lys His Tyr Gly Pro Arg Leu Lys Cys Cys Cys Gly Lys
    690                 695                 700

Ala Pro Glu Pro Gln Pro Gln Gly Phe Asp Asn Gln Ala Phe Leu Pro
705                 710                 715                 720

Asp His Lys Ala Asn Trp Ala Pro Val Pro Ser Pro Thr His Asp Pro
                725                 730                 735

Lys Pro Ala Glu Ala Pro Met Pro Ala Glu Pro Ala Pro Pro Gly Pro
            740                 745                 750

Ala Ser Pro Gly Gly Ala Pro Glu Pro Pro Ala Ala Ala Arg Ala Gly
        755                 760                 765

Gly Ser Pro Thr Ala Val Arg Ser Ile Leu Thr Lys Glu Arg Arg Pro
    770                 775                 780
```

```
Glu Gly Gly Tyr Lys Ala Val Trp Phe Gly Glu Asp Ile Gly Thr Glu
785                 790                 795                 800


Ala Asp Val Val Val Leu Asn Ala Pro Thr Leu Asp Val Asp Gly Ala
                805                 810                 815


Ser Asp Ser Gly Ser Gly Asp Glu Gly Glu Gly Ala Gly Arg Gly Gly
            820                 825                 830


Gly Pro Tyr Asp Ala Pro Gly Gly Asp Asp Ser Tyr Ile
        835                 840                 845


<210> 10459
<211> 15
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2094; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
      member 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431505"

<400> 10459
Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser Leu Val Ser Val Asn
1               5                   10                  15


<210> 10460
<211> 190
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2094; "

<220>
<221> source
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<221> source
<223> /note="Gene Name: cadherin-related family
member 5; "

<220>
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<223> /note="ENSP ID: ENSP00000435082"

<400> 10460
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
85 90 95

Leu Cys Gln Ser Gly Gly Thr Leu Asp Thr Lys Val Asn Ser Thr Val
100 105 110

Ile Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile
115 120 125

Leu Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe
130 135 140

Ser Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu
145 150 155 160

Asp Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Pro
165 170 175

Ser Val Ala Gly His Ser Gly Gly Glu Cys Gly Thr Gln Pro
180 185 190

<210> 10461
<211> 165
<212> PRT
<213> Homo sapiens

<220>
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member 5; "

<220>
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<400> 10461
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
85 90 95

Leu Cys Gln Ser Gly Gly Thr Leu Thr Lys Glu Ile Arg Val Glu Glu
100 105 110

Asp Thr Lys Val Asn Ser Thr Val Ile Pro Glu Thr Gln Leu Gln Ala
115 120 125

Glu Asp Arg Asp Lys Asp Asp Ile Leu Phe Tyr Thr Leu Gln Glu Met
130 135 140

```
Thr Ala Gly Ala Ser Asp Tyr Phe Ser Leu Val Ser Val Asn Arg Pro
145                 150                 155                 160


Ala Leu Arg Leu Asp
                165


<210> 10462
<211> 106
<212> PRT
<213> Homo sapiens

<220>
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      member 5; "

<220>
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<400> 10462
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1               5                   10                  15


Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
            20                  25                  30


Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
        35                  40                  45


Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
    50                  55                  60


Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65                  70                  75                  80


Asn Val Thr Pro Asp Tyr Glu Lys Ala Gly Pro Phe Arg Asp Glu Ala
                85                  90                  95
```

Ala Trp Ala His Thr Leu Ser Thr Asp His
100 105

<210> 10463
<211> 845
<212> PRT
<213> Homo sapiens

<220>
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member 5; "

<220>
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<400> 10463
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
85 90 95

Leu Cys Gln Ser Gly Gly Thr Leu Val Thr Gln Leu Arg Val Phe Val
100 105 110

Ser Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Phe Lys Thr
115 120 125

```
Lys Glu Ile Arg Val Glu Glu Asp Thr Lys Val Asn Ser Thr Val Ile
    130                 135                 140

Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile Leu
145                 150                 155                 160

Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser
                165                 170                 175

Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu Asp
            180                 185                 190

Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Asp Thr
        195                 200                 205

Pro Gly Glu Asn Val Glu Pro Ser His Thr Ala Thr Ala Thr Leu Val
    210                 215                 220

Leu Asn Val Val Pro Ala Asp Leu Arg Pro Pro Trp Phe Leu Pro Cys
225                 230                 235                 240

Thr Phe Ser Asp Gly Tyr Val Cys Ile Gln Ala Gln Tyr His Gly Ala
                245                 250                 255

Val Pro Thr Gly His Ile Leu Pro Ser Pro Leu Val Leu Arg Pro Gly
            260                 265                 270

Pro Ile Tyr Ala Glu Asp Gly Asp Arg Gly Ile Asn Gln Pro Ile Ile
        275                 280                 285

Tyr Ser Ile Phe Arg Gly Asn Val Asn Gly Thr Phe Ile Ile His Pro
    290                 295                 300

Asp Ser Gly Asn Leu Thr Val Ala Arg Ser Val Pro Ser Pro Met Thr
305                 310                 315                 320

Phe Leu Leu Leu Val Lys Gly Gln Gln Ala Asp Leu Ala Arg Tyr Ser
                325                 330                 335

Val Thr Gln Val Thr Val Glu Ala Val Ala Ala Ala Gly Ser Pro Pro
            340                 345                 350
```

```
Arg Phe Pro Gln Ser Leu Tyr Arg Gly Thr Val Ala Arg Gly Ala Gly
        355                 360                 365

Ala Gly Val Val Val Lys Asp Ala Ala Ala Pro Ser Gln Pro Leu Arg
    370                 375                 380

Ile Gln Ala Gln Asp Pro Glu Phe Ser Asp Leu Asn Ser Ala Ile Thr
385                 390                 395                 400

Tyr Arg Ile Thr Asn His Ser His Phe Arg Met Glu Gly Glu Val Val
                405                 410                 415

Leu Thr Thr Thr Thr Leu Ala Gln Ala Gly Ala Phe Tyr Ala Glu Val
            420                 425                 430

Glu Ala His Asn Thr Val Thr Ser Gly Thr Ala Thr Thr Val Ile Glu
        435                 440                 445

Ile Gln Val Ser Glu Gln Glu Pro Pro Ser Thr Asp Val Pro Pro Ser
    450                 455                 460

Pro Glu Ala Gly Gly Thr Thr Gly Pro Trp Thr Ser Thr Thr Ser Glu
465                 470                 475                 480

Val Pro Arg Pro Pro Glu Pro Ser Gln Gly Pro Ser Thr Thr Ser Ser
                485                 490                 495

Gly Gly Gly Thr Gly Pro His Pro Pro Ser Gly Thr Thr Leu Arg Pro
            500                 505                 510

Pro Thr Ser Ser Thr Pro Gly Gly Ser Pro Gly Ala Glu Asn Ser Thr
        515                 520                 525

Ser His Gln Pro Ala Thr Pro Gly Gly Asp Thr Ala Gln Thr Pro Lys
    530                 535                 540

Pro Gly Thr Ser Gln Pro Met Pro Pro Gly Val Gly Thr Ser Thr Ser
545                 550                 555                 560

His Gln Pro Ala Thr Pro Ser Gly Gly Thr Ala Gln Thr Pro Glu Pro
                565                 570                 575
```

```
Gly Thr Ser Gln Pro Met Pro Pro Ser Met Gly Thr Ser Thr Ser His
            580                 585                 590

Gln Pro Ala Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Ala Gly
        595                 600                 605

Thr Ser Gln Pro Met Pro Pro Gly Met Gly Thr Ser Thr Ser His Gln
    610                 615                 620

Pro Thr Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Pro Gly Thr
625                 630                 635                 640

Ser Gln Pro Met Pro Leu Ser Lys Ser Thr Pro Ser Ser Gly Gly Gly
                645                 650                 655

Pro Ser Glu Asp Lys Arg Phe Ser Val Val Asp Met Ala Ala Leu Gly
            660                 665                 670

Gly Val Leu Gly Ala Leu Leu Leu Leu Ala Leu Leu Gly Leu Ala Val
        675                 680                 685

Leu Val His Lys His Tyr Gly Pro Arg Leu Lys Cys Cys Ser Gly Lys
    690                 695                 700

Ala Pro Glu Pro Gln Pro Gln Gly Phe Asp Asn Gln Ala Phe Leu Pro
705                 710                 715                 720

Asp His Lys Ala Asn Trp Ala Pro Val Pro Ser Pro Thr His Asp Pro
                725                 730                 735

Lys Pro Ala Glu Ala Pro Met Pro Ala Glu Pro Ala Pro Pro Gly Pro
            740                 745                 750

Ala Ser Pro Gly Gly Ala Pro Glu Pro Pro Ala Ala Ala Arg Ala Gly
        755                 760                 765

Gly Ser Pro Thr Ala Val Arg Ser Ile Leu Thr Lys Glu Arg Arg Pro
    770                 775                 780

Glu Gly Gly Tyr Lys Ala Val Trp Phe Gly Glu Asp Ile Gly Thr Glu
785                 790                 795                 800

Ala Asp Val Val Val Leu Asn Ala Pro Thr Leu Asp Val Asp Gly Ala
```

805 810 815

Ser Asp Ser Gly Ser Gly Asp Glu Gly Glu Gly Ala Gly Arg Gly Gly
820 825 830

Gly Pro Tyr Asp Ala Pro Gly Gly Asp Asp Ser Tyr Ile
835 840 845

<210> 10464
<211> 651
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2094; "

<220>
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<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000482865"

<400> 10464
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
85 90 95

```
Leu Cys Gln Ser Gly Gly Thr Leu Val Thr Gln Leu Arg Val Phe Val
            100                 105                 110

Ser Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Phe Lys Thr
        115                 120                 125

Lys Glu Ile Arg Val Glu Glu Asp Thr Lys Val Asn Ser Thr Val Ile
    130                 135                 140

Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile Leu
145                 150                 155                 160

Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser
                165                 170                 175

Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu Asp
            180                 185                 190

Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Asp Thr
        195                 200                 205

Pro Gly Glu Asn Val Glu Pro Ser His Thr Ala Thr Ala Thr Leu Val
    210                 215                 220

Leu Asn Val Val Pro Ala Asp Leu Arg Pro Pro Trp Phe Leu Pro Cys
225                 230                 235                 240

Thr Phe Ser Asp Gly Tyr Val Cys Ile Gln Ala Gln Tyr His Gly Ala
                245                 250                 255

Val Pro Thr Gly His Ile Leu Pro Ser Pro Leu Val Leu Arg Pro Gly
            260                 265                 270

Pro Ile Tyr Ala Glu Asp Gly Asp Arg Gly Ile Asn Gln Pro Ile Ile
        275                 280                 285

Tyr Ser Ile Phe Arg Gly Asn Val Asn Gly Thr Phe Ile Ile His Pro
    290                 295                 300

Asp Ser Gly Asn Leu Thr Val Ala Arg Ser Val Pro Ser Pro Met Thr
305                 310                 315                 320
```

```
Phe Leu Leu Leu Val Lys Gly Gln Gln Ala Asp Leu Ala Arg Tyr Ser
                325                 330                 335

Val Thr Gln Val Thr Val Glu Ala Val Ala Ala Ala Gly Ser Pro Pro
            340                 345                 350

Arg Phe Pro Gln Ser Leu Tyr Arg Gly Thr Val Ala Arg Gly Ala Gly
        355                 360                 365

Ala Gly Val Val Val Lys Asp Ala Ala Ala Pro Ser Gln Pro Leu Arg
    370                 375                 380

Ile Gln Ala Gln Asp Pro Glu Phe Ser Asp Leu Asn Ser Ala Ile Thr
385                 390                 395                 400

Tyr Arg Ile Thr Asn His Ser His Phe Arg Met Glu Gly Glu Val Val
                405                 410                 415

Leu Thr Thr Thr Thr Leu Ala Gln Ala Gly Ala Phe Tyr Ala Glu Val
            420                 425                 430

Glu Ala His Asn Thr Val Thr Ser Gly Thr Ala Thr Thr Val Ile Glu
        435                 440                 445

Ile Gln Val Ser Glu Gln Glu Pro Pro Ser Thr Gly Gly Gly Pro Ser
    450                 455                 460

Glu Asp Lys Arg Phe Ser Val Val Asp Met Ala Ala Leu Gly Gly Val
465                 470                 475                 480

Leu Gly Ala Leu Leu Leu Leu Ala Leu Leu Gly Leu Ala Val Leu Val
                485                 490                 495

His Lys His Tyr Gly Pro Arg Leu Lys Cys Cys Ser Gly Lys Ala Pro
            500                 505                 510

Glu Pro Gln Pro Gln Gly Phe Asp Asn Gln Ala Phe Leu Pro Asp His
        515                 520                 525

Lys Ala Asn Trp Ala Pro Val Pro Ser Pro Thr His Asp Pro Lys Pro
    530                 535                 540

Ala Glu Ala Pro Met Pro Ala Glu Pro Ala Pro Pro Gly Pro Ala Ser
```

```
545                 550                 555                 560

Pro Gly Gly Ala Pro Glu Pro Pro Ala Ala Ala Arg Ala Gly Gly Ser
                565                 570                 575

Pro Thr Ala Val Arg Ser Ile Leu Thr Lys Glu Arg Arg Pro Glu Gly
            580                 585                 590

Gly Tyr Lys Ala Val Trp Phe Gly Glu Asp Ile Gly Thr Glu Ala Asp
        595                 600                 605

Val Val Val Leu Asn Ala Pro Thr Leu Asp Val Asp Gly Ala Ser Asp
    610                 615                 620

Ser Gly Ser Gly Asp Glu Gly Glu Gly Ala Gly Arg Gly Gly Gly Pro
625                 630                 635                 640

Tyr Asp Ala Pro Gly Gly Asp Asp Ser Tyr Ile
                645                 650


<210> 10465
<211> 15
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2094; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
      member 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000487773"

<400> 10465
Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser Leu Val Ser Val Asn
1               5                   10                  15


<210> 10466
<211> 165
<212> PRT
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<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2094; "

<220>
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<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 5; "

<220>
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<223> /note="ENSP ID: ENSP00000487868"

<400> 10466

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Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1               5                  10                  15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
            20                  25                  30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
        35                  40                  45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
    50                  55                  60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65                  70                  75                  80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
                85                  90                  95

Leu Cys Gln Ser Gly Gly Thr Leu Thr Lys Glu Ile Arg Val Glu Glu
            100                 105                 110

Asp Thr Lys Val Asn Ser Thr Val Ile Pro Glu Thr Gln Leu Gln Ala
        115                 120                 125

Glu Asp Arg Asp Lys Asp Asp Ile Leu Phe Tyr Thr Leu Gln Glu Met
    130                 135                 140

Thr Ala Gly Ala Ser Asp Tyr Phe Ser Leu Val Ser Val Asn Arg Pro
```

145 150 155 160

Ala Leu Arg Leu Asp
165

<210> 10467
<211> 106
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: cadherin-related family
member 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488183"

<400> 10467
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Lys Ala Gly Pro Phe Arg Asp Glu Ala
85 90 95

Ala Trp Ala His Thr Leu Ser Thr Asp His
100 105

<210> 10468
<211> 190
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2094; "

<220>
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<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
member 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488189"

<400> 10468
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1 5 10 15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
20 25 30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
35 40 45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
50 55 60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65 70 75 80

Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
85 90 95

Leu Cys Gln Ser Gly Gly Thr Leu Asp Thr Lys Val Asn Ser Thr Val
100 105 110

Ile Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile
115 120 125

Leu Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe

```
    130                 135                 140

Ser Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu
145                 150                 155                 160

Asp Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Pro
                165                 170                 175

Ser Val Ala Gly His Ser Gly Gly Glu Cys Gly Thr Gln Pro
            180                 185                 190


<210> 10469
<211> 845
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2094; "

<220>
<221> source
<223> /note="Gene Symbol: CDHR5; "

<220>
<221> source
<223> /note="Gene Name: cadherin-related family
      member 5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488376"

<400> 10469
Met Gly Ser Trp Ala Leu Leu Trp Pro Pro Leu Leu Phe Thr Gly Leu
1               5                   10                  15

Leu Val Arg Pro Pro Gly Thr Met Ala Gln Ala Gln Tyr Cys Ser Val
            20                  25                  30

Asn Lys Asp Ile Phe Glu Val Glu Glu Asn Thr Asn Val Thr Glu Pro
        35                  40                  45

Leu Val Asp Ile His Val Pro Glu Gly Gln Glu Val Thr Leu Gly Ala
    50                  55                  60

Leu Ser Thr Pro Phe Ala Phe Arg Ile Gln Gly Asn Gln Leu Phe Leu
65                  70                  75                  80
```

```
Asn Val Thr Pro Asp Tyr Glu Glu Lys Ser Leu Leu Glu Ala Gln Leu
                85                  90                  95

Leu Cys Gln Ser Gly Gly Thr Leu Val Thr Gln Leu Arg Val Phe Val
            100                 105                 110

Ser Val Leu Asp Val Asn Asp Asn Ala Pro Glu Phe Pro Phe Lys Thr
        115                 120                 125

Lys Glu Ile Arg Val Glu Glu Asp Thr Lys Val Asn Ser Thr Val Ile
    130                 135                 140

Pro Glu Thr Gln Leu Gln Ala Glu Asp Arg Asp Lys Asp Asp Ile Leu
145                 150                 155                 160

Phe Tyr Thr Leu Gln Glu Met Thr Ala Gly Ala Ser Asp Tyr Phe Ser
                165                 170                 175

Leu Val Ser Val Asn Arg Pro Ala Leu Arg Leu Asp Arg Pro Leu Asp
            180                 185                 190

Phe Tyr Glu Arg Pro Asn Met Thr Phe Trp Leu Leu Val Arg Asp Thr
        195                 200                 205

Pro Gly Glu Asn Val Glu Pro Ser His Thr Ala Thr Ala Thr Leu Val
    210                 215                 220

Leu Asn Val Val Pro Ala Asp Leu Arg Pro Pro Trp Phe Leu Pro Cys
225                 230                 235                 240

Thr Phe Ser Asp Gly Tyr Val Cys Ile Gln Ala Gln Tyr His Gly Ala
                245                 250                 255

Val Pro Thr Gly His Ile Leu Pro Ser Pro Leu Val Leu Arg Pro Gly
            260                 265                 270

Pro Ile Tyr Ala Glu Asp Gly Asp Arg Gly Ile Asn Gln Pro Ile Ile
        275                 280                 285

Tyr Ser Ile Phe Arg Gly Asn Val Asn Gly Thr Phe Ile Ile His Pro
    290                 295                 300
```

```
Asp Ser Gly Asn Leu Thr Val Ala Arg Ser Val Pro Ser Pro Met Thr
305                 310                 315                 320

Phe Leu Leu Leu Val Lys Gly Gln Gln Ala Asp Leu Ala Arg Tyr Ser
                325                 330                 335

Val Thr Gln Val Thr Val Glu Ala Val Ala Ala Ala Gly Ser Pro Pro
            340                 345                 350

Arg Phe Pro Gln Ser Leu Tyr Arg Gly Thr Val Ala Arg Gly Ala Gly
        355                 360                 365

Ala Gly Val Val Val Lys Asp Ala Ala Ala Pro Ser Gln Pro Leu Arg
    370                 375                 380

Ile Gln Ala Gln Asp Pro Glu Phe Ser Asp Leu Asn Ser Ala Ile Thr
385                 390                 395                 400

Tyr Arg Ile Thr Asn His Ser His Phe Arg Met Glu Gly Glu Val Val
                405                 410                 415

Leu Thr Thr Thr Thr Leu Ala Gln Ala Gly Ala Phe Tyr Ala Glu Val
            420                 425                 430

Glu Ala His Asn Thr Val Thr Ser Gly Thr Ala Thr Thr Val Ile Glu
        435                 440                 445

Ile Gln Val Ser Glu Gln Glu Pro Pro Ser Thr Asp Val Pro Pro Ser
    450                 455                 460

Pro Glu Ala Gly Gly Thr Thr Gly Pro Trp Thr Ser Thr Thr Ser Glu
465                 470                 475                 480

Val Pro Arg Pro Pro Glu Pro Ser Gln Gly Pro Ser Thr Thr Ser Ser
                485                 490                 495

Gly Gly Gly Thr Gly Pro His Pro Pro Ser Gly Thr Thr Leu Arg Pro
            500                 505                 510

Pro Thr Ser Ser Thr Pro Gly Gly Ser Pro Gly Ala Glu Asn Ser Thr
        515                 520                 525

Ser His Gln Pro Ala Thr Pro Gly Gly Asp Thr Ala Gln Thr Pro Lys
```

```
    530                 535                 540

Pro Gly Thr Ser Gln Pro Met Pro Pro Gly Val Gly Thr Ser Thr Ser
545                 550                 555                 560

His Gln Pro Ala Thr Pro Ser Gly Gly Thr Ala Gln Thr Pro Glu Pro
                565                 570                 575

Gly Thr Ser Gln Pro Met Pro Pro Ser Met Gly Thr Ser Thr Ser His
            580                 585                 590

Gln Pro Ala Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Ala Gly
        595                 600                 605

Thr Ser Gln Pro Met Pro Pro Gly Met Gly Thr Ser Thr Ser His Gln
    610                 615                 620

Pro Thr Thr Pro Gly Gly Gly Thr Ala Gln Thr Pro Glu Pro Gly Thr
625                 630                 635                 640

Ser Gln Pro Met Pro Leu Ser Lys Ser Thr Pro Ser Ser Gly Gly Gly
                645                 650                 655

Pro Ser Glu Asp Lys Arg Phe Ser Val Val Asp Met Ala Ala Leu Gly
            660                 665                 670

Gly Val Leu Gly Ala Leu Leu Leu Leu Ala Leu Leu Gly Leu Ala Val
        675                 680                 685

Leu Val His Lys His Tyr Gly Pro Arg Leu Lys Cys Cys Ser Gly Lys
    690                 695                 700

Ala Pro Glu Pro Gln Pro Gln Gly Phe Asp Asn Gln Ala Phe Leu Pro
705                 710                 715                 720

Asp His Lys Ala Asn Trp Ala Pro Val Pro Ser Pro Thr His Asp Pro
                725                 730                 735

Lys Pro Ala Glu Ala Pro Met Pro Ala Glu Pro Ala Pro Pro Gly Pro
            740                 745                 750

Ala Ser Pro Gly Gly Ala Pro Glu Pro Pro Ala Ala Ala Arg Ala Gly
        755                 760                 765
```

```
Gly Ser Pro Thr Ala Val Arg Ser Ile Leu Thr Lys Glu Arg Arg Pro
    770                 775                 780

Glu Gly Gly Tyr Lys Ala Val Trp Phe Gly Glu Asp Ile Gly Thr Glu
785                 790                 795                 800

Ala Asp Val Val Val Leu Asn Ala Pro Thr Leu Asp Val Asp Gly Ala
                805                 810                 815

Ser Asp Ser Gly Ser Gly Asp Glu Gly Glu Gly Ala Gly Arg Gly Gly
            820                 825                 830

Gly Pro Tyr Asp Ala Pro Gly Gly Asp Asp Ser Tyr Ile
        835                 840                 845
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<210> 10470
<211> 261
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2095; "

<220>
<221> source
<223> /note="Gene Symbol: CALB1; "

<220>
<221> source
<223> /note="Gene Name: calbindin 1, 28kDa; "

<220>
<221> source
<223> /note="Uniprot ID: P05937; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000265431"

<400> 10470

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Met Ala Glu Ser His Leu Gln Ser Ser Leu Ile Thr Ala Ser Gln Phe
1               5                   10                  15

Phe Glu Ile Trp Leu His Phe Asp Ala Asp Gly Ser Gly Tyr Leu Glu
            20                  25                  30

Gly Lys Glu Leu Gln Asn Leu Ile Gln Glu Leu Gln Gln Ala Arg Lys
```

```
        35                  40                  45

Lys Ala Gly Leu Glu Leu Ser Pro Glu Met Lys Thr Phe Val Asp Gln
    50                  55                  60

Tyr Gly Gln Arg Asp Asp Gly Lys Ile Gly Ile Val Glu Leu Ala His
65                  70                  75                  80

Val Leu Pro Thr Glu Glu Asn Phe Leu Leu Leu Phe Arg Cys Gln Gln
                85                  90                  95

Leu Lys Ser Cys Glu Glu Phe Met Lys Thr Trp Arg Lys Tyr Asp Thr
            100                 105                 110

Asp His Ser Gly Phe Ile Glu Thr Glu Glu Leu Lys Asn Phe Leu Lys
        115                 120                 125

Asp Leu Leu Glu Lys Ala Asn Lys Thr Val Asp Asp Thr Lys Leu Ala
    130                 135                 140

Glu Tyr Thr Asp Leu Met Leu Lys Leu Phe Asp Ser Asn Asn Asp Gly
145                 150                 155                 160

Lys Leu Glu Leu Thr Glu Met Ala Arg Leu Leu Pro Val Gln Glu Asn
                165                 170                 175

Phe Leu Leu Lys Phe Gln Gly Ile Lys Met Cys Gly Lys Glu Phe Asn
            180                 185                 190

Lys Ala Phe Glu Leu Tyr Asp Gln Asp Gly Asn Gly Tyr Ile Asp Glu
        195                 200                 205

Asn Glu Leu Asp Ala Leu Leu Lys Asp Leu Cys Glu Lys Asn Lys Gln
    210                 215                 220

Asp Leu Asp Ile Asn Asn Ile Thr Thr Tyr Lys Lys Asn Ile Met Ala
225                 230                 235                 240

Leu Ser Asp Gly Gly Lys Leu Tyr Arg Thr Asp Leu Ala Leu Ile Leu
                245                 250                 255

Cys Ala Gly Asp Asn
            260
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<210> 10471
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2095; "

<220>
<221> source
<223> /note="Gene Symbol: CALB1; "

<220>
<221> source
<223> /note="Gene Name: calbindin 1, 28kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429246"

<400> 10471
Met Lys Thr Phe Val Asp Gln Tyr Gly Gln Arg Asp Asp Gly Lys Ile
1   5   10   15

Gly Ile Val Glu Leu Ala His Val Leu Pro Thr Glu Glu Asn Phe Leu
            20   25   30

Leu Leu Phe Arg Cys Gln Gln Leu Lys Ser Cys Glu Glu Phe Met Lys
        35   40   45

Thr Trp Arg Lys Tyr Asp Thr Asp His Ser Gly Phe Ile Glu Thr Glu
    50   55   60

Glu Leu Lys Asn Phe Leu Lys Asp Leu Leu Glu Lys Ala Asn Lys Thr
65   70   75   80

Val Asp Asp Thr Lys Leu Ala Glu Tyr Thr Asp Leu Met Leu Lys Leu
                85   90   95

Phe Asp Ser Asn Asn Asp Gly Lys Leu Glu Leu Thr Glu Met Ala Arg
            100   105   110

Leu Leu Pro Val Gln Glu Asn
        115

<210> 10472

<211> 204
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2095; "

<220>
<221> source
<223> /note="Gene Symbol: CALB1; "

<220>
<221> source
<223> /note="Gene Name: calbindin 1, 28kDa; "

<220>
<221> source
<223> /note="Uniprot ID: P05937; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429602"

<400> 10472

Met	Lys	Thr	Phe	Val	Asp	Gln	Tyr	Gly	Gln	Arg	Asp	Asp	Gly	Lys	Ile
1				5				10						15	
Gly	Ile	Val	Glu	Leu	Ala	His	Val	Leu	Pro	Thr	Glu	Glu	Asn	Phe	Leu
			20					25					30		
Leu	Leu	Phe	Arg	Cys	Gln	Gln	Leu	Lys	Ser	Cys	Glu	Glu	Phe	Met	Lys
		35					40					45			
Thr	Trp	Arg	Lys	Tyr	Asp	Thr	Asp	His	Ser	Gly	Phe	Ile	Glu	Thr	Glu
	50					55					60				
Glu	Leu	Lys	Asn	Phe	Leu	Lys	Asp	Leu	Leu	Glu	Lys	Ala	Asn	Lys	Thr
65					70					75					80
Val	Asp	Asp	Thr	Lys	Leu	Ala	Glu	Tyr	Thr	Asp	Leu	Met	Leu	Lys	Leu
				85					90					95	
Phe	Asp	Ser	Asn	Asn	Asp	Gly	Lys	Leu	Glu	Leu	Thr	Glu	Met	Ala	Arg
			100					105					110		
Leu	Leu	Pro	Val	Gln	Glu	Asn	Phe	Leu	Leu	Lys	Phe	Gln	Gly	Ile	Lys
		115					120					125			

```
Met Cys Gly Lys Glu Phe Asn Lys Ala Phe Glu Leu Tyr Asp Gln Asp
    130                 135                 140

Gly Asn Gly Tyr Ile Asp Glu Asn Glu Leu Asp Ala Leu Leu Lys Asp
145                 150                 155                 160

Leu Cys Glu Lys Asn Lys Gln Asp Leu Asp Ile Asn Asn Ile Thr Thr
                165                 170                 175

Tyr Lys Lys Asn Ile Met Ala Leu Ser Asp Gly Gly Lys Leu Tyr Arg
            180                 185                 190

Thr Asp Leu Ala Leu Ile Leu Cys Ala Gly Asp Asn
        195                 200
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<210> 10473
<211> 3
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2095; "

<220>
<221> source
<223> /note="Gene Symbol: CALB1; "

<220>
<221> source
<223> /note="Gene Name: calbindin 1, 28kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430192"

<400> 10473
Met Lys Thr
1

<210> 10474
<211> 102
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2095; "

<220>
<221> source

<223> /note="Gene Symbol: CALB1; "

<220>
<221> source
<223> /note="Gene Name: calbindin 1, 28kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000430281"

<400> 10474
Met Lys Thr Phe Val Asp Gln Tyr Gly Gln Arg Asp Asp Gly Lys Ile
1   5   10   15

Gly Ile Val Glu Leu Ala His Val Leu Pro Thr Glu Glu Asn Phe Leu
            20   25   30

Leu Leu Phe Arg Cys Gln Gln Leu Lys Ser Cys Glu Glu Phe Met Lys
        35   40   45

Thr Trp Arg Lys Tyr Asp Thr Asp His Ser Gly Phe Ile Glu Thr Glu
    50   55   60

Glu Leu Lys Asn Phe Leu Lys Asp Leu Leu Glu Lys Ala Asn Lys Thr
65   70   75   80

Val Asp Asp Thr Lys Leu Ala Glu Tyr Thr Asp Leu Met Leu Lys Leu
                85   90   95

Phe Asp Ser Asn Asn Asp
            100

<210> 10475
<211> 271
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>
<221> source
<223> /note="Gene Name: calbindin 2; "

<220>

<221> source
<223> /note="Uniprot ID: P22676; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000307508"

<400> 10475
Met Ala Gly Pro Gln Gln Gln Pro Pro Tyr Leu His Leu Ala Glu Leu
1   5   10   15

Thr Ala Ser Gln Phe Leu Glu Ile Trp Lys His Phe Asp Ala Asp Gly
            20   25   30

Asn Gly Tyr Ile Glu Gly Lys Glu Leu Glu Asn Phe Phe Gln Glu Leu
        35   40   45

Glu Lys Ala Arg Lys Gly Ser Gly Met Met Ser Lys Ser Asp Asn Phe
    50   55   60

Gly Glu Lys Met Lys Glu Phe Met Gln Lys Tyr Asp Lys Asn Ser Asp
65   70   75   80

Gly Lys Ile Glu Met Ala Glu Leu Ala Gln Ile Leu Pro Thr Glu Glu
                85   90   95

Asn Phe Leu Leu Cys Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe
            100   105   110

Met Glu Ala Trp Arg Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu
        115   120   125

Ala Asn Glu Leu Lys Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn
    130   135   140

Arg Pro Tyr Asp Glu Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu
145   150   155   160

Arg Met Phe Asp Leu Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Met
                165   170   175

Ser Arg Leu Leu Pro Val Gln Glu Asn Phe Leu Leu Lys Phe Gln Gly
            180   185   190

Met Lys Leu Thr Ser Glu Glu Phe Asn Ala Ile Phe Thr Phe Tyr Asp

```
        195                 200                 205

Lys Asp Arg Ser Gly Tyr Ile Asp Glu His Glu Leu Asp Ala Leu Leu
    210                 215                 220

Lys Asp Leu Tyr Glu Lys Asn Lys Lys Glu Met Asn Ile Gln Gln Leu
225                 230                 235                 240

Thr Asn Tyr Arg Lys Ser Val Met Ser Leu Ala Glu Ala Gly Lys Leu
                245                 250                 255

Tyr Arg Lys Asp Leu Glu Ile Val Leu Cys Ser Glu Pro Pro Met
            260                 265                 270


<210> 10476
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>
<221> source
<223> /note="Gene Name: calbindin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000340294"

<400> 10476
Met Ala Gly Pro Gln Gln Gln Pro Pro Tyr Leu His Leu Ala Glu Leu
1               5                   10                  15

Thr Ala Ser Gln Phe Leu Glu Ile Trp Lys His Phe Asp Ala Asp Gly
            20                  25                  30

Asn Gly Tyr Ile Glu Gly Lys Glu Leu Glu Asn Phe Phe Gln Glu Leu
        35                  40                  45

Glu Lys Ala Arg Lys Gly Ser Gly Met Met Ser Lys Ser Asp Asn Phe
    50                  55                  60
```

```
Gly Glu Lys Met Lys Glu Phe Met Gln Lys Tyr Asp Lys Asn Ser Asp
65                  70                  75                  80

Gly Lys Ile Glu Met Ala Glu Leu Ala Gln Ile Leu Pro Thr Glu Glu
                85                  90                  95

Asn Phe Leu Leu Cys Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe
            100                 105                 110

Met Glu Ala Trp Arg Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu
        115                 120                 125

Ala Asn Glu Leu Lys Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn
    130                 135                 140

Arg Pro Tyr Asp Glu Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu
145                 150                 155                 160

Arg Met Phe Asp Leu Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Met
                165                 170                 175

Ser Arg Ile Glu Ala Ala Thr Leu Thr Ser Met Ser Trp Met Pro Phe
            180                 185                 190
```

<210> 10477
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>
<221> source
<223> /note="Gene Name: calbindin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454467"

<220>
<221> MOD_RES
<222> (1)..(1)

<223> Any amino acid

<400> 10477
Xaa Leu Glu Asn Phe Phe Gln Glu Leu Glu Lys Ala Arg Lys Gly Ser
1 5 10 15

Gly Met Leu Ala Gln Ile Leu Pro Thr Glu Glu Asn Phe Leu Leu Cys
20 25 30

Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe Met Glu Ala Trp Arg
35 40 45

Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu Ala Asn Glu Leu Lys
50 55 60

Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn Arg Pro Tyr Asp Glu
65 70 75 80

Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu Arg Met Phe Asp Leu
85 90 95

Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Ile Leu Leu Pro Val Gln
100 105 110

Glu Asn Phe Leu Leu Lys Phe Gln Gly Met Lys Leu Thr Ser Glu Glu
115 120 125

Phe Asn Ala Ile Phe Thr Phe Tyr Asp Lys Asp Arg Ser Gly Tyr Ile
130 135 140

Asp Glu His Glu Leu Asp Ala Leu Leu Lys Asp Leu Tyr Glu
145 150 155

<210> 10478
<211> 235
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>

<221> source
<223> /note="Gene Name: calbindin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454639"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10478
Xaa Ala Gly Pro Gln Gln Gln Pro Pro Tyr Leu His Leu Ala Glu Leu
1 5 10 15

Thr Ala Ser Gln Phe Leu Glu Ile Trp Lys His Phe Asp Ala Asp Gly
20 25 30

Asn Gly Tyr Ile Glu Gly Lys Glu Leu Glu Asn Phe Phe Gln Glu Leu
35 40 45

Glu Lys Ala Arg Lys Gly Ser Gly Met Met Ser Lys Ser Asp Asn Phe
50 55 60

Gly Glu Lys Met Lys Glu Phe Met Gln Lys Tyr Asp Lys Asn Ser Asp
65 70 75 80

Gly Lys Ile Glu Met Ala Glu Leu Ala Gln Ile Leu Pro Thr Glu Glu
85 90 95

Asn Phe Leu Leu Cys Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe
100 105 110

Met Glu Ala Trp Arg Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu
115 120 125

Ala Asn Glu Leu Lys Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn
130 135 140

Arg Pro Tyr Asp Glu Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu
145 150 155 160

Arg Met Phe Asp Leu Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Met
165 170 175

```
Ser Arg Leu Leu Pro Val Gln Glu Asn Phe Leu Leu Lys Phe Gln Gly
            180                 185                 190

Met Lys Leu Thr Ser Glu Glu Phe Asn Ala Ile Phe Thr Phe Tyr Asp
        195                 200                 205

Lys Glu Met Asn Ile Gln Gln Leu Thr Asn Tyr Arg Lys Ser Val Met
    210                 215                 220

Ser Leu Ala Glu Ala Gly Lys Leu Tyr Arg Lys
225                 230                 235


<210> 10479
<211> 271
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>
<221> source
<223> /note="Gene Name: Calbindin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000488916"

<400> 10479
Met Ala Gly Pro Gln Gln Gln Pro Pro Tyr Leu His Leu Ala Glu Leu
1               5                   10                  15

Thr Ala Ser Gln Phe Leu Glu Ile Trp Lys His Phe Asp Ala Asp Gly
            20                  25                  30

Asn Gly Tyr Ile Glu Gly Lys Glu Leu Glu Asn Phe Phe Gln Glu Leu
        35                  40                  45

Glu Lys Ala Arg Lys Gly Ser Gly Met Met Ser Lys Ser Asp Asn Phe
    50                  55                  60

Gly Glu Lys Met Lys Glu Phe Met Gln Lys Tyr Asp Lys Asn Ser Asp
65                  70                  75                  80
```

```
Gly Lys Ile Glu Met Ala Glu Leu Ala Gln Ile Leu Pro Thr Glu Glu
                85                  90                  95

Asn Phe Leu Leu Cys Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe
            100                 105                 110

Met Glu Ala Trp Arg Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu
        115                 120                 125

Ala Asn Glu Leu Lys Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn
    130                 135                 140

Arg Pro Tyr Asp Glu Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu
145                 150                 155                 160

Arg Met Phe Asp Leu Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Met
                165                 170                 175

Ser Arg Leu Leu Pro Val Gln Glu Asn Phe Leu Leu Lys Phe Gln Gly
            180                 185                 190

Met Lys Leu Thr Ser Glu Glu Phe Asn Ala Ile Phe Thr Phe Tyr Asp
        195                 200                 205

Lys Asp Arg Ser Gly Tyr Ile Asp Glu His Glu Leu Asp Ala Leu Leu
    210                 215                 220

Lys Asp Leu Tyr Glu Lys Asn Lys Lys Glu Met Asn Ile Gln Gln Leu
225                 230                 235                 240

Thr Asn Tyr Arg Lys Ser Val Met Ser Leu Ala Glu Ala Gly Lys Leu
                245                 250                 255

Tyr Arg Lys Asp Leu Glu Ile Val Leu Cys Ser Glu Pro Pro Met
            260                 265                 270
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<210> 10480
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>
<221> source
<223> /note="Gene Name: Calbindin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489007"

<400> 10480

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Met Ala Gly Pro Gln Gln Gln Pro Pro Tyr Leu His Leu Ala Glu Leu
1               5                  10                  15

Thr Ala Ser Gln Phe Leu Glu Ile Trp Lys His Phe Asp Ala Asp Gly
            20                  25                  30

Asn Gly Tyr Ile Glu Gly Lys Glu Leu Glu Asn Phe Phe Gln Glu Leu
        35                  40                  45

Glu Lys Ala Arg Lys Gly Ser Gly Met Met Ser Lys Ser Asp Asn Phe
    50                  55                  60

Gly Glu Lys Met Lys Glu Phe Met Gln Lys Tyr Asp Lys Asn Ser Asp
65                  70                  75                  80

Gly Lys Ile Glu Met Ala Glu Leu Ala Gln Ile Leu Pro Thr Glu Glu
                85                  90                  95

Asn Phe Leu Leu Cys Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe
            100                 105                 110

Met Glu Ala Trp Arg Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu
        115                 120                 125

Ala Asn Glu Leu Lys Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn
    130                 135                 140

Arg Pro Tyr Asp Glu Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu
145                 150                 155                 160

Arg Met Phe Asp Leu Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Met
                165                 170                 175
```

Ser Arg Ile Glu Ala Ala Thr Leu Thr Ser Met Ser Trp Met Pro Phe
180 185 190

<210> 10481
<211> 235
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>
<221> source
<223> /note="Gene Name: Calbindin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489176"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10481
Xaa Ala Gly Pro Gln Gln Gln Pro Pro Tyr Leu His Leu Ala Glu Leu
1 5 10 15

Thr Ala Ser Gln Phe Leu Glu Ile Trp Lys His Phe Asp Ala Asp Gly
20 25 30

Asn Gly Tyr Ile Glu Gly Lys Glu Leu Glu Asn Phe Phe Gln Glu Leu
35 40 45

Glu Lys Ala Arg Lys Gly Ser Gly Met Met Ser Lys Ser Asp Asn Phe
50 55 60

Gly Glu Lys Met Lys Glu Phe Met Gln Lys Tyr Asp Lys Asn Ser Asp
65 70 75 80

Gly Lys Ile Glu Met Ala Glu Leu Ala Gln Ile Leu Pro Thr Glu Glu
85 90 95

```
Asn Phe Leu Leu Cys Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe
            100                 105                 110

Met Glu Ala Trp Arg Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu
        115                 120                 125

Ala Asn Glu Leu Lys Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn
    130                 135                 140

Arg Pro Tyr Asp Glu Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu
145                 150                 155                 160

Arg Met Phe Asp Leu Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Met
                165                 170                 175

Ser Arg Leu Leu Pro Val Gln Glu Asn Phe Leu Leu Lys Phe Gln Gly
            180                 185                 190

Met Lys Leu Thr Ser Glu Glu Phe Asn Ala Ile Phe Thr Phe Tyr Asp
        195                 200                 205

Lys Glu Met Asn Ile Gln Gln Leu Thr Asn Tyr Arg Lys Ser Val Met
    210                 215                 220

Ser Leu Ala Glu Ala Gly Lys Leu Tyr Arg Lys
225                 230                 235


<210> 10482
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2096; "

<220>
<221> source
<223> /note="Gene Symbol: CALB2; "

<220>
<221> source
<223> /note="Gene Name: Calbindin 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000489458"
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10482
Xaa Leu Glu Asn Phe Phe Gln Glu Leu Glu Lys Ala Arg Lys Gly Ser
1 5 10 15

Gly Met Leu Ala Gln Ile Leu Pro Thr Glu Glu Asn Phe Leu Leu Cys
20 25 30

Phe Arg Gln His Val Gly Ser Ser Ala Glu Phe Met Glu Ala Trp Arg
35 40 45

Lys Tyr Asp Thr Asp Arg Ser Gly Tyr Ile Glu Ala Asn Glu Leu Lys
50 55 60

Gly Phe Leu Ser Asp Leu Leu Lys Lys Ala Asn Arg Pro Tyr Asp Glu
65 70 75 80

Pro Lys Leu Gln Glu Tyr Thr Gln Thr Ile Leu Arg Met Phe Asp Leu
85 90 95

Asn Gly Asp Gly Lys Leu Gly Leu Ser Glu Ile Leu Leu Pro Val Gln
100 105 110

Glu Asn Phe Leu Leu Lys Phe Gln Gly Met Lys Leu Thr Ser Glu Glu
115 120 125

Phe Asn Ala Ile Phe Thr Phe Tyr Asp Lys Asp Arg Ser Gly Tyr Ile
130 135 140

Asp Glu His Glu Leu Asp Ala Leu Leu Lys Asp Leu Tyr Glu
145 150 155

<210> 10483
<211> 2220
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2097; "

<220>
<221> source
<223> /note="Gene Symbol: CABIN1; "

<220>
<221> source
<223> /note="Gene Name: calcineurin binding
prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y6J0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000263119"

<400> 10483
Met Ile Arg Ile Ala Ala Leu Asn Ala Ser Ser Thr Ile Glu Asp Asp
1 5 10 15

His Glu Gly Ser Phe Lys Ser His Lys Thr Gln Thr Lys Glu Ala Gln
20 25 30

Glu Ala Glu Ala Phe Ala Leu Tyr His Lys Ala Leu Asp Leu Gln Lys
35 40 45

His Asp Arg Phe Glu Glu Ser Ala Lys Ala Tyr His Glu Leu Leu Glu
50 55 60

Ala Ser Leu Leu Arg Glu Ala Val Ser Ser Gly Asp Glu Lys Glu Gly
65 70 75 80

Leu Lys His Pro Gly Leu Ile Leu Lys Tyr Ser Thr Tyr Lys Asn Leu
85 90 95

Ala Gln Leu Ala Ala Gln Arg Glu Asp Leu Glu Thr Ala Met Glu Phe
100 105 110

Tyr Leu Glu Ala Val Met Leu Asp Ser Thr Asp Val Asn Leu Trp Tyr
115 120 125

Lys Ile Gly His Val Ala Leu Arg Leu Ile Arg Ile Pro Leu Ala Arg
130 135 140

His Ala Phe Glu Glu Gly Leu Arg Cys Asn Pro Asp His Trp Pro Cys
145 150 155 160

```
Leu Asp Asn Leu Ile Thr Val Leu Tyr Thr Leu Ser Asp Tyr Thr Thr
                165                 170                 175

Cys Leu Tyr Phe Ile Cys Lys Ala Leu Glu Lys Asp Cys Arg Tyr Ser
            180                 185                 190

Lys Gly Leu Val Leu Lys Glu Lys Ile Phe Glu Glu Gln Pro Cys Leu
        195                 200                 205

Arg Lys Asp Ser Leu Arg Met Phe Leu Lys Cys Asp Met Ser Ile His
    210                 215                 220

Asp Val Ser Val Ser Ala Ala Glu Thr Gln Ala Ile Val Asp Glu Ala
225                 230                 235                 240

Leu Gly Leu Arg Lys Lys Arg Gln Ala Leu Ile Val Arg Glu Lys Glu
                245                 250                 255

Pro Asp Leu Lys Leu Val Gln Pro Ile Pro Phe Phe Thr Trp Lys Cys
            260                 265                 270

Leu Gly Glu Ser Leu Leu Ala Met Tyr Asn His Leu Thr Thr Cys Glu
        275                 280                 285

Pro Pro Arg Pro Ser Leu Gly Lys Arg Ile Asp Leu Ser Asp Tyr Gln
    290                 295                 300

Asp Pro Ser Gln Pro Leu Glu Ser Ser Met Val Val Thr Pro Val Asn
305                 310                 315                 320

Val Ile Gln Pro Ser Thr Val Ser Thr Asn Pro Ala Val Ala Val Ala
                325                 330                 335

Glu Pro Val Val Ser Tyr Thr Ser Val Ala Thr Thr Ser Phe Pro Leu
            340                 345                 350

His Ser Pro Gly Leu Leu Glu Thr Gly Ala Pro Val Gly Asp Ile Ser
        355                 360                 365

Gly Gly Asp Lys Ser Lys Lys Gly Val Lys Arg Lys Lys Ile Ser Glu
    370                 375                 380
```

```
Glu Ser Gly Glu Thr Ala Lys Arg Arg Ser Ala Arg Val Arg Asn Thr
385                 390                 395                 400

Lys Cys Lys Lys Glu Glu Lys Val Asp Phe Gln Glu Leu Leu Met Lys
                405                 410                 415

Phe Leu Pro Ser Arg Leu Arg Lys Leu Asp Pro Glu Glu Glu Asp Asp
            420                 425                 430

Ser Phe Asn Asn Tyr Glu Val Gln Ser Glu Ala Lys Leu Glu Ser Phe
        435                 440                 445

Pro Ser Ile Gly Pro Gln Arg Leu Ser Phe Asp Ser Ala Thr Phe Met
    450                 455                 460

Glu Ser Glu Lys Gln Asp Val His Glu Phe Leu Leu Glu Asn Leu Thr
465                 470                 475                 480

Asn Gly Gly Ile Leu Glu Leu Met Met Arg Tyr Leu Lys Ala Met Gly
                485                 490                 495

His Lys Phe Leu Val Arg Trp Pro Pro Gly Leu Ala Glu Val Val Leu
            500                 505                 510

Ser Val Tyr His Ser Trp Arg Arg His Ser Thr Ser Leu Pro Asn Pro
        515                 520                 525

Leu Leu Arg Asp Cys Ser Asn Lys His Ile Lys Asp Met Met Leu Met
    530                 535                 540

Ser Leu Ser Cys Met Glu Leu Gln Leu Asp Gln Trp Leu Leu Thr Lys
545                 550                 555                 560

Gly Arg Ser Ser Ala Val Ser Pro Arg Asn Cys Pro Ala Gly Met Val
                565                 570                 575

Asn Gly Arg Phe Gly Pro Asp Phe Pro Gly Thr His Cys Leu Gly Asp
            580                 585                 590

Leu Leu Gln Leu Ser Phe Ala Ser Ser Gln Arg Asp Leu Phe Glu Asp
        595                 600                 605

Gly Trp Leu Glu Phe Val Val Arg Val Tyr Trp Leu Lys Ala Arg Phe
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610 615 620

Leu Ala Leu Gln Gly Asp Met Glu Gln Ala Leu Glu Asn Tyr Asp Ile
625 630 635 640

Cys Thr Glu Met Leu Gln Ser Ser Thr Ala Ile Gln Val Glu Ala Gly
645 650 655

Ala Glu Arg Arg Asp Ile Val Ile Arg Leu Pro Asn Leu His Asn Asp
660 665 670

Ser Val Val Ser Leu Glu Glu Ile Asp Lys Asn Leu Lys Ser Leu Glu
675 680 685

Arg Cys Gln Ser Leu Glu Glu Ile Gln Arg Leu Tyr Glu Ala Gly Asp
690 695 700

Tyr Lys Ala Val Val His Leu Leu Arg Pro Thr Leu Cys Thr Ser Gly
705 710 715 720

Phe Asp Arg Ala Lys His Leu Glu Phe Met Thr Ser Ile Pro Glu Arg
725 730 735

Pro Ala Gln Leu Leu Leu Leu Gln Asp Ser Leu Leu Arg Leu Lys Asp
740 745 750

Tyr Arg Gln Cys Phe Glu Cys Ser Asp Val Ala Leu Asn Glu Ala Val
755 760 765

Gln Gln Met Val Asn Ser Gly Glu Ala Ala Ala Lys Glu Glu Trp Val
770 775 780

Ala Thr Val Thr Gln Leu Leu Met Gly Ile Glu Gln Ala Leu Ser Ala
785 790 795 800

Asp Ser Ser Gly Ser Ile Leu Lys Val Ser Ser Ser Thr Thr Gly Leu
805 810 815

Val Arg Leu Thr Asn Asn Leu Ile Gln Val Ile Asp Cys Ser Met Ala
820 825 830

Val Gln Glu Glu Ala Lys Glu Pro His Val Ser Ser Val Leu Pro Trp
835 840 845

```
Ile Ile Leu His Arg Ile Ile Trp Gln Glu Glu Asp Thr Phe His Ser
    850                 855                 860

Leu Cys His Gln Gln Gln Leu Gln Asn Pro Ala Glu Glu Gly Met Ser
865                 870                 875                 880

Glu Thr Pro Met Leu Pro Ser Ser Leu Met Leu Leu Asn Thr Ala His
                885                 890                 895

Glu Tyr Leu Gly Arg Arg Ser Trp Cys Cys Asn Ser Asp Gly Ala Leu
            900                 905                 910

Leu Arg Phe Tyr Val Arg Val Leu Gln Lys Glu Leu Ala Ala Ser Thr
        915                 920                 925

Ser Glu Asp Thr His Pro Tyr Lys Glu Glu Leu Glu Thr Ala Leu Glu
    930                 935                 940

Gln Cys Phe Tyr Cys Leu Tyr Ser Phe Pro Ser Lys Lys Ser Lys Ala
945                 950                 955                 960

Arg Tyr Leu Glu Glu His Ser Ala Gln Gln Val Asp Leu Ile Trp Glu
                965                 970                 975

Asp Ala Leu Phe Met Phe Glu Tyr Phe Lys Pro Lys Thr Leu Pro Glu
            980                 985                 990

Phe Asp Ser Tyr Lys Thr Ser Thr  Val Ser Ala Asp Leu  Ala Asn
Leu
        995                 1000                1005

Leu Lys  Arg Ile Ala Thr Ile  Val Pro Arg Thr Glu  Arg Pro Ala
    1010                1015                1020

Leu Ser  Leu Asp Lys Val Ser  Ala Tyr Ile Glu Gly  Thr Ser Thr
    1025                1030                1035

Glu Val  Pro Cys Leu Pro Glu  Gly Ala Asp Pro Ser  Pro Pro Val
    1040                1045                1050

Val Asn  Glu Leu Tyr Tyr Leu  Leu Ala Asp Tyr His  Phe Lys Asn
    1055                1060                1065
```

```
Lys Glu  Gln Ser Lys Ala Ile  Lys Phe Tyr Met His  Asp Ile Cys
    1070                1075                1080

Ile Cys  Pro Asn Arg Phe Asp  Ser Trp Ala Gly Met  Ala Leu Ala
    1085                1090                1095

Arg Ala  Ser Arg Ile Gln Asp  Lys Leu Asn Ser Asn  Glu Leu Lys
    1100                1105                1110

Ser Asp  Gly Pro Ile Trp Lys  His Ala Thr Pro Val  Leu Asn Cys
    1115                1120                1125

Phe Arg  Arg Ala Leu Glu Ile  Asp Ser Ser Asn Leu  Ser Leu Trp
    1130                1135                1140

Ile Glu  Tyr Gly Thr Met Ser  Tyr Ala Leu His Ser  Phe Ala Ser
    1145                1150                1155

Arg Gln  Leu Lys Gln Trp Arg  Gly Glu Leu Pro Pro  Glu Leu Val
    1160                1165                1170

Gln Gln  Met Glu Gly Arg Arg  Asp Ser Met Leu Glu  Thr Ala Lys
    1175                1180                1185

His Cys  Phe Thr Ser Ala Ala  Arg Cys Glu Gly Asp  Gly Asp Glu
    1190                1195                1200

Glu Glu  Trp Leu Ile His Tyr  Met Leu Gly Lys Val  Ala Glu Lys
    1205                1210                1215

Gln Gln  Gln Pro Pro Thr Val  Tyr Leu Leu His Tyr  Arg Gln Ala
    1220                1225                1230

Gly His  Tyr Leu His Glu Glu  Ala Ala Arg Tyr Pro  Lys Lys Ile
    1235                1240                1245

His Tyr  His Asn Pro Pro Glu  Leu Ala Met Glu Ala  Leu Glu Val
    1250                1255                1260

Tyr Phe  Arg Leu His Ala Ser  Ile Leu Lys Leu Leu  Gly Lys Pro
    1265                1270                1275
```

```
Asp Ser  Gly Val Gly Ala Glu  Val Leu Val Asn Phe  Met Lys Glu
    1280                1285                1290

Ala Ala  Glu Gly Pro Phe Ala  Arg Gly Glu Glu Lys  Asn Thr Pro
    1295                1300                1305

Lys Ala  Ser Glu Lys Glu Lys  Ala Cys Leu Val Asp  Glu Asp Ser
    1310                1315                1320

His Ser  Ser Ala Gly Thr Leu  Pro Gly Pro Gly Ala  Ser Leu Pro
    1325                1330                1335

Ser Ser  Ser Gly Pro Gly Leu  Thr Ser Pro Pro Tyr  Thr Ala Thr
    1340                1345                1350

Pro Ile  Asp His Asp Tyr Val  Lys Cys Lys Lys Pro  His Gln Gln
    1355                1360                1365

Ala Thr  Pro Asp Asp Arg Ser  Gln Asp Ser Thr Ala  Val Ala Leu
    1370                1375                1380

Ser Asp  Ser Ser Ser Thr Gln  Asp Phe Phe Asn Glu  Pro Thr Ser
    1385                1390                1395

Leu Leu  Glu Gly Ser Arg Lys  Ser Tyr Thr Glu Lys  Arg Leu Pro
    1400                1405                1410

Ile Leu  Ser Ser Gln Ala Gly  Ala Thr Gly Lys Asp  Leu Gln Gly
    1415                1420                1425

Ala Thr  Glu Glu Arg Gly Lys  Asn Glu Glu Ser Leu  Glu Ser Thr
    1430                1435                1440

Glu Gly  Phe Arg Ala Ala Glu  Gln Gly Val Gln Lys  Pro Ala Ala
    1445                1450                1455

Glu Thr  Pro Ala Ser Ala Cys  Ile Pro Gly Lys Pro  Ser Ala Ser
    1460                1465                1470

Thr Pro  Thr Leu Trp Asp Gly  Lys Lys Arg Gly Asp  Leu Pro Gly
    1475                1480                1485
```

```
Glu Pro  Val Ala Phe Pro Gln  Gly Leu Pro Ala Gly  Ala Glu Glu
    1490                1495                1500

Gln Arg  Gln Phe Leu Thr Glu  Gln Cys Ile Ala Ser  Phe Arg Leu
    1505                1510                1515

Cys Leu  Ser Arg Phe Pro Gln  His Tyr Lys Ser Leu  Tyr Arg Leu
    1520                1525                1530

Ala Phe  Leu Tyr Thr Tyr Ser  Lys Thr His Arg Asn  Leu Gln Trp
    1535                1540                1545

Ala Arg  Asp Val Leu Leu Gly  Ser Ser Ile Pro Trp  Gln Gln Leu
    1550                1555                1560

Gln His  Met Pro Ala Gln Gly  Leu Phe Cys Glu Arg  Asn Lys Thr
    1565                1570                1575

Asn Phe  Phe Asn Gly Ile Trp  Arg Ile Pro Val Asp  Glu Ile Asp
    1580                1585                1590

Arg Pro  Gly Ser Phe Ala Trp  His Met Asn Arg Ser  Ile Val Leu
    1595                1600                1605

Leu Leu  Lys Val Leu Ala Gln  Leu Arg Asp His Ser  Thr Leu Leu
    1610                1615                1620

Lys Val  Ser Ser Met Leu Gln  Arg Thr Pro Asp Gln  Gly Lys Lys
    1625                1630                1635

Tyr Leu  Arg Asp Ala Asp Arg  Gln Val Leu Ala Gln  Arg Ala Phe
    1640                1645                1650

Ile Leu  Thr Val Lys Val Leu  Glu Asp Thr Leu Ser  Glu Leu Ala
    1655                1660                1665

Glu Gly  Ser Glu Arg Pro Gly  Pro Lys Val Cys Gly  Leu Pro Gly
    1670                1675                1680

Ala Arg  Met Thr Thr Asp Val  Ser His Lys Ala Ser  Pro Glu Asp
    1685                1690                1695

Gly Gln  Glu Gly Leu Pro Gln  Pro Lys Lys Pro Pro  Leu Ala Asp
```

1700 1705 1710

Gly Ser Gly Pro Gly Pro Glu Pro Gly Gly Lys Val Gly Leu Leu
1715 1720 1725

Asn His Arg Pro Val Ala Met Asp Ala Gly Asp Ser Ala Asp Gln
1730 1735 1740

Ser Gly Glu Arg Lys Asp Lys Glu Ser Pro Arg Ala Gly Pro Thr
1745 1750 1755

Glu Pro Met Asp Thr Ser Glu Ala Thr Val Cys His Ser Asp Leu
1760 1765 1770

Glu Arg Thr Pro Pro Leu Leu Pro Gly Arg Pro Ala Arg Asp Arg
1775 1780 1785

Gly Pro Glu Ser Arg Pro Thr Glu Leu Ser Leu Glu Glu Leu Ser
1790 1795 1800

Ile Ser Ala Arg Gln Gln Pro Thr Pro Leu Thr Pro Ala Gln Pro
1805 1810 1815

Ala Pro Ala Pro Ala Pro Ala Thr Thr Thr Gly Thr Arg Ala Gly
1820 1825 1830

Gly His Pro Glu Glu Pro Leu Ser Arg Leu Ser Arg Lys Arg Lys
1835 1840 1845

Leu Leu Glu Asp Thr Glu Ser Gly Lys Thr Leu Leu Leu Asp Ala
1850 1855 1860

Tyr Arg Val Trp Gln Gln Gly Gln Lys Gly Val Ala Tyr Asp Leu
1865 1870 1875

Gly Arg Val Glu Arg Ile Met Ser Glu Thr Tyr Met Leu Ile Lys
1880 1885 1890

Gln Val Asp Glu Glu Ala Ala Leu Glu Gln Ala Val Lys Phe Cys
1895 1900 1905

Gln Val His Leu Gly Ala Ala Ala Gln Arg Gln Ala Ser Gly Asp
1910 1915 1920

```
Thr Pro  Thr Thr Pro Lys His  Pro Lys Asp Ser Arg  Glu Asn Phe
    1925                1930                1935

Phe Pro  Val Thr Val Val Pro  Thr Ala Pro Asp Pro  Val Pro Ala
    1940                1945                1950

Asp Ser  Val Gln Arg Pro Ser  Asp Ala His Thr Lys  Pro Arg Pro
    1955                1960                1965

Ala Leu  Ala Ala Ala Thr Thr  Ile Ile Thr Cys Pro  Pro Ser Ala
    1970                1975                1980

Ser Ala  Ser Thr Leu Asp Gln  Ser Lys Asp Pro Gly  Pro Pro Arg
    1985                1990                1995

Pro His  Arg Pro Glu Ala Thr  Pro Ser Met Ala Ser  Leu Gly Pro
    2000                2005                2010

Glu Gly  Glu Glu Leu Ala Arg  Val Ala Glu Gly Thr  Ser Phe Pro
    2015                2020                2025

Pro Gln  Glu Pro Arg His Ser  Pro Gln Val Lys Met  Ala Pro Thr
    2030                2035                2040

Ser Ser  Pro Ala Glu Pro His  Cys Trp Pro Ala Glu  Ala Ala Leu
    2045                2050                2055

Gly Thr  Gly Ala Glu Pro Thr  Cys Ser Gln Glu Gly  Lys Leu Arg
    2060                2065                2070

Pro Glu  Pro Arg Arg Asp Gly  Glu Ala Gln Glu Ala  Ala Ser Glu
    2075                2080                2085

Thr Gln  Pro Leu Ser Ser Pro  Pro Thr Ala Ala Ser  Ser Lys Ala
    2090                2095                2100

Pro Ser  Ser Gly Ser Ala Gln  Pro Pro Glu Gly His  Pro Gly Lys
    2105                2110                2115

Pro Glu  Pro Ser Arg Ala Lys  Ser Arg Pro Leu Pro  Asn Met Pro
    2120                2125                2130
```

```
Lys Leu  Val Ile Pro Ser Ala  Ala Thr Lys Phe Pro  Pro Glu Ile
    2135                2140                2145


Thr Val  Thr Pro Pro Thr Pro  Thr Leu Leu Ser Pro  Lys Gly Ser
    2150                2155                2160


Ile Ser  Glu Glu Thr Lys Gln  Lys Leu Lys Ser Ala  Ile Leu Ser
    2165                2170                2175


Ala Gln  Ser Ala Ala Asn Val  Arg Lys Glu Ser Leu  Cys Gln Pro
    2180                2185                2190


Ala Leu  Glu Val Leu Glu Thr  Ser Ser Gln Glu Ser  Ser Leu Glu
    2195                2200                2205


Ser Glu  Thr Asp Glu Asp Asp  Asp Tyr Met Asp Ile
    2210                2215                2220


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Met Pro Arg Arg Ser Arg Arg Gly Ile Trp Arg Ile Pro Val Asp Glu
1               5                  10                  15


Ile Asp Arg Pro Gly Ser Phe Ala Trp His Met Asn Arg Ser Ile Val
            20                  25                  30


Leu Leu Leu Lys Val Leu Ala Gln Leu Arg Asp His Ser Thr Leu Leu
```

```
        35                  40                  45

Lys Val Ser Ser Met Leu Gln Arg Thr Pro Asp Gln Gly Lys Lys Tyr
    50                  55                  60

Leu Arg Asp Ala Asp Arg Gln Val Leu Ala Gln Arg Ala Phe Ile Leu
65                  70                  75                  80

Thr Val Lys Val Leu Glu Asp Thr Leu Ser Glu Leu Ala Glu Gly Ser
                85                  90                  95

Glu Arg Pro Gly Pro Lys Val Cys Gly Leu Pro Gly Ala Arg Met Thr
            100                 105                 110

Thr Asp Val Ser His Lys Ala Ser Pro Glu Asp Gly Gln Glu Gly Leu
        115                 120                 125

Pro Gln Pro Lys Lys Pro Pro Leu Ala Asp Gly Ser Gly Pro Gly Pro
    130                 135                 140

Glu Pro Gly Gly Lys Val Gly Leu Leu Asn His Arg Pro Val Ala Met
145                 150                 155                 160

Asp Ala Gly Asp Ser Ala Asp Gln Ser Gly Glu Arg Lys Asp Lys Glu
                165                 170                 175

Ser Pro Arg Ala Gly Pro Thr Glu Pro Met Asp Thr Ser Glu Ala Thr
            180                 185                 190

Val Cys His Ser Asp Leu Glu Arg Thr Pro Pro Leu Leu Pro Gly Arg
        195                 200                 205

Pro Ala Arg Asp Arg Gly Pro Glu Ser Arg Pro Thr Glu Leu Ser Leu
    210                 215                 220

Glu Glu Leu Ser Ile Ser Ala Arg Gln Gln Pro Thr Pro Leu Thr Pro
225                 230                 235                 240

Ala Gln Pro Ala Pro Ala Pro Ala Pro Ala Thr Thr Thr Gly Thr Arg
                245                 250                 255

Ala Gly Gly His Pro Glu Glu Pro Leu Ser Arg Leu Ser Arg Lys Arg
            260                 265                 270
```

```
Lys Leu Leu Glu Asp Thr Glu Ser Gly Lys Thr Leu Leu Leu Asp Ala
        275                 280                 285

Tyr Arg Val Trp Gln Gln Gly Gln Lys Gly Val Ala Tyr Asp Leu Gly
    290                 295                 300

Arg Val Glu Arg Ile Met Ser Glu Thr Tyr Met Leu Ile Lys Gln Val
305                 310                 315                 320

Asp Glu Glu Ala Ala Leu Glu Gln Ala Val Lys Phe Cys Gln Val His
                325                 330                 335

Leu Gly Ala Ala Ala Gln Arg Gln Ala Ser Gly Asp Thr Pro Thr Thr
            340                 345                 350

Pro Lys His Pro Lys Asp Ser Arg Glu Asn Phe Phe Pro Val Thr Val
        355                 360                 365

Val Pro Thr Ala Pro Asp Pro Val Pro Ala Asp Ser Val Gln Arg Pro
    370                 375                 380

Ser Asp Ala His Thr Lys Pro Arg Pro Ala Leu Ala Ala Ala Thr Thr
385                 390                 395                 400

Ile Ile Thr Cys Pro Pro Ser Ala Ser Ala Ser Thr Leu Asp Gln Ser
                405                 410                 415

Lys Asp Pro Gly Pro Pro Arg Pro His Arg Pro Glu Ala Thr Pro Ser
            420                 425                 430

Met Ala Ser Leu Gly Pro Glu Gly Lys Leu Arg Pro Glu Pro Arg Arg
        435                 440                 445

Asp Gly Glu Ala Gln Glu Ala Ala Ser Glu Thr Gln Pro Leu Ser Ser
    450                 455                 460

Pro Pro Thr Ala Ala Ser Ser Lys Ala Pro Ser Ser Gly Ser Ala Gln
465                 470                 475                 480

Pro Pro Glu Gly His Pro Gly Lys Pro Glu Pro Ser Arg Ala Lys Ser
                485                 490                 495
```

```
Arg Pro Leu Pro Asn Met Pro Lys Leu Val Ile Pro Ser Ala Ala Thr
            500                 505                 510

Lys Phe Pro Pro Glu Ile Thr Val Thr Pro Pro Thr Pro Thr Leu Leu
        515                 520                 525

Ser Pro Lys Gly Ser Ile Ser Glu Glu Thr Lys Gln Lys Leu Lys Ser
    530                 535                 540

Ala Ile Leu Ser Ala Gln Ser Ala Ala Asn Val Arg Lys Glu Ser Leu
545                 550                 555                 560

Cys Gln Pro Ala Leu Glu Val Leu Glu Thr Ser Ser Gln Glu Ser Ser
                565                 570                 575

Leu Glu Ser Glu Thr Asp Glu Asp Asp Asp Tyr Met Asp Ile
            580                 585                 590


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Met Ile Arg Ile Ala Ala Leu Asn Ala Ser Ser Thr Ile Glu Asp Asp
1               5                   10                  15

His Glu Gly Ser Phe Lys Ser His Lys Thr Gln Thr Lys Glu Ala Gln
```

```
            20                  25                  30

Glu Ala Glu Ala Phe Ala Leu Tyr His Lys Ala Leu Asp Leu Gln Lys
        35                  40                  45

His Asp Arg Phe Glu Glu Ser Ala Lys Ala Tyr His Glu Leu Leu Glu
    50                  55                  60

Ala Ser Leu Leu Arg Glu Ala Val Ser Ser Gly Asp Glu Lys Glu Gly
65                  70                  75                  80

Leu Lys His Pro Gly Leu Ile Leu Lys Tyr Ser Thr Tyr Lys Asn Leu
                85                  90                  95

Ala Gln Leu Ala Ala Gln Arg Glu Asp Leu Glu Thr Ala Met Glu Phe
            100                 105                 110

Tyr Leu Glu Ala Val Met Leu Asp Ser Thr Asp Val Asn Leu Trp Tyr
        115                 120                 125

Lys Ile Gly His Val Ala Leu Arg Leu Ile Arg Ile Pro Leu Ala Arg
    130                 135                 140

His Ala Phe Glu Glu Gly Leu Arg Cys Asn Pro Asp His Trp Pro Cys
145                 150                 155                 160

Leu Asp Asn Leu Ile Thr Val Leu Tyr Thr Leu Ser Asp Tyr Thr Thr
                165                 170                 175

Cys Leu Tyr Phe Ile Cys Lys Ala Leu Glu Lys Asp Cys Arg Tyr Ser
            180                 185                 190

Lys Gly Leu Val Leu Lys Glu Lys Ile Phe Glu Glu Gln Pro Cys Leu
        195                 200                 205

Arg Lys Asp Ser Leu Arg Met Phe Leu Lys Cys Asp Met Ser Ile His
    210                 215                 220

Asp Val Ser Val Ser Ala Ala Glu Thr Gln Ala Ile Val Asp Glu Ala
225                 230                 235                 240

Leu Gly Leu Arg Lys Lys Arg Gln Ala Leu Ile Val Arg Glu Lys Glu
                245                 250                 255
```

```
Pro Asp Leu Lys Leu Val Gln Pro Ile Pro Phe Phe Thr Trp Lys Cys
            260                 265                 270

Leu Gly Glu Ser Leu Leu Ala Met Tyr Asn His Leu Thr Thr Cys Glu
        275                 280                 285

Pro Pro Arg Pro Ser Leu Gly Lys Arg Ile Asp Leu Ser Asp Tyr Gln
    290                 295                 300

Asp Pro Ser Gln Pro Leu Glu Ser Ser Met Val Val Thr Pro Val Asn
305                 310                 315                 320

Val Ile Gln Pro Ser Thr Val Ser Thr Asn Pro Ala Val Ala Val Ala
                325                 330                 335

Glu Pro Val Val Ser Tyr Thr Ser Val Ala Thr Thr Ser Phe Pro Leu
            340                 345                 350

His Ser Pro Gly Leu Leu Glu Thr Gly Ala Pro Val Gly Asp Ile Ser
        355                 360                 365

Gly Gly Asp Lys Ser Lys Lys Gly Val Lys Arg Lys Lys Ile Ser Glu
    370                 375                 380

Glu Ser Gly Glu Thr Ala Lys Arg Arg Ser Ala Arg Val Arg Asn Thr
385                 390                 395                 400

Lys Cys Lys Lys Glu Glu Lys Val Asp Phe Gln Glu Leu Leu Met Lys
                405                 410                 415

Phe Leu Pro Ser Arg Leu Arg Lys Leu Asp Pro Glu Glu Glu Asp Asp
            420                 425                 430

Ser Phe Asn Asn Tyr Glu Val Gln Ser Glu Ala Lys Leu Glu Ser Phe
        435                 440                 445

Pro Ser Ile Gly Pro Gln Arg Leu Ser Phe Asp Ser Ala Thr Phe Met
    450                 455                 460

Glu Ser Glu Lys Gln Asp Val His Glu Phe Leu Leu Glu Asn Leu Thr
465                 470                 475                 480
```

```
Asn Gly Gly Ile Leu Glu Leu Met Met Arg Tyr Leu Lys Ala Met Gly
                485                 490                 495

His Lys Phe Leu Val Arg Trp Pro Pro Gly Leu Ala Glu Val Val Leu
            500                 505                 510

Ser Val Tyr His Ser Trp Arg Arg His Ser Thr Ser Leu Pro Asn Pro
        515                 520                 525

Leu Leu Arg Asp Cys Ser Asn Lys His Ile Lys Asp Met Met Leu Met
    530                 535                 540

Ser Leu Ser Cys Met Glu Leu Gln Leu Asp Gln Trp Leu Leu Thr Lys
545                 550                 555                 560

Gly Arg Ser Ser Ala Val Ser Pro Arg Asn Cys Pro Ala Gly Met Val
                565                 570                 575

Asn Gly Arg Phe Gly Pro Asp Phe Pro Gly Thr His Cys Leu Gly Asp
            580                 585                 590

Leu Leu Gln Leu Ser Phe Ala Ser Ser Gln Arg Asp Leu Phe Glu Asp
        595                 600                 605

Gly Trp Leu Glu Phe Val Val Arg Val Tyr Trp Leu Lys Ala Arg Phe
    610                 615                 620

Leu Ala Leu Gln Gly Asp Met Glu Gln Ala Leu Glu Asn Tyr Asp Ile
625                 630                 635                 640

Cys Thr Glu Met Leu Gln Ser Ser Thr Ala Ile Gln Val Glu Ala Gly
                645                 650                 655

Ala Glu Arg Arg Asp Ile Val Ile Arg Leu Pro Asn Leu His Asn Asp
            660                 665                 670

Ser Val Val Ser Leu Glu Glu Ile Asp Lys Asn Leu Lys Ser Leu Glu
        675                 680                 685

Arg Cys Gln Ser Leu Glu Glu Ile Gln Arg Leu Tyr Glu Ala Gly Asp
    690                 695                 700
```

```
Tyr Lys Ala Val Val His Leu Leu Arg Pro Thr Leu Cys Thr Ser Gly
705                 710                 715                 720

Phe Asp Arg Ala Lys His Leu Glu Phe Met Thr Ser Ile Pro Glu Arg
                725                 730                 735

Pro Ala Gln Leu Leu Leu Leu Gln Asp Ser Leu Leu Arg Leu Lys Asp
            740                 745                 750

Tyr Arg Gln Cys Phe Glu Cys Ser Asp Val Ala Leu Asn Glu Ala Val
        755                 760                 765

Gln Gln Met Val Asn Ser Gly Glu Ala Ala Ala Lys Glu Glu Trp Val
    770                 775                 780

Ala Thr Val Thr Gln Leu Leu Met Gly Ile Glu Gln Ala Leu Ser Ala
785                 790                 795                 800

Asp Ser Ser Gly Ser Ile Leu Lys Val Ser Ser Ser Thr Thr Gly Leu
                805                 810                 815

Val Arg Leu Thr Asn Asn Leu Ile Gln Val Ile Asp Cys Ser Met Ala
            820                 825                 830

Val Gln Glu Glu Ala Lys Glu Pro His Val Ser Ser Val Leu Pro Trp
        835                 840                 845

Ile Ile Leu His Arg Ile Ile Trp Gln Glu Glu Asp Thr Phe His Ser
    850                 855                 860

Leu Cys His Gln Gln Gln Leu Gln Asn Pro Ala Glu Glu Gly Met Ser
865                 870                 875                 880

Glu Thr Pro Met Leu Pro Ser Ser Leu Met Leu Leu Asn Thr Ala His
                885                 890                 895

Glu Tyr Leu Gly Arg Arg Ser Trp Cys Cys Asn Ser Asp Gly Ala Leu
            900                 905                 910

Leu Arg Phe Tyr Val Arg Val Leu Gln Lys Glu Leu Ala Ala Ser Thr
        915                 920                 925

Ser Glu Asp Thr His Pro Tyr Lys Glu Glu Leu Glu Thr Ala Leu Glu
```

```
    930                 935                 940

Gln Cys Phe Tyr Cys Leu Tyr Ser Phe Pro Ser Lys Lys Ser Lys Ala
945                 950                 955                 960

Arg Tyr Leu Glu Glu His Ser Ala Gln Gln Val Asp Leu Ile Trp Glu
                965                 970                 975

Asp Ala Leu Phe Met Phe Glu Tyr Phe Lys Pro Lys Thr Leu Pro Glu
            980                 985                 990

Phe Asp Ser Tyr Lys Thr Ser Thr  Val Ser Ala Asp Leu  Ala Asn
Leu
        995                 1000                1005

Leu Lys  Arg Ile Ala Thr Ile  Val Pro Arg Thr Glu  Arg Pro Ala
    1010                1015                1020

Leu Ser  Leu Asp Lys Val Ser  Ala Tyr Ile Glu Gly  Thr Ser Thr
    1025                1030                1035

Glu Val  Pro Cys Leu Pro Glu  Gly Ala Asp Pro Ser  Pro Pro Val
    1040                1045                1050

Val Asn  Glu Leu Tyr Tyr Leu  Leu Ala Asp Tyr His  Phe Lys Asn
    1055                1060                1065

Lys Glu  Gln Ser Lys Ala Ile  Lys Phe Tyr Met His  Asp Ile Cys
    1070                1075                1080

Ile Cys  Pro Asn Arg Phe Asp  Ser Trp Ala Gly Met  Ala Leu Ala
    1085                1090                1095

Arg Ala  Ser Arg Ile Gln Asp  Lys Leu Asn Ser Asn  Glu Leu Lys
    1100                1105                1110

Ser Asp  Gly Pro Ile Trp Lys  His Ala Thr Pro Val  Leu Asn Cys
    1115                1120                1125

Phe Arg  Arg Ala Leu Glu Ile  Asp Ser Ser Asn Leu  Ser Leu Trp
    1130                1135                1140

Ile Glu  Tyr Gly Thr Met Ser  Tyr Ala Leu His Ser  Phe Ala Ser
```

1145 1150 1155

Arg Gln Leu Lys Gln Trp Arg Gly Glu Leu Pro Pro Glu Leu Val
1160 1165 1170

Gln Gln Met Glu Gly Arg Arg Asp Ser Met Leu Glu Thr Ala Lys
1175 1180 1185

His Cys Phe Thr Ser Ala Ala Arg Cys Glu Gly Asp Gly Asp Glu
1190 1195 1200

Glu Glu Trp Leu Ile His Tyr Met Leu Gly Lys Val Ala Glu Lys
1205 1210 1215

Gln Gln Gln Pro Pro Thr Val Tyr Leu Leu His Tyr Arg Gln Ala
1220 1225 1230

Gly His Tyr Leu His Glu Glu Ala Ala Arg Tyr Pro Lys Lys Ile
1235 1240 1245

His Tyr His Asn Pro Pro Glu Leu Ala Met Glu Ala Leu Glu Val
1250 1255 1260

Tyr Phe Arg Leu His Ala Ser Ile Leu Lys Leu Leu Gly Lys Pro
1265 1270 1275

Asp Ser Gly Val Gly Ala Glu Val Leu Val Asn Phe Met Lys Glu
1280 1285 1290

Ala Ala Glu Gly Pro Phe Ala Arg Gly Glu Glu Lys Asn Thr Pro
1295 1300 1305

Lys Ala Ser Glu Lys Glu Lys Ala Cys Leu Val Asp Glu Asp Ser
1310 1315 1320

His Ser Ser Ala Gly Thr Leu Pro Gly Pro Gly Ala Ser Leu Pro
1325 1330 1335

Ser Ser Ser Gly Pro Gly Leu Thr Ser Pro Pro Tyr Thr Ala Thr
1340 1345 1350

Pro Ile Asp His Asp Tyr Val Lys Cys Lys Lys Pro His Gln Gln
1355 1360 1365

```
Ala Thr  Pro Asp Asp Arg Ser  Gln Asp Ser Thr Ala  Val Ala Leu
    1370                1375                1380

Ser Asp  Ser Ser Ser Thr Gln  Asp Phe Phe Asn Glu  Pro Thr Ser
    1385                1390                1395

Leu Leu  Glu Gly Ser Arg Lys  Ser Tyr Thr Glu Lys  Arg Leu Pro
    1400                1405                1410

Ile Leu  Ser Ser Gln Ala Gly  Ala Thr Gly Lys Asp  Leu Gln Gly
    1415                1420                1425

Ala Thr  Glu Glu Arg Gly Lys  Asn Glu Glu Ser Leu  Glu Ser Thr
    1430                1435                1440

Glu Gly  Phe Arg Ala Ala Glu  Gln Gly Val Gln Lys  Pro Ala Ala
    1445                1450                1455

Glu Thr  Pro Ala Ser Ala Cys  Ile Pro Gly Lys Pro  Ser Ala Ser
    1460                1465                1470

Thr Pro  Thr Leu Trp Asp Gly  Lys Lys Arg Gly Asp  Leu Pro Gly
    1475                1480                1485

Glu Pro  Val Ala Phe Pro Gln  Gly Leu Pro Ala Gly  Ala Glu Glu
    1490                1495                1500

Gln Arg  Gln Phe Leu Thr Glu  Gln Cys Ile Ala Ser  Phe Arg Leu
    1505                1510                1515

Cys Leu  Ser Arg Phe Pro Gln  His Tyr Lys Ser Leu  Tyr Arg Leu
    1520                1525                1530

Ala Phe  Leu Tyr Thr Tyr Ser  Lys Thr His Arg Asn  Leu Gln Trp
    1535                1540                1545

Ala Arg  Asp Val Leu Leu Gly  Ser Ser Ile Pro Trp  Gln Gln Leu
    1550                1555                1560

Gln His  Met Pro Ala Gln Gly  Leu Phe Cys Glu Arg  Asn Lys Thr
    1565                1570                1575
```

```
Asn Phe  Phe Asn Gly Ile Trp  Arg Ile Pro Val Asp  Glu Ile Asp
    1580                1585                1590

Arg Pro  Gly Ser Phe Ala Trp  His Met Asn Arg Ser  Ile Val Leu
    1595                1600                1605

Leu Leu  Lys Val Leu Ala Gln  Leu Arg Asp His Ser  Thr Leu Leu
    1610                1615                1620

Lys Val  Ser Ser Met Leu Gln  Arg Thr Pro Asp Gln  Gly Lys Lys
    1625                1630                1635

Tyr Leu  Arg Asp Ala Asp Arg  Gln Val Leu Ala Gln  Arg Ala Phe
    1640                1645                1650

Ile Leu  Thr Val Lys Val Leu  Glu Asp Thr Leu Ser  Glu Leu Ala
    1655                1660                1665

Glu Gly  Ser Glu Arg Pro Gly  Pro Lys Val Cys Gly  Leu Pro Gly
    1670                1675                1680

Ala Arg  Met Thr Thr Asp Val  Ser His Lys Ala Ser  Pro Glu Asp
    1685                1690                1695

Gly Gln  Glu Gly Leu Pro Gln  Pro Lys Lys Pro Pro  Leu Ala Asp
    1700                1705                1710

Gly Ser  Gly Pro Gly Pro Glu  Pro Gly Gly Lys Val  Gly Leu Leu
    1715                1720                1725

Asn His  Arg Pro Val Ala Met  Asp Ala Gly Asp Ser  Ala Asp Gln
    1730                1735                1740

Ser Gly  Glu Arg Lys Asp Lys  Glu Ser Pro Arg Ala  Gly Pro Thr
    1745                1750                1755

Glu Pro  Met Asp Thr Ser Glu  Ala Thr Val Cys His  Ser Asp Leu
    1760                1765                1770

Glu Arg  Thr Pro Pro Leu Leu  Pro Gly Arg Pro Ala  Arg Asp Arg
    1775                1780                1785
```

```
Gly Pro  Glu Ser Arg Pro Thr  Glu Leu Ser Leu Glu  Glu Leu Ser
    1790                 1795                 1800

Ile Ser  Ala Arg Gln Gln Pro  Thr Pro Leu Thr Pro  Ala Gln Pro
    1805                 1810                 1815

Ala Pro  Ala Pro Ala Pro Ala  Thr Thr Thr Gly Thr  Arg Ala Gly
    1820                 1825                 1830

Gly His  Pro Glu Glu Pro Leu  Ser Arg Leu Ser Arg  Lys Arg Lys
    1835                 1840                 1845

Leu Leu  Glu Asp Thr Glu Ser  Gly Lys Thr Leu Leu  Leu Asp Ala
    1850                 1855                 1860

Tyr Arg  Val Trp Gln Gln Gly  Gln Lys Gly Val Ala  Tyr Asp Leu
    1865                 1870                 1875

Gly Arg  Val Glu Arg Ile Met  Ser Glu Thr Tyr Met  Leu Ile Lys
    1880                 1885                 1890

Gln Val  Asp Glu Glu Ala Ala  Leu Glu Gln Ala Val  Lys Phe Cys
    1895                 1900                 1905

Gln Val  His Leu Gly Ala Ala  Ala Gln Arg Gln Ala  Ser Gly Asp
    1910                 1915                 1920

Thr Pro  Thr Thr Pro Lys His  Pro Lys Asp Ser Arg  Glu Asn Phe
    1925                 1930                 1935

Phe Pro  Val Thr Val Val Pro  Thr Ala Pro Asp Pro  Val Pro Ala
    1940                 1945                 1950

Asp Ser  Val Gln Arg Pro Ser  Asp Ala His Thr Lys  Pro Arg Pro
    1955                 1960                 1965

Ala Leu  Ala Ala Ala Thr Thr  Ile Ile Thr Cys Pro  Pro Ser Ala
    1970                 1975                 1980

Ser Ala  Ser Thr Leu Asp Gln  Ser Lys Asp Pro Gly  Pro Pro Arg
    1985                 1990                 1995

Pro His  Arg Pro Glu Ala Thr  Pro Ser Met Ala Ser  Leu Gly Pro
```

2000 2005 2010

Glu Gly Glu Glu Leu Ala Arg Val Ala Glu Gly Thr Ser Phe Pro
2015 2020 2025

Pro Gln Glu Pro Arg His Ser Pro Gln Val Lys Met Ala Pro Thr
2030 2035 2040

Ser Ser Pro Ala Glu Pro His Cys Trp Pro Ala Glu Ala Ala Leu
2045 2050 2055

Gly Thr Gly Ala Glu Pro Thr Cys Ser Gln Glu Gly Lys Leu Arg
2060 2065 2070

Pro Glu Pro Arg Arg Asp Gly Glu Ala Gln Glu Ala Ala Ser Glu
2075 2080 2085

Thr Gln Pro Leu Ser Ser Pro Pro Thr Ala Ala Ser Ser Lys Ala
2090 2095 2100

Pro Ser Ser Gly Ser Ala Gln Pro Pro Glu Gly His Pro Gly Lys
2105 2110 2115

Pro Glu Pro Ser Arg Ala Lys Ser Arg Pro Leu Pro Asn Met Pro
2120 2125 2130

Lys Leu Val Ile Pro Ser Ala Ala Thr Lys Phe Pro Pro Glu Ile
2135 2140 2145

Thr Val Thr Pro Pro Thr Pro Thr Leu Leu Ser Pro Lys Gly Ser
2150 2155 2160

Ile Ser Glu Glu Thr Lys Gln Lys Leu Lys Ser Ala Ile Leu Ser
2165 2170 2175

Ala Gln Ser Ala Ala Asn Val Arg Lys Glu Ser Leu Cys Gln Pro
2180 2185 2190

Ala Leu Glu Val Leu Glu Thr Ser Ser Gln Glu Ser Ser Leu Glu
2195 2200 2205

Ser Glu Thr Asp Glu Asp Asp Asp Tyr Met Asp Ile
2210 2215 2220

<210> 10486
<211> 2141
<212> PRT
<213> Homo sapiens

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Met Ile Arg Ile Ala Ala Leu Asn Ala Ser Ser Thr Ile Glu Asp Asp
1   5   10   15

His Glu Gly Ser Phe Lys Ser His Lys Thr Gln Thr Lys Glu Ala Gln
            20   25   30

Glu Ala Glu Ala Phe Ala Leu Tyr His Lys Ala Leu Asp Leu Gln Lys
        35   40   45

His Asp Arg Phe Glu Glu Ser Ala Lys Ala Tyr His Glu Leu Leu Glu
    50   55   60

Ala Ser Leu Leu Arg Glu Ala Val Ser Ser Gly Asp Glu Lys Glu Gly
65   70   75   80

Leu Lys His Pro Gly Leu Ile Leu Lys Tyr Ser Thr Tyr Lys Asn Leu
                85   90   95

Ala Gln Leu Ala Ala Gln Arg Glu Asp Leu Glu Thr Ala Met Glu Phe
            100   105   110

```
Tyr Leu Glu Ala Val Met Leu Asp Ser Thr Asp Val Asn Leu Trp Tyr
        115                 120                 125

Lys Ile Gly His Val Ala Leu Arg Leu Ile Arg Ile Pro Leu Ala Arg
    130                 135                 140

His Ala Phe Glu Glu Gly Leu Arg Cys Asn Pro Asp His Trp Pro Cys
145                 150                 155                 160

Leu Asp Asn Leu Ile Thr Val Leu Tyr Thr Leu Ser Asp Tyr Thr Thr
                165                 170                 175

Cys Leu Tyr Phe Ile Cys Lys Ala Leu Glu Lys Asp Cys Arg Tyr Ser
            180                 185                 190

Lys Gly Leu Val Leu Lys Glu Lys Ile Phe Glu Glu Gln Pro Cys Leu
        195                 200                 205

Arg Lys Asp Ser Leu Arg Met Phe Leu Lys Cys Trp Lys Cys Leu Gly
    210                 215                 220

Glu Ser Leu Leu Ala Met Tyr Asn His Leu Thr Thr Cys Glu Pro Pro
225                 230                 235                 240

Arg Pro Ser Leu Gly Lys Arg Ile Asp Leu Ser Asp Tyr Gln Asp Pro
                245                 250                 255

Ser Gln Pro Leu Glu Ser Ser Met Val Val Thr Pro Val Asn Val Ile
            260                 265                 270

Gln Pro Ser Thr Val Ser Thr Asn Pro Ala Val Ala Val Ala Glu Pro
        275                 280                 285

Val Val Ser Tyr Thr Ser Val Ala Thr Thr Ser Phe Pro Leu His Ser
    290                 295                 300

Pro Gly Leu Leu Glu Thr Gly Ala Pro Val Gly Asp Ile Ser Gly Gly
305                 310                 315                 320

Asp Lys Ser Lys Lys Gly Val Lys Arg Lys Lys Ile Ser Glu Glu Ser
                325                 330                 335

Gly Glu Thr Ala Lys Arg Arg Ser Ala Arg Val Arg Asn Thr Lys Cys
```

```
            340                 345                 350

Lys Lys Glu Glu Lys Val Asp Phe Gln Glu Leu Leu Met Lys Phe Leu
        355                 360                 365

Pro Ser Arg Leu Arg Lys Leu Asp Pro Glu Glu Glu Asp Asp Ser Phe
    370                 375                 380

Asn Asn Tyr Glu Val Gln Ser Glu Ala Lys Leu Glu Ser Phe Pro Ser
385                 390                 395                 400

Ile Gly Pro Gln Arg Leu Ser Phe Asp Ser Ala Thr Phe Met Glu Ser
                405                 410                 415

Glu Lys Gln Asp Val His Glu Phe Leu Leu Glu Asn Leu Thr Asn Gly
            420                 425                 430

Gly Ile Leu Glu Leu Met Met Arg Tyr Leu Lys Ala Met Gly His Lys
        435                 440                 445

Phe Leu Val Arg Trp Pro Pro Gly Leu Ala Glu Val Val Leu Ser Val
    450                 455                 460

Tyr His Ser Trp Arg Arg His Ser Thr Ser Leu Pro Asn Pro Leu Leu
465                 470                 475                 480

Arg Asp Cys Ser Asn Lys His Ile Lys Asp Met Met Leu Met Ser Leu
                485                 490                 495

Ser Cys Met Glu Leu Gln Leu Asp Gln Trp Leu Leu Thr Lys Gly Arg
            500                 505                 510

Ser Ser Ala Val Ser Pro Arg Asn Cys Pro Ala Gly Met Val Asn Gly
        515                 520                 525

Arg Phe Gly Pro Asp Phe Pro Gly Thr His Cys Leu Gly Asp Leu Leu
    530                 535                 540

Gln Leu Ser Phe Ala Ser Ser Gln Arg Asp Leu Phe Glu Asp Gly Trp
545                 550                 555                 560

Leu Glu Phe Val Val Arg Val Tyr Trp Leu Lys Ala Arg Phe Leu Ala
                565                 570                 575
```

```
Leu Gln Gly Asp Met Glu Gln Ala Leu Glu Asn Tyr Asp Ile Cys Thr
            580                 585                 590

Glu Met Leu Gln Ser Ser Thr Ala Ile Gln Val Glu Ala Gly Ala Glu
        595                 600                 605

Arg Arg Asp Ile Val Ile Arg Leu Pro Asn Leu His Asn Asp Ser Val
    610                 615                 620

Val Ser Leu Glu Glu Ile Asp Lys Asn Leu Lys Ser Leu Glu Arg Cys
625                 630                 635                 640

Gln Ser Leu Glu Glu Ile Gln Arg Leu Tyr Glu Ala Gly Asp Tyr Lys
                645                 650                 655

Ala Val Val His Leu Leu Arg Pro Thr Leu Cys Thr Ser Gly Phe Asp
            660                 665                 670

Arg Ala Lys His Leu Glu Phe Met Thr Ser Ile Pro Glu Arg Pro Ala
        675                 680                 685

Gln Leu Leu Leu Leu Gln Asp Ser Leu Leu Arg Leu Lys Asp Tyr Arg
    690                 695                 700

Gln Cys Phe Glu Cys Ser Asp Val Ala Leu Asn Glu Ala Val Gln Gln
705                 710                 715                 720

Met Val Asn Ser Gly Glu Ala Ala Ala Lys Glu Glu Trp Val Ala Thr
                725                 730                 735

Val Thr Gln Leu Leu Met Gly Ile Glu Gln Ala Leu Ser Ala Asp Ser
            740                 745                 750

Ser Gly Ser Ile Leu Lys Val Ser Ser Ser Thr Thr Gly Leu Val Arg
        755                 760                 765

Leu Thr Asn Asn Leu Ile Gln Val Ile Asp Cys Ser Met Ala Val Gln
    770                 775                 780

Glu Glu Ala Lys Glu Pro His Val Ser Ser Val Leu Pro Trp Ile Ile
785                 790                 795                 800
```

```
Leu His Arg Ile Ile Trp Gln Glu Glu Asp Thr Phe His Ser Leu Cys
                805                 810                 815

His Gln Gln Gln Leu Gln Asn Pro Ala Glu Glu Gly Met Ser Glu Thr
            820                 825                 830

Pro Met Leu Pro Ser Ser Leu Met Leu Leu Asn Thr Ala His Glu Tyr
        835                 840                 845

Leu Gly Arg Arg Ser Trp Cys Cys Asn Ser Asp Gly Ala Leu Leu Arg
    850                 855                 860

Phe Tyr Val Arg Val Leu Gln Lys Glu Leu Ala Ala Ser Thr Ser Glu
865                 870                 875                 880

Asp Thr His Pro Tyr Lys Glu Glu Leu Glu Thr Ala Leu Glu Gln Cys
                885                 890                 895

Phe Tyr Cys Leu Tyr Ser Phe Pro Ser Lys Lys Ser Lys Ala Arg Tyr
            900                 905                 910

Leu Glu Glu His Ser Ala Gln Gln Val Asp Leu Ile Trp Glu Asp Ala
        915                 920                 925

Leu Phe Met Phe Glu Tyr Phe Lys Pro Lys Thr Leu Pro Glu Phe Asp
    930                 935                 940

Ser Tyr Lys Thr Ser Thr Val Ser Ala Asp Leu Ala Asn Leu Leu Lys
945                 950                 955                 960

Arg Ile Ala Thr Ile Val Pro Arg Thr Glu Arg Pro Ala Leu Ser Leu
                965                 970                 975

Asp Lys Val Ser Ala Tyr Ile Glu Gly Thr Ser Thr Glu Val Pro Cys
            980                 985                 990

Leu Pro Glu Gly Ala Asp Pro Ser  Pro Pro Val Val Asn  Glu Leu
Tyr
        995                 1000                1005

Tyr Leu  Leu Ala Asp Tyr His  Phe Lys Asn Lys Glu  Gln Ser Lys
    1010                1015                1020
```

Ala Ile Lys Phe Tyr Met His Asp Ile Cys Ile Cys Pro Asn Arg
1025 1030 1035

Phe Asp Ser Trp Ala Gly Met Ala Leu Ala Arg Ala Ser Arg Ile
1040 1045 1050

Gln Asp Lys Leu Asn Ser Asn Glu Leu Lys Ser Asp Gly Pro Ile
1055 1060 1065

Trp Lys His Ala Thr Pro Val Leu Asn Cys Phe Arg Arg Ala Leu
1070 1075 1080

Glu Ile Asp Ser Ser Asn Leu Ser Leu Trp Ile Glu Tyr Gly Thr
1085 1090 1095

Met Ser Tyr Ala Leu His Ser Phe Ala Ser Arg Gln Leu Lys Gln
1100 1105 1110

Trp Arg Gly Glu Leu Pro Pro Glu Leu Val Gln Gln Met Glu Gly
1115 1120 1125

Arg Arg Asp Ser Met Leu Glu Thr Ala Lys His Cys Phe Thr Ser
1130 1135 1140

Ala Ala Arg Cys Glu Gly Asp Gly Asp Glu Glu Glu Trp Leu Ile
1145 1150 1155

His Tyr Met Leu Gly Lys Val Ala Glu Lys Gln Gln Gln Pro Pro
1160 1165 1170

Thr Val Tyr Leu Leu His Tyr Arg Gln Ala Gly His Tyr Leu His
1175 1180 1185

Glu Glu Ala Ala Arg Tyr Pro Lys Lys Ile His Tyr His Asn Pro
1190 1195 1200

Pro Glu Leu Ala Met Glu Ala Leu Glu Val Tyr Phe Arg Leu His
1205 1210 1215

Ala Ser Ile Leu Lys Leu Leu Gly Lys Pro Asp Ser Gly Val Gly
1220 1225 1230

```
Ala Glu  Val Leu Val Asn Phe  Met Lys Glu Ala Ala  Glu Gly Pro
    1235                1240                1245

Phe Ala  Arg Gly Glu Glu Lys  Asn Thr Pro Lys Ala  Ser Glu Lys
    1250                1255                1260

Glu Lys  Ala Cys Leu Val Asp  Glu Asp Ser His Ser  Ser Ala Gly
    1265                1270                1275

Thr Leu  Pro Gly Pro Gly Ala  Ser Leu Pro Ser Ser  Ser Gly Pro
    1280                1285                1290

Asp Arg  Ser Gln Asp Ser Thr  Ala Val Ala Leu Ser  Asp Ser Ser
    1295                1300                1305

Ser Thr  Gln Asp Phe Phe Asn  Glu Pro Thr Ser Leu  Leu Glu Gly
    1310                1315                1320

Ser Arg  Lys Ser Tyr Thr Glu  Lys Arg Leu Pro Ile  Leu Ser Ser
    1325                1330                1335

Gln Ala  Gly Ala Thr Gly Lys  Asp Leu Gln Gly Ala  Thr Glu Glu
    1340                1345                1350

Arg Gly  Lys Asn Glu Glu Ser  Leu Glu Ser Thr Glu  Gly Phe Arg
    1355                1360                1365

Ala Ala  Glu Gln Gly Val Gln  Lys Pro Ala Ala Glu  Thr Pro Ala
    1370                1375                1380

Ser Ala  Cys Ile Pro Gly Lys  Pro Ser Ala Ser Thr  Pro Thr Leu
    1385                1390                1395

Trp Asp  Gly Lys Lys Arg Gly  Asp Leu Pro Gly Glu  Pro Val Ala
    1400                1405                1410

Phe Pro  Gln Gly Leu Pro Ala  Gly Ala Glu Glu Gln  Arg Gln Phe
    1415                1420                1425

Leu Thr  Glu Gln Cys Ile Ala  Ser Phe Arg Leu Cys  Leu Ser Arg
    1430                1435                1440

Phe Pro  Gln His Tyr Lys Ser  Leu Tyr Arg Leu Ala  Phe Leu Tyr
```

1445 1450 1455

Thr Tyr Ser Lys Thr His Arg Asn Leu Gln Trp Ala Arg Asp Val
1460 1465 1470

Leu Leu Gly Ser Ser Ile Pro Trp Gln Gln Leu Gln His Met Pro
1475 1480 1485

Ala Gln Gly Leu Phe Cys Glu Arg Asn Lys Thr Asn Phe Phe Asn
1490 1495 1500

Gly Ile Trp Arg Ile Pro Val Asp Glu Ile Asp Arg Pro Gly Ser
1505 1510 1515

Phe Ala Trp His Met Asn Arg Ser Ile Val Leu Leu Leu Lys Val
1520 1525 1530

Leu Ala Gln Leu Arg Asp His Ser Thr Leu Leu Lys Val Ser Ser
1535 1540 1545

Met Leu Gln Arg Thr Pro Asp Gln Gly Lys Lys Tyr Leu Arg Asp
1550 1555 1560

Ala Asp Arg Gln Val Leu Ala Gln Arg Ala Phe Ile Leu Thr Val
1565 1570 1575

Lys Val Leu Glu Asp Thr Leu Ser Glu Leu Ala Glu Gly Ser Glu
1580 1585 1590

Arg Pro Gly Pro Lys Val Cys Gly Leu Pro Gly Ala Arg Met Thr
1595 1600 1605

Thr Asp Val Ser His Lys Ala Ser Pro Glu Asp Gly Gln Glu Gly
1610 1615 1620

Leu Pro Gln Pro Lys Lys Pro Pro Leu Ala Asp Gly Ser Gly Pro
1625 1630 1635

Gly Pro Glu Pro Gly Gly Lys Val Gly Leu Leu Asn His Arg Pro
1640 1645 1650

Val Ala Met Asp Ala Gly Asp Ser Ala Asp Gln Ser Gly Glu Arg
1655 1660 1665

```
Lys Asp  Lys Glu Ser Pro Arg  Ala Gly Pro Thr Glu  Pro Met Asp
    1670                1675                1680

Thr Ser  Glu Ala Thr Val Cys  His Ser Asp Leu Glu  Arg Thr Pro
    1685                1690                1695

Pro Leu  Leu Pro Gly Arg Pro  Ala Arg Asp Arg Gly  Pro Glu Ser
    1700                1705                1710

Arg Pro  Thr Glu Leu Ser Leu  Glu Glu Leu Ser Ile  Ser Ala Arg
    1715                1720                1725

Gln Gln  Pro Thr Pro Leu Thr  Pro Ala Gln Pro Ala  Pro Ala Pro
    1730                1735                1740

Ala Pro  Ala Thr Thr Thr Gly  Thr Arg Ala Gly Gly  His Pro Glu
    1745                1750                1755

Glu Pro  Leu Ser Arg Leu Ser  Arg Lys Arg Lys Leu  Leu Glu Asp
    1760                1765                1770

Thr Glu  Ser Gly Lys Thr Leu  Leu Leu Asp Ala Tyr  Arg Val Trp
    1775                1780                1785

Gln Gln  Gly Gln Lys Gly Val  Ala Tyr Asp Leu Gly  Arg Val Glu
    1790                1795                1800

Arg Ile  Met Ser Glu Thr Tyr  Met Leu Ile Lys Gln  Val Asp Glu
    1805                1810                1815

Glu Ala  Ala Leu Glu Gln Ala  Val Lys Phe Cys Gln  Val His Leu
    1820                1825                1830

Gly Ala  Ala Ala Gln Arg Gln  Ala Ser Gly Asp Thr  Pro Thr Thr
    1835                1840                1845

Pro Lys  His Pro Lys Asp Ser  Arg Glu Asn Phe Phe  Pro Val Thr
    1850                1855                1860

Val Val  Pro Thr Ala Pro Asp  Pro Val Pro Ala Asp  Ser Val Gln
    1865                1870                1875
```

```
Arg Pro  Ser Asp Ala His Thr  Lys Pro Arg Pro Ala  Leu Ala Ala
    1880                1885                1890

Ala Thr  Thr Ile Ile Thr Cys  Pro Pro Ser Ala Ser  Ala Ser Thr
    1895                1900                1905

Leu Asp  Gln Ser Lys Asp Pro  Gly Pro Pro Arg Pro  His Arg Pro
    1910                1915                1920

Glu Ala  Thr Pro Ser Met Ala  Ser Leu Gly Pro Glu  Gly Glu Glu
    1925                1930                1935

Leu Ala  Arg Val Ala Glu Gly  Thr Ser Phe Pro Pro  Gln Glu Pro
    1940                1945                1950

Arg His  Ser Pro Gln Val Lys  Met Ala Pro Thr Ser  Ser Pro Ala
    1955                1960                1965

Glu Pro  His Cys Trp Pro Ala  Glu Ala Ala Leu Gly  Thr Gly Ala
    1970                1975                1980

Glu Pro  Thr Cys Ser Gln Glu  Gly Lys Leu Arg Pro  Glu Pro Arg
    1985                1990                1995

Arg Asp  Gly Glu Ala Gln Glu  Ala Ala Ser Glu Thr  Gln Pro Leu
    2000                2005                2010

Ser Ser  Pro Pro Thr Ala Ala  Ser Ser Lys Ala Pro  Ser Ser Gly
    2015                2020                2025

Ser Ala  Gln Pro Pro Glu Gly  His Pro Gly Lys Pro  Glu Pro Ser
    2030                2035                2040

Arg Ala  Lys Ser Arg Pro Leu  Pro Asn Met Pro Lys  Leu Val Ile
    2045                2050                2055

Pro Ser  Ala Ala Thr Lys Phe  Pro Pro Glu Ile Thr  Val Thr Pro
    2060                2065                2070

Pro Thr  Pro Thr Leu Leu Ser  Pro Lys Gly Ser Ile  Ser Glu Glu
    2075                2080                2085
```

```
Thr Lys  Gln Lys Leu Lys Ser  Ala Ile Leu Ser Ala  Gln Ser Ala
    2090                2095                2100


Ala Asn  Val Arg Lys Glu Ser  Leu Cys Gln Pro Ala  Leu Glu Val
    2105                2110                2115


Leu Glu  Thr Ser Ser Gln Glu  Ser Ser Leu Glu Ser  Glu Thr Asp
    2120                2125                2130


Glu Asp  Asp Asp Tyr Met Asp  Ile
    2135                2140


<210> 10487
<211> 357
<212> PRT
<213> Homo sapiens

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Met Ile Arg Ile Ala Ala Leu Asn Ala Ser Ser Thr Ile Glu Asp Asp
1               5                  10                  15


His Glu Gly Ser Phe Lys Ser His Lys Thr Gln Thr Lys Glu Ala Gln
            20                  25                  30


Glu Ala Glu Ala Phe Ala Leu Tyr His Lys Ala Leu Asp Leu Gln Lys
        35                  40                  45


His Asp Arg Phe Glu Glu Ser Ala Lys Ala Tyr His Glu Leu Leu Glu
    50                  55                  60


Ala Ser Leu Leu Arg Glu Ala Val Met Leu Asp Ser Thr Asp Val Asn
65                  70                  75                  80
```

```
Leu Trp Tyr Lys Ile Gly His Val Ala Leu Arg Leu Ile Arg Ile Pro
                85                  90                  95

Leu Ala Arg His Ala Phe Glu Glu Gly Leu Arg Cys Asn Pro Asp His
            100                 105                 110

Trp Pro Cys Leu Asp Asn Leu Ile Thr Val Leu Tyr Thr Leu Ser Asp
        115                 120                 125

Tyr Thr Thr Cys Leu Tyr Phe Ile Cys Lys Ala Leu Glu Lys Asp Cys
    130                 135                 140

Arg Tyr Ser Lys Gly Leu Val Leu Lys Glu Lys Ile Phe Glu Glu Gln
145                 150                 155                 160

Pro Cys Leu Arg Lys Asp Ser Leu Arg Met Phe Leu Lys Cys Asp Met
                165                 170                 175

Ser Ile His Asp Val Ser Val Ser Ala Ala Glu Thr Gln Ala Ile Val
            180                 185                 190

Asp Glu Ala Leu Gly Leu Arg Lys Lys Arg Gln Ala Leu Ile Val Arg
        195                 200                 205

Glu Lys Glu Pro Asp Leu Lys Leu Val Gln Pro Ile Pro Phe Phe Thr
    210                 215                 220

Trp Lys Cys Leu Gly Glu Ser Leu Leu Ala Met Tyr Asn His Leu Thr
225                 230                 235                 240

Thr Cys Glu Pro Pro Arg Pro Ser Leu Gly Lys Arg Ile Asp Leu Ser
                245                 250                 255

Asp Tyr Gln Asp Pro Ser Gln Pro Leu Glu Ser Ser Met Val Val Thr
            260                 265                 270

Pro Val Asn Val Ile Gln Pro Ser Thr Val Ser Thr Asn Pro Ala Val
        275                 280                 285

Ala Val Ala Glu Pro Val Val Ser Tyr Thr Ser Val Ala Thr Thr Ser
    290                 295                 300
```

```
Phe Pro Leu His Ser Pro Gly Leu Leu Glu Thr Gly Ala Pro Val Gly
305                 310                 315                 320

Asp Ile Ser Gly Gly Asp Lys Ser Lys Lys Gly Val Lys Arg Lys Lys
                325                 330                 335

Ile Ser Glu Glu Ser Gly Glu Thr Ala Lys Arg Arg Ser Ala Arg Val
            340                 345                 350

Arg Asn Thr Lys Cys
        355
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<210> 10488
<211> 361
<212> PRT
<213> Homo sapiens

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<400> 10488

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Met Ile Arg Ile Ala Ala Leu Asn Ala Ser Ser Thr Ile Glu Asp Asp
1               5                   10                  15

His Glu Gly Ser Phe Lys Ser His Lys Thr Gln Thr Lys Glu Ala Gln
            20                  25                  30

Glu Ala Glu Ala Phe Ala Leu Tyr His Lys Ala Leu Asp Leu Gln Lys
        35                  40                  45

His Asp Arg Phe Glu Glu Ser Ala Lys Ala Tyr His Glu Leu Leu Glu
    50                  55                  60

Ala Ser Leu Leu Arg Glu Ala Val Met Leu Asp Ser Thr Asp Val Asn
```

65 70 75 80

Leu Trp Tyr Lys Ile Gly His Val Ala Leu Arg Leu Ile Arg Ile Pro
85 90 95

Leu Ala Arg His Ala Phe Glu Glu Gly Leu Arg Cys Asn Pro Asp His
100 105 110

Trp Pro Cys Leu Asp Asn Leu Ile Thr Val Leu Tyr Thr Leu Ser Asp
115 120 125

Tyr Thr Thr Cys Leu Tyr Phe Ile Cys Lys Ala Leu Glu Lys Asp Cys
130 135 140

Arg Tyr Ser Lys Gly Leu Val Leu Lys Glu Lys Ile Phe Glu Glu Gln
145 150 155 160

Pro Cys Leu Arg Lys Asp Ser Leu Arg Met Phe Leu Lys Cys Asp Met
165 170 175

Ser Ile His Asp Val Ser Val Ser Ala Ala Glu Thr Gln Ala Ile Val
180 185 190

Asp Glu Ala Leu Gly Leu Arg Lys Lys Arg Gln Ala Leu Ile Val Arg
195 200 205

Glu Lys Glu Pro Asp Leu Lys Leu Val Gln Pro Ile Pro Phe Phe Thr
210 215 220

Trp Lys Cys Leu Gly Glu Ser Leu Leu Ala Met Tyr Asn His Leu Thr
225 230 235 240

Thr Cys Glu Pro Pro Arg Pro Ser Leu Gly Lys Arg Ile Asp Leu Ser
245 250 255

Asp Tyr Gln Asp Pro Ser Gln Pro Leu Glu Ser Ser Met Val Val Thr
260 265 270

Pro Val Asn Val Ile Gln Pro Ser Thr Val Ser Thr Asn Pro Ala Val
275 280 285

Ala Val Ala Glu Pro Val Val Ser Tyr Thr Ser Val Ala Thr Thr Ser
290 295 300

```
Phe Pro Leu His Ser Pro Gly Leu Leu Glu Thr Gly Ala Pro Val Gly
305                 310                 315                 320

Asp Ile Ser Gly Gly Asp Lys Ser Lys Lys Gly Val Lys Arg Lys Lys
                325                 330                 335

Ile Ser Glu Glu Ser Gly Glu Thr Ala Lys Arg Arg Ser Ala Arg Val
            340                 345                 350

Arg Asn Thr Lys Cys Lys Lys Glu Glu
        355                 360


<210> 10489
<211> 2170
<212> PRT
<213> Homo sapiens

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<400> 10489
Met Ile Arg Ile Ala Ala Leu Asn Ala Ser Ser Thr Ile Glu Asp Asp
1               5                   10                  15

His Glu Gly Ser Phe Lys Ser His Lys Thr Gln Thr Lys Glu Ala Gln
            20                  25                  30

Glu Ala Glu Ala Phe Ala Leu Tyr His Lys Ala Leu Asp Leu Gln Lys
        35                  40                  45

His Asp Arg Phe Glu Glu Ser Ala Lys Ala Tyr His Glu Leu Leu Glu
    50                  55                  60
```

```
Ala Ser Leu Leu Arg Glu Ala Val Ser Ser Gly Asp Glu Lys Glu Gly
65                  70                  75                  80

Leu Lys His Pro Gly Leu Ile Leu Lys Tyr Ser Thr Tyr Lys Asn Leu
                85                  90                  95

Ala Gln Leu Ala Ala Gln Arg Glu Asp Leu Glu Thr Ala Met Glu Phe
            100                 105                 110

Tyr Leu Glu Ala Val Met Leu Asp Ser Thr Asp Val Asn Leu Trp Tyr
        115                 120                 125

Lys Ile Gly His Val Ala Leu Arg Leu Ile Arg Ile Pro Leu Ala Arg
    130                 135                 140

His Ala Phe Glu Glu Gly Leu Arg Cys Asn Pro Asp His Trp Pro Cys
145                 150                 155                 160

Leu Asp Asn Leu Ile Thr Val Leu Tyr Thr Leu Ser Asp Tyr Thr Thr
                165                 170                 175

Cys Leu Tyr Phe Ile Cys Lys Ala Leu Glu Lys Asp Cys Arg Tyr Ser
            180                 185                 190

Lys Gly Leu Val Leu Lys Glu Lys Ile Phe Glu Glu Gln Pro Cys Leu
        195                 200                 205

Arg Lys Asp Ser Leu Arg Met Phe Leu Lys Cys Trp Lys Cys Leu Gly
    210                 215                 220

Glu Ser Leu Leu Ala Met Tyr Asn His Leu Thr Thr Cys Glu Pro Pro
225                 230                 235                 240

Arg Pro Ser Leu Gly Lys Arg Ile Asp Leu Ser Asp Tyr Gln Asp Pro
                245                 250                 255

Ser Gln Pro Leu Glu Ser Ser Met Val Val Thr Pro Val Asn Val Ile
            260                 265                 270

Gln Pro Ser Thr Val Ser Thr Asn Pro Ala Val Ala Val Ala Glu Pro
        275                 280                 285

Val Val Ser Tyr Thr Ser Val Ala Thr Thr Ser Phe Pro Leu His Ser
```

290 295 300

Pro Gly Leu Leu Glu Thr Gly Ala Pro Val Gly Asp Ile Ser Gly Gly
305 310 315 320

Asp Lys Ser Lys Lys Gly Val Lys Arg Lys Lys Ile Ser Glu Glu Ser
325 330 335

Gly Glu Thr Ala Lys Arg Arg Ser Ala Arg Val Arg Asn Thr Lys Cys
340 345 350

Lys Lys Glu Glu Lys Val Asp Phe Gln Glu Leu Leu Met Lys Phe Leu
355 360 365

Pro Ser Arg Leu Arg Lys Leu Asp Pro Glu Glu Glu Asp Asp Ser Phe
370 375 380

Asn Asn Tyr Glu Val Gln Ser Glu Ala Lys Leu Glu Ser Phe Pro Ser
385 390 395 400

Ile Gly Pro Gln Arg Leu Ser Phe Asp Ser Ala Thr Phe Met Glu Ser
405 410 415

Glu Lys Gln Asp Val His Glu Phe Leu Leu Glu Asn Leu Thr Asn Gly
420 425 430

Gly Ile Leu Glu Leu Met Met Arg Tyr Leu Lys Ala Met Gly His Lys
435 440 445

Phe Leu Val Arg Trp Pro Pro Gly Leu Ala Glu Val Val Leu Ser Val
450 455 460

Tyr His Ser Trp Arg Arg His Ser Thr Ser Leu Pro Asn Pro Leu Leu
465 470 475 480

Arg Asp Cys Ser Asn Lys His Ile Lys Asp Met Met Leu Met Ser Leu
485 490 495

Ser Cys Met Glu Leu Gln Leu Asp Gln Trp Leu Leu Thr Lys Gly Arg
500 505 510

Ser Ser Ala Val Ser Pro Arg Asn Cys Pro Ala Gly Met Val Asn Gly
515 520 525

```
Arg Phe Gly Pro Asp Phe Pro Gly Thr His Cys Leu Gly Asp Leu Leu
    530                 535                 540

Gln Leu Ser Phe Ala Ser Ser Gln Arg Asp Leu Phe Glu Asp Gly Trp
545                 550                 555                 560

Leu Glu Phe Val Val Arg Val Tyr Trp Leu Lys Ala Arg Phe Leu Ala
                565                 570                 575

Leu Gln Gly Asp Met Glu Gln Ala Leu Glu Asn Tyr Asp Ile Cys Thr
            580                 585                 590

Glu Met Leu Gln Ser Ser Thr Ala Ile Gln Val Glu Ala Gly Ala Glu
        595                 600                 605

Arg Arg Asp Ile Val Ile Arg Leu Pro Asn Leu His Asn Asp Ser Val
    610                 615                 620

Val Ser Leu Glu Glu Ile Asp Lys Asn Leu Lys Ser Leu Glu Arg Cys
625                 630                 635                 640

Gln Ser Leu Glu Glu Ile Gln Arg Leu Tyr Glu Ala Gly Asp Tyr Lys
                645                 650                 655

Ala Val Val His Leu Leu Arg Pro Thr Leu Cys Thr Ser Gly Phe Asp
            660                 665                 670

Arg Ala Lys His Leu Glu Phe Met Thr Ser Ile Pro Glu Arg Pro Ala
        675                 680                 685

Gln Leu Leu Leu Leu Gln Asp Ser Leu Leu Arg Leu Lys Asp Tyr Arg
    690                 695                 700

Gln Cys Phe Glu Cys Ser Asp Val Ala Leu Asn Glu Ala Val Gln Gln
705                 710                 715                 720

Met Val Asn Ser Gly Glu Ala Ala Ala Lys Glu Glu Trp Val Ala Thr
                725                 730                 735

Val Thr Gln Leu Leu Met Gly Ile Glu Gln Ala Leu Ser Ala Asp Ser
            740                 745                 750
```

```
Ser Gly Ser Ile Leu Lys Val Ser Ser Ser Thr Thr Gly Leu Val Arg
        755                 760                 765

Leu Thr Asn Asn Leu Ile Gln Val Ile Asp Cys Ser Met Ala Val Gln
    770                 775                 780

Glu Glu Ala Lys Glu Pro His Val Ser Ser Val Leu Pro Trp Ile Ile
785                 790                 795                 800

Leu His Arg Ile Ile Trp Gln Glu Glu Asp Thr Phe His Ser Leu Cys
                805                 810                 815

His Gln Gln Gln Leu Gln Asn Pro Ala Glu Glu Gly Met Ser Glu Thr
            820                 825                 830

Pro Met Leu Pro Ser Ser Leu Met Leu Leu Asn Thr Ala His Glu Tyr
        835                 840                 845

Leu Gly Arg Arg Ser Trp Cys Cys Asn Ser Asp Gly Ala Leu Leu Arg
    850                 855                 860

Phe Tyr Val Arg Val Leu Gln Lys Glu Leu Ala Ala Ser Thr Ser Glu
865                 870                 875                 880

Asp Thr His Pro Tyr Lys Glu Glu Leu Glu Thr Ala Leu Glu Gln Cys
                885                 890                 895

Phe Tyr Cys Leu Tyr Ser Phe Pro Ser Lys Lys Ser Lys Ala Arg Tyr
            900                 905                 910

Leu Glu Glu His Ser Ala Gln Gln Val Asp Leu Ile Trp Glu Asp Ala
        915                 920                 925

Leu Phe Met Phe Glu Tyr Phe Lys Pro Lys Thr Leu Pro Glu Phe Asp
    930                 935                 940

Ser Tyr Lys Thr Ser Thr Val Ser Ala Asp Leu Ala Asn Leu Leu Lys
945                 950                 955                 960

Arg Ile Ala Thr Ile Val Pro Arg Thr Glu Arg Pro Ala Leu Ser Leu
                965                 970                 975
```

```
Asp Lys Val Ser Ala Tyr Ile Glu Gly Thr Ser Thr Glu Val Pro Cys
            980                 985                 990

Leu Pro Glu Gly Ala Asp Pro Ser  Pro Pro Val Val Asn  Glu Leu
Tyr
        995                 1000                1005

Tyr Leu  Leu Ala Asp Tyr His  Phe Lys Asn Lys Glu  Gln Ser Lys
    1010                1015                1020

Ala Ile  Lys Phe Tyr Met His  Asp Ile Cys Ile Cys  Pro Asn Arg
    1025                1030                1035

Phe Asp  Ser Trp Ala Gly Met  Ala Leu Ala Arg Ala  Ser Arg Ile
    1040                1045                1050

Gln Asp  Lys Leu Asn Ser Asn  Glu Leu Lys Ser Asp  Gly Pro Ile
    1055                1060                1065

Trp Lys  His Ala Thr Pro Val  Leu Asn Cys Phe Arg  Arg Ala Leu
    1070                1075                1080

Glu Ile  Asp Ser Ser Asn Leu  Ser Leu Trp Ile Glu  Tyr Gly Thr
    1085                1090                1095

Met Ser  Tyr Ala Leu His Ser  Phe Ala Ser Arg Gln  Leu Lys Gln
    1100                1105                1110

Trp Arg  Gly Glu Leu Pro Pro  Glu Leu Val Gln Gln  Met Glu Gly
    1115                1120                1125

Arg Arg  Asp Ser Met Leu Glu  Thr Ala Lys His Cys  Phe Thr Ser
    1130                1135                1140

Ala Ala  Arg Cys Glu Gly Asp  Gly Asp Glu Glu Glu  Trp Leu Ile
    1145                1150                1155

His Tyr  Met Leu Gly Lys Val  Ala Glu Lys Gln Gln  Gln Pro Pro
    1160                1165                1170

Thr Val  Tyr Leu Leu His Tyr  Arg Gln Ala Gly His  Tyr Leu His
    1175                1180                1185
```

Glu Glu Ala Ala Arg Tyr Pro Lys Lys Ile His Tyr His Asn Pro
1190 1195 1200

Pro Glu Leu Ala Met Glu Ala Leu Glu Val Tyr Phe Arg Leu His
1205 1210 1215

Ala Ser Ile Leu Lys Leu Leu Gly Lys Pro Asp Ser Gly Val Gly
1220 1225 1230

Ala Glu Val Leu Val Asn Phe Met Lys Glu Ala Ala Glu Gly Pro
1235 1240 1245

Phe Ala Arg Gly Glu Glu Lys Asn Thr Pro Lys Ala Ser Glu Lys
1250 1255 1260

Glu Lys Ala Cys Leu Val Asp Glu Asp Ser His Ser Ser Ala Gly
1265 1270 1275

Thr Leu Pro Gly Pro Gly Ala Ser Leu Pro Ser Ser Ser Gly Pro
1280 1285 1290

Gly Leu Thr Ser Pro Pro Tyr Thr Ala Thr Pro Ile Asp His Asp
1295 1300 1305

Tyr Val Lys Cys Lys Lys Pro His Gln Gln Ala Thr Pro Asp Asp
1310 1315 1320

Arg Ser Gln Asp Ser Thr Ala Val Ala Leu Ser Asp Ser Ser Ser
1325 1330 1335

Thr Gln Asp Phe Phe Asn Glu Pro Thr Ser Leu Leu Glu Gly Ser
1340 1345 1350

Arg Lys Ser Tyr Thr Glu Lys Arg Leu Pro Ile Leu Ser Ser Gln
1355 1360 1365

Ala Gly Ala Thr Gly Lys Asp Leu Gln Gly Ala Thr Glu Glu Arg
1370 1375 1380

Gly Lys Asn Glu Glu Ser Leu Glu Ser Thr Glu Gly Phe Arg Ala
1385 1390 1395

Ala Glu Gln Gly Val Gln Lys Pro Ala Ala Glu Thr Pro Ala Ser

1400 1405 1410

Ala Cys Ile Pro Gly Lys Pro Ser Ala Ser Thr Pro Thr Leu Trp
1415 1420 1425

Asp Gly Lys Lys Arg Gly Asp Leu Pro Gly Glu Pro Val Ala Phe
1430 1435 1440

Pro Gln Gly Leu Pro Ala Gly Ala Glu Glu Gln Arg Gln Phe Leu
1445 1450 1455

Thr Glu Gln Cys Ile Ala Ser Phe Arg Leu Cys Leu Ser Arg Phe
1460 1465 1470

Pro Gln His Tyr Lys Ser Leu Tyr Arg Leu Ala Phe Leu Tyr Thr
1475 1480 1485

Tyr Ser Lys Thr His Arg Asn Leu Gln Trp Ala Arg Asp Val Leu
1490 1495 1500

Leu Gly Ser Ser Ile Pro Trp Gln Gln Leu Gln His Met Pro Ala
1505 1510 1515

Gln Gly Leu Phe Cys Glu Arg Asn Lys Thr Asn Phe Phe Asn Gly
1520 1525 1530

Ile Trp Arg Ile Pro Val Asp Glu Ile Asp Arg Pro Gly Ser Phe
1535 1540 1545

Ala Trp His Met Asn Arg Ser Ile Val Leu Leu Leu Lys Val Leu
1550 1555 1560

Ala Gln Leu Arg Asp His Ser Thr Leu Leu Lys Val Ser Ser Met
1565 1570 1575

Leu Gln Arg Thr Pro Asp Gln Gly Lys Lys Tyr Leu Arg Asp Ala
1580 1585 1590

Asp Arg Gln Val Leu Ala Gln Arg Ala Phe Ile Leu Thr Val Lys
1595 1600 1605

Val Leu Glu Asp Thr Leu Ser Glu Leu Ala Glu Gly Ser Glu Arg
1610 1615 1620

```
Pro Gly  Pro Lys Val Cys Gly  Leu Pro Gly Ala Arg  Met Thr Thr
    1625                1630                1635

Asp Val  Ser His Lys Ala Ser  Pro Glu Asp Gly Gln  Glu Gly Leu
    1640                1645                1650

Pro Gln  Pro Lys Lys Pro Pro  Leu Ala Asp Gly Ser  Gly Pro Gly
    1655                1660                1665

Pro Glu  Pro Gly Gly Lys Val  Gly Leu Leu Asn His  Arg Pro Val
    1670                1675                1680

Ala Met  Asp Ala Gly Asp Ser  Ala Asp Gln Ser Gly  Glu Arg Lys
    1685                1690                1695

Asp Lys  Glu Ser Pro Arg Ala  Gly Pro Thr Glu Pro  Met Asp Thr
    1700                1705                1710

Ser Glu  Ala Thr Val Cys His  Ser Asp Leu Glu Arg  Thr Pro Pro
    1715                1720                1725

Leu Leu  Pro Gly Arg Pro Ala  Arg Asp Arg Gly Pro  Glu Ser Arg
    1730                1735                1740

Pro Thr  Glu Leu Ser Leu Glu  Glu Leu Ser Ile Ser  Ala Arg Gln
    1745                1750                1755

Gln Pro  Thr Pro Leu Thr Pro  Ala Gln Pro Ala Pro  Ala Pro Ala
    1760                1765                1770

Pro Ala  Thr Thr Thr Gly Thr  Arg Ala Gly Gly His  Pro Glu Glu
    1775                1780                1785

Pro Leu  Ser Arg Leu Ser Arg  Lys Arg Lys Leu Leu  Glu Asp Thr
    1790                1795                1800

Glu Ser  Gly Lys Thr Leu Leu  Leu Asp Ala Tyr Arg  Val Trp Gln
    1805                1810                1815

Gln Gly  Gln Lys Gly Val Ala  Tyr Asp Leu Gly Arg  Val Glu Arg
    1820                1825                1830
```

```
Ile Met  Ser Glu Thr Tyr Met  Leu Ile Lys Gln Val  Asp Glu Glu
    1835                1840                1845

Ala Ala  Leu Glu Gln Ala Val  Lys Phe Cys Gln Val  His Leu Gly
    1850                1855                1860

Ala Ala  Ala Gln Arg Gln Ala  Ser Gly Asp Thr Pro  Thr Thr Pro
    1865                1870                1875

Lys His  Pro Lys Asp Ser Arg  Glu Asn Phe Phe Pro  Val Thr Val
    1880                1885                1890

Val Pro  Thr Ala Pro Asp Pro  Val Pro Ala Asp Ser  Val Gln Arg
    1895                1900                1905

Pro Ser  Asp Ala His Thr Lys  Pro Arg Pro Ala Leu  Ala Ala Ala
    1910                1915                1920

Thr Thr  Ile Ile Thr Cys Pro  Pro Ser Ala Ser Ala  Ser Thr Leu
    1925                1930                1935

Asp Gln  Ser Lys Asp Pro Gly  Pro Pro Arg Pro His  Arg Pro Glu
    1940                1945                1950

Ala Thr  Pro Ser Met Ala Ser  Leu Gly Pro Glu Gly  Glu Glu Leu
    1955                1960                1965

Ala Arg  Val Ala Glu Gly Thr  Ser Phe Pro Pro Gln  Glu Pro Arg
    1970                1975                1980

His Ser  Pro Gln Val Lys Met  Ala Pro Thr Ser Ser  Pro Ala Glu
    1985                1990                1995

Pro His  Cys Trp Pro Ala Glu  Ala Ala Leu Gly Thr  Gly Ala Glu
    2000                2005                2010

Pro Thr  Cys Ser Gln Glu Gly  Lys Leu Arg Pro Glu  Pro Arg Arg
    2015                2020                2025

Asp Gly  Glu Ala Gln Glu Ala  Ala Ser Glu Thr Gln  Pro Leu Ser
    2030                2035                2040
```

```
Ser Pro  Pro Thr Ala Ala Ser  Ser Lys Ala Pro Ser  Ser Gly Ser
    2045                2050                2055

Ala Gln  Pro Pro Glu Gly His  Pro Gly Lys Pro Glu  Pro Ser Arg
    2060                2065                2070

Ala Lys  Ser Arg Pro Leu Pro  Asn Met Pro Lys Leu  Val Ile Pro
    2075                2080                2085

Ser Ala  Ala Thr Lys Phe Pro  Pro Glu Ile Thr Val  Thr Pro Pro
    2090                2095                2100

Thr Pro  Thr Leu Leu Ser Pro  Lys Gly Ser Ile Ser  Glu Glu Thr
    2105                2110                2115

Lys Gln  Lys Leu Lys Ser Ala  Ile Leu Ser Ala Gln  Ser Ala Ala
    2120                2125                2130

Asn Val  Arg Lys Glu Ser Leu  Cys Gln Pro Ala Leu  Glu Val Leu
    2135                2140                2145

Glu Thr  Ser Ser Gln Glu Ser  Ser Leu Glu Ser Glu  Thr Asp Glu
    2150                2155                2160

Asp Asp  Asp Tyr Met Asp Ile
    2165                2170


<210> 10490
<211> 589
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2097; "

<220>
<221> source
<223> /note="Gene Symbol: CABIN1; "

<220>
<221> source
<223> /note="Gene Name: calcineurin binding
      prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481128"
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<400> 10490
Met Pro Arg Arg Ser Arg Arg Gly Ile Trp Arg Ile Pro Val Asp Glu
1 5 10 15

Ile Asp Arg Pro Gly Ser Phe Ala Trp His Met Asn Arg Ser Ile Val
20 25 30

Leu Leu Leu Lys Val Leu Ala Gln Leu Arg Asp His Ser Thr Leu Leu
35 40 45

Lys Val Ser Ser Met Leu Gln Arg Thr Pro Asp Gln Gly Lys Lys Tyr
50 55 60

Leu Arg Asp Ala Asp Arg Gln Val Leu Ala Gln Arg Ala Phe Ile Leu
65 70 75 80

Thr Val Lys Val Leu Glu Asp Thr Leu Ser Glu Leu Ala Glu Gly Ser
85 90 95

Glu Arg Pro Gly Pro Lys Val Cys Gly Leu Pro Gly Ala Arg Met Thr
100 105 110

Thr Asp Val Ser His Lys Ala Ser Pro Glu Asp Gly Gln Glu Gly Leu
115 120 125

Pro Gln Pro Lys Lys Pro Pro Leu Ala Asp Gly Ser Gly Pro Gly Pro
130 135 140

Glu Pro Gly Gly Lys Val Gly Leu Leu Asn His Arg Pro Val Ala Met
145 150 155 160

Asp Ala Gly Asp Ser Ala Asp Gln Ser Gly Glu Arg Lys Asp Lys Glu
165 170 175

Ser Pro Arg Ala Gly Pro Thr Glu Pro Met Asp Thr Ser Glu Ala Thr
180 185 190

Val Cys His Ser Asp Leu Glu Arg Thr Pro Pro Leu Leu Pro Gly Arg
195 200 205

Pro Ala Arg Asp Arg Gly Pro Glu Ser Arg Pro Thr Glu Leu Ser Leu
210 215 220

```
Glu Glu Leu Ser Ile Ser Ala Arg Gln Gln Pro Thr Pro Leu Thr Pro
225                 230                 235                 240

Ala Gln Pro Ala Pro Ala Pro Ala Pro Ala Thr Thr Thr Gly Thr Arg
                245                 250                 255

Ala Gly Gly His Pro Glu Glu Pro Leu Ser Arg Leu Ser Arg Lys Arg
            260                 265                 270

Lys Leu Leu Glu Asp Thr Glu Ser Gly Lys Thr Leu Leu Leu Asp Ala
        275                 280                 285

Tyr Arg Val Trp Gln Gln Gly Gln Lys Gly Val Ala Tyr Asp Leu Gly
    290                 295                 300

Arg Val Glu Arg Ile Met Ser Glu Thr Tyr Met Leu Ile Lys Gln Val
305                 310                 315                 320

Asp Glu Glu Ala Ala Leu Glu Gln Ala Val Lys Phe Cys Gln Val His
                325                 330                 335

Leu Gly Leu Pro Pro Arg Asp Arg Pro Arg Asp Thr Pro Thr Thr Pro
            340                 345                 350

Lys His Pro Lys Asp Ser Arg Glu Asn Phe Phe Pro Val Thr Val Val
        355                 360                 365

Pro Thr Ala Pro Asp Pro Val Pro Ala Asp Ser Val Gln Arg Pro Ser
    370                 375                 380

Asp Ala His Thr Lys Pro Arg Pro Ala Leu Ala Ala Ala Thr Thr Ile
385                 390                 395                 400

Ile Thr Cys Pro Pro Ser Ala Ser Ala Ser Thr Leu Asp Gln Ser Lys
                405                 410                 415

Asp Pro Gly Pro Pro Arg Pro His Arg Pro Glu Ala Thr Pro Ser Met
            420                 425                 430

Ala Ser Leu Gly Pro Glu Gly Lys Leu Arg Pro Glu Pro Arg Arg Asp
        435                 440                 445
```

```
Gly Glu Ala Gln Glu Ala Ala Ser Glu Thr Gln Pro Leu Ser Ser Pro
    450                 455                 460

Pro Thr Ala Ala Ser Ser Lys Ala Pro Ser Ser Gly Ser Ala Gln Pro
465                 470                 475                 480

Pro Glu Gly His Pro Gly Lys Pro Glu Pro Ser Arg Ala Lys Ser Arg
                485                 490                 495

Pro Leu Pro Asn Met Pro Lys Leu Val Ile Pro Ser Ala Ala Thr Lys
            500                 505                 510

Phe Pro Pro Glu Ile Thr Val Thr Pro Pro Thr Pro Thr Leu Leu Ser
        515                 520                 525

Pro Lys Gly Ser Ile Ser Glu Glu Thr Lys Gln Lys Leu Lys Ser Ala
    530                 535                 540

Ile Leu Ser Ala Gln Ser Ala Ala Asn Val Arg Lys Glu Ser Leu Cys
545                 550                 555                 560

Gln Pro Ala Leu Glu Val Leu Glu Thr Ser Ser Gln Glu Ser Ser Leu
                565                 570                 575

Glu Ser Glu Thr Asp Glu Asp Asp Asp Tyr Met Asp Ile
            580                 585


<210> 10491
<211> 195
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2098; "

<220>
<221> source
<223> /note="Gene Symbol: CHP1; "

<220>
<221> source
<223> /note="Gene Name: calcineurin-like EF-hand prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q99653; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000335632"

<400> 10491
Met Gly Ser Arg Ala Ser Thr Leu Leu Arg Asp Glu Glu Leu Glu Glu
1 5 10 15

Ile Lys Lys Glu Thr Gly Phe Ser His Ser Gln Ile Thr Arg Leu Tyr
20 25 30

Ser Arg Phe Thr Ser Leu Asp Lys Gly Glu Asn Gly Thr Leu Ser Arg
35 40 45

Glu Asp Phe Gln Arg Ile Pro Glu Leu Ala Ile Asn Pro Leu Gly Asp
50 55 60

Arg Ile Ile Asn Ala Phe Phe Pro Glu Gly Glu Asp Gln Val Asn Phe
65 70 75 80

Arg Gly Phe Met Arg Thr Leu Ala His Phe Arg Pro Ile Glu Asp Asn
85 90 95

Glu Lys Ser Lys Asp Val Asn Gly Pro Glu Pro Leu Asn Ser Arg Ser
100 105 110

Asn Lys Leu His Phe Ala Phe Arg Leu Tyr Asp Leu Asp Lys Asp Glu
115 120 125

Lys Ile Ser Arg Asp Glu Leu Leu Gln Val Leu Arg Met Met Val Gly
130 135 140

Val Asn Ile Ser Asp Glu Gln Leu Gly Ser Ile Ala Asp Arg Thr Ile
145 150 155 160

Gln Glu Ala Asp Gln Asp Gly Asp Ser Ala Ile Ser Phe Thr Glu Phe
165 170 175

Val Lys Val Leu Glu Lys Val Asp Val Glu Gln Lys Met Ser Ile Arg
180 185 190

Phe Leu His
195

<210> 10492
<211> 128
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2098; "

<220>
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<223> /note="Gene Symbol: CHP1; "

<220>
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<223> /note="Gene Name: calcineurin-like EF-hand prt 1; "

<220>
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<223> /note="ENSP ID: ENSP00000440490"

<400> 10492
Met Gly Ser Arg Ala Ser Thr Leu Leu Arg Asp Glu Glu Leu Glu Glu
1   5   10   15

Ile Lys Lys Glu Thr Gly Phe Ser His Ser Gln Ile Thr Arg Leu Tyr
            20   25   30

Ser Arg Phe Thr Ser Leu Asp Lys Gly Glu Asn Gly Thr Leu Ser Arg
        35   40   45

Glu Asp Phe Gln Arg Ile Pro Glu Leu Ala Ile Asn Pro Leu Gly Asp
    50   55   60

Arg Ile Ile Asn Ala Phe Phe Pro Glu Gly Glu Asp Gln Val Asn Phe
65   70   75   80

Arg Gly Phe Met Arg Thr Leu Ala His Phe Arg Pro Ile Glu Asp Asn
                85   90   95

Glu Lys Ser Lys Asp Val Asn Gly Pro Glu Pro Leu Asn Ser Arg Ser
            100   105   110

Asn Lys Leu His Cys Ala Thr His Asp Gly Arg Ser Lys Tyr Leu Arg
        115   120   125

<210> 10493
<211> 123
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2098; "

<220>
<221> source
<223> /note="Gene Symbol: CHP1; "

<220>
<221> source
<223> /note="Gene Name: calcineurin-like EF-hand prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452772"

<400> 10493
Met Gly Ser Arg Ala Ser Thr Leu Leu Arg Asp Glu Glu Leu Glu Glu
1 5 10 15

Ile Lys Lys Glu Thr Gly Phe Ser His Ser Gln Ile Thr Arg Leu Tyr
20 25 30

Ser Arg Phe Thr Ser Leu Asp Lys Gly Glu Asn Gly Thr Leu Ser Arg
35 40 45

Glu Asp Phe Gln Arg Ile Pro Glu Leu Ala Ile Asn Pro Leu Gly Asp
50 55 60

Arg Ile Ile Asn Ala Phe Phe Pro Glu Gly Glu Asp Gln Val Asn Phe
65 70 75 80

Arg Gly Phe Met Arg Thr Leu Ala His Phe Arg Pro Ile Glu Asp Asn
85 90 95

Glu Lys Ser Lys Asp Val Asn Gly Pro Glu Pro Leu Asn Ser Arg Ser
100 105 110

Asn Lys Leu His Leu Glu Glu Glu Arg Tyr Ile
115 120

<210> 10494
<211> 53
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2098; "

<220>
<221> source
<223> /note="Gene Symbol: CHP1; "

<220>
<221> source
<223> /note="Gene Name: calcineurin-like EF-hand prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453375"

<400> 10494
Met Gly Ser Arg Ala Ser Thr Leu Leu Arg Asp Glu Glu Leu Glu Glu
1   5   10   15

Ile Lys Lys Glu Thr Gly Ser Gly Lys Ile Ser Arg Gly Phe Gln Asn
            20   25   30

Leu Pro Ser Thr His Trp Gly Thr Gly Ser Ser Met Pro Ser Phe Gln
        35   40   45

Arg Glu Arg Thr Arg
    50

<210> 10495
<211> 91
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2098; "

<220>
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<223> /note="Gene Symbol: CHP1; "

<220>
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<223> /note="Gene Name: calcineurin-like EF-hand prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000453392"

<220>
<221> MOD_RES
<222> (1)..(1)

<223> Any amino acid

<400> 10495
Xaa Arg Glu Asp Phe Gln Arg Ile Pro Glu Leu Ala Ile Asn Pro Leu
1   5   10   15

Gly Asp Arg Ile Ile Asn Ala Phe Phe Pro Glu Gly Glu Asp Gln Val
            20   25   30

Asn Phe Arg Gly Phe Met Arg Thr Leu Ala His Phe Arg Pro Ile Glu
        35   40   45

Asp Asn Glu Lys Ser Lys Asp Val Asn Gly Pro Glu Pro Leu Asn Ser
    50   55   60

Arg Ser Asn Lys Leu His Phe Ala Phe Arg Leu Tyr Asp Leu Asp Lys
65   70   75   80

Asp Glu Lys Ile Ser Arg Asp Glu Leu Leu Gln
                85   90

<210> 10496
<211> 154
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2098; "

<220>
<221> source
<223> /note="Gene Symbol: CHP1; "

<220>
<221> source
<223> /note="Gene Name: calcineurin-like EF-hand prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000454007"

<400> 10496
Met Gly Ser Arg Ala Ser Thr Leu Leu Arg Asp Glu Glu Leu Glu Glu
1   5   10   15

Ile Lys Lys Glu Thr Gly Phe Ser His Ser Gln Ile Thr Arg Leu Tyr
            20   25   30

```
Ser Arg Phe Thr Ser Leu Asp Lys Gly Glu Asn Gly Thr Leu Ser Arg
        35                  40                  45

Glu Asp Phe Gln Arg Ile Pro Glu Leu Ala Ile Asn Pro Leu Gly Asp
    50                  55                  60

Arg Ile Ile Asn Ala Phe Phe Pro Glu Gly Glu Asp Gln Val Asn Phe
65                  70                  75                  80

Arg Gly Phe Met Arg Thr Leu Ala His Phe Arg Pro Ile Glu Asp Asn
                85                  90                  95

Glu Lys Ser Lys Asp Val Asn Gly Pro Glu Pro Leu Asn Ser Arg Ser
            100                 105                 110

Asn Lys Leu His Phe Ala Phe Arg Leu Tyr Asp Leu Asp Lys Asp Glu
        115                 120                 125

Lys Ile Ser Arg Asp Glu Leu Leu Gln Val Leu Glu Lys Val Asp Val
    130                 135                 140

Glu Gln Lys Met Ser Ile Arg Phe Leu His
145                 150


<210> 10497
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2099; "

<220>
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<223> /note="Gene Symbol: CHP2; "

<220>
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<223> /note="Gene Name: calcineurin-like EF-hand prt 2; "

<220>
<221> source
<223> /note="Uniprot ID:  O43745; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000300113"
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<400> 10497
Met Gly Ser Arg Ser Ser His Ala Ala Val Ile Pro Asp Gly Asp Ser
1 5 10 15

Ile Arg Arg Glu Thr Gly Phe Ser Gln Ala Ser Leu Leu Arg Leu His
20 25 30

His Arg Phe Arg Ala Leu Asp Arg Asn Lys Lys Gly Tyr Leu Ser Arg
35 40 45

Met Asp Leu Gln Gln Ile Gly Ala Leu Ala Val Asn Pro Leu Gly Asp
50 55 60

Arg Ile Ile Glu Ser Phe Phe Pro Asp Gly Ser Gln Arg Val Asp Phe
65 70 75 80

Pro Gly Phe Val Arg Val Leu Ala His Phe Arg Pro Val Glu Asp Glu
85 90 95

Asp Thr Glu Thr Gln Asp Pro Lys Lys Pro Glu Pro Leu Asn Ser Arg
100 105 110

Arg Asn Lys Leu His Tyr Ala Phe Gln Leu Tyr Asp Leu Asp Arg Asp
115 120 125

Gly Lys Ile Ser Arg His Glu Met Leu Gln Val Leu Arg Leu Met Val
130 135 140

Gly Val Gln Val Thr Glu Glu Gln Leu Glu Asn Ile Ala Asp Arg Thr
145 150 155 160

Val Gln Glu Ala Asp Glu Asp Gly Asp Gly Ala Val Ser Phe Val Glu
165 170 175

Phe Thr Lys Ser Leu Glu Lys Met Asp Val Glu Gln Lys Met Ser Ile
180 185 190

Arg Ile Leu Lys
195

<210> 10498
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2100; "

<220>
<221> source
<223> /note="Gene Symbol: CPPED1; "

<220>
<221> source
<223> /note="Gene Name: calcineurin-like phosphoesterase
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BRF8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000261660"

<400> 10498
Met Ser Ala Ala Glu Ala Gly Gly Val Phe His Arg Ala Arg Gly Arg
1   5   10   15

Thr Leu Ala Ala Phe Pro Ala Glu Lys Glu Ser Glu Trp Lys Gly Pro
            20   25   30

Phe Tyr Phe Ile Leu Gly Ala Asp Pro Gln Phe Gly Leu Ile Lys Ala
        35   40   45

Trp Ser Thr Gly Asp Cys Asp Asn Gly Gly Asp Glu Trp Glu Gln Glu
    50   55   60

Ile Arg Leu Thr Glu Gln Ala Val Gln Ala Ile Asn Lys Leu Asn Pro
65   70   75   80

Lys Pro Lys Phe Phe Val Leu Cys Gly Asp Leu Ile His Ala Met Pro
                85   90   95

Ala Gly Gln Arg Pro Pro Arg Ala Pro Ser Arg Gly Gly His Arg Arg
            100   105   110

Glu Asn Cys Ser Pro Ile Leu Gln Ser Arg
        115   120

<210> 10499
<211> 314

<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcineurin-like phosphoesterase
domain containing 1; "

<220>
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<223> /note="Uniprot ID: Q9BRF8; "

<220>
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<223> /note="ENSP ID: ENSP00000371193"

<400> 10499

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Met Ser Ala Ala Glu Ala Gly Gly Val Phe His Arg Ala Arg Gly Arg
1               5                  10                  15

Thr Leu Ala Ala Phe Pro Ala Glu Lys Glu Ser Glu Trp Lys Gly Pro
            20                  25                  30

Phe Tyr Phe Ile Leu Gly Ala Asp Pro Gln Phe Gly Leu Ile Lys Ala
        35                  40                  45

Trp Ser Thr Gly Asp Cys Asp Asn Gly Gly Asp Glu Trp Glu Gln Glu
    50                  55                  60

Ile Arg Leu Thr Glu Gln Ala Val Gln Ala Ile Asn Lys Leu Asn Pro
65                  70                  75                  80

Lys Pro Lys Phe Phe Val Leu Cys Gly Asp Leu Ile His Ala Met Pro
                85                  90                  95

Gly Lys Pro Trp Arg Thr Glu Gln Thr Glu Asp Leu Lys Arg Val Leu
            100                 105                 110

Arg Ala Val Asp Arg Ala Ile Pro Leu Val Leu Val Ser Gly Asn His
        115                 120                 125
```

```
Asp Ile Gly Asn Thr Pro Thr Ala Glu Thr Val Glu Glu Phe Cys Arg
    130                 135                 140

Thr Trp Gly Asp Asp Tyr Phe Ser Phe Trp Val Gly Gly Val Leu Phe
145                 150                 155                 160

Leu Val Leu Asn Ser Gln Phe Tyr Glu Asn Pro Ser Lys Cys Pro Ser
                165                 170                 175

Leu Lys Gln Ala Gln Asp Gln Trp Leu Asp Glu Gln Leu Ser Ile Ala
            180                 185                 190

Arg Gln Arg His Cys Gln His Ala Ile Val Phe Gln His Ile Pro Leu
        195                 200                 205

Phe Leu Glu Ser Ile Asp Glu Asp Asp Asp Tyr Tyr Phe Asn Leu Ser
    210                 215                 220

Lys Ser Thr Arg Lys Lys Leu Ala Asp Lys Phe Ile His Ala Gly Val
225                 230                 235                 240

Lys Val Val Phe Ser Gly His Tyr His Arg Asn Ala Gly Gly Thr Tyr
                245                 250                 255

Gln Asn Leu Asp Met Val Val Ser Ser Ala Ile Gly Cys Gln Leu Gly
            260                 265                 270

Arg Asp Pro His Gly Leu Arg Val Val Val Val Thr Ala Glu Lys Ile
        275                 280                 285

Val His Arg Tyr Tyr Ser Leu Asp Glu Leu Ser Glu Lys Gly Ile Glu
    290                 295                 300

Asp Asp Leu Met Asp Leu Ile Lys Lys Lys
305                 310


<210> 10500
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<213> Homo sapiens

<220>
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domain containing 1; "

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<223> /note="Uniprot ID: Q9BRF8; "

<220>
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<400> 10500
Met Ser Ala Ala Glu Ala Gly Gly Val Phe His Arg Ala Arg Gly Arg
1   5   10   15

Thr Leu Ala Ala Phe Pro Ala Glu Lys Glu Ser Glu Trp Lys Gly Pro
            20   25   30

Phe Tyr Phe Ile Leu Gly Ala Asp Pro Gln Phe Gly Leu Ile Lys Ala
        35   40   45

Trp Ser Thr Gly Asp Cys Asp Asn Gly Gly Asp Glu Trp Glu Gln Glu
    50   55   60

Ile Arg Leu Thr Glu Gln Ala Val Gln Ala Ile Asn Lys Leu Asn Pro
65   70   75   80

Lys Pro Lys Phe Phe Val Leu Cys Gly Asp Leu Ile His Ala Met Pro
                85   90   95

Gly Val Lys Val Val Phe Ser Gly His Tyr His Arg Asn Ala Gly Gly
            100   105   110

Thr Tyr Gln Asn Leu Asp Met Val Val Ser Ser Ala Ile Gly Cys Gln
        115   120   125

Leu Gly Arg Asp Pro His Gly Leu Arg Val Val Val Val Thr Ala Glu
    130   135   140

Lys Ile Val His Arg Tyr Tyr Ser Leu Asp Glu Leu Ser Glu Lys Gly
145   150   155   160

Ile Glu Asp Asp Leu Met Asp Leu Ile Lys Lys Lys
165 170

<210> 10501
<211> 508
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<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CALCR; "

<220>
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<223> /note="Gene Name: calcitonin receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000352561"

<400> 10501
Met Gln Phe Ser Gly Glu Lys Ile Ser Gly Gln Arg Asp Leu Gln Lys
1 5 10 15

Ser Lys Met Arg Phe Thr Phe Thr Ser Arg Cys Leu Ala Leu Phe Leu
20 25 30

Leu Leu Asn His Pro Thr Pro Ile Leu Pro Ala Phe Ser Asn Gln Thr
35 40 45

Tyr Pro Thr Ile Glu Pro Lys Pro Phe Leu Tyr Val Val Gly Arg Lys
50 55 60

Lys Met Met Asp Ala Gln Tyr Lys Cys Tyr Asp Arg Met Gln Gln Leu
65 70 75 80

Pro Ala Tyr Gln Gly Glu Gly Pro Tyr Cys Asn Arg Thr Trp Asp Gly
85 90 95

Trp Leu Cys Trp Asp Asp Thr Pro Ala Gly Val Leu Ser Tyr Gln Phe
100 105 110

Cys Pro Asp Tyr Phe Pro Asp Phe Asp Pro Ser Glu Lys Val Thr Lys
115 120 125

```
Tyr Cys Asp Glu Lys Gly Val Trp Phe Lys His Pro Glu Asn Asn Arg
    130                 135                 140

Thr Trp Ser Asn Tyr Thr Met Cys Asn Ala Phe Thr Pro Glu Lys Leu
145                 150                 155                 160

Lys Asn Ala Tyr Val Leu Tyr Tyr Leu Ala Ile Val Gly His Ser Leu
                165                 170                 175

Ser Ile Phe Thr Leu Val Ile Ser Leu Gly Ile Phe Val Phe Phe Arg
            180                 185                 190

Lys Leu Thr Thr Ile Phe Pro Leu Asn Trp Lys Tyr Arg Lys Ala Leu
        195                 200                 205

Ser Leu Gly Cys Gln Arg Val Thr Leu His Lys Asn Met Phe Leu Thr
    210                 215                 220

Tyr Ile Leu Asn Ser Met Ile Ile Ile Ile His Leu Val Glu Val Val
225                 230                 235                 240

Pro Asn Gly Glu Leu Val Arg Arg Asp Pro Val Ser Cys Lys Ile Leu
                245                 250                 255

His Phe Phe His Gln Tyr Met Met Ala Cys Asn Tyr Phe Trp Met Leu
            260                 265                 270

Cys Glu Gly Ile Tyr Leu His Thr Leu Ile Val Val Ala Val Phe Thr
        275                 280                 285

Glu Lys Gln Arg Leu Arg Trp Tyr Tyr Leu Leu Gly Trp Gly Phe Pro
    290                 295                 300

Leu Val Pro Thr Thr Ile His Ala Ile Thr Arg Ala Val Tyr Phe Asn
305                 310                 315                 320

Asp Asn Cys Trp Leu Ser Val Glu Thr His Leu Leu Tyr Ile Ile His
                325                 330                 335

Gly Pro Val Met Ala Ala Leu Val Val Asn Phe Phe Phe Leu Leu Asn
            340                 345                 350
```

```
Ile Val Arg Val Leu Val Thr Lys Met Arg Glu Thr His Glu Ala Glu
        355                 360                 365

Ser His Met Tyr Leu Lys Ala Val Lys Ala Thr Met Ile Leu Val Pro
    370                 375                 380

Leu Leu Gly Ile Gln Phe Val Val Phe Pro Trp Arg Pro Ser Asn Lys
385                 390                 395                 400

Met Leu Gly Lys Ile Tyr Asp Tyr Val Met His Ser Leu Ile His Phe
                405                 410                 415

Gln Gly Phe Phe Val Ala Thr Ile Tyr Cys Phe Cys Asn Asn Glu Val
            420                 425                 430

Gln Thr Thr Val Lys Arg Gln Trp Ala Gln Phe Lys Ile Gln Trp Asn
        435                 440                 445

Gln Arg Trp Gly Arg Arg Pro Ser Asn Arg Ser Ala Arg Ala Ala Ala
    450                 455                 460

Ala Ala Ala Glu Ala Gly Asp Ile Pro Ile Tyr Ile Cys His Gln Glu
465                 470                 475                 480

Leu Arg Asn Glu Pro Ala Asn Asn Gln Gly Glu Glu Ser Ala Glu Ile
                485                 490                 495

Ile Pro Leu Asn Ile Ile Glu Gln Glu Ser Ser Ala
            500                 505


<210> 10502
<211> 162
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CALCR; "

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<223> /note="Gene Name: calcitonin receptor; "
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<220>
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<400> 10502
Met Arg Phe Thr Phe Thr Ser Arg Cys Leu Ala Leu Phe Leu Leu Leu
1   5   10   15

Asn His Pro Thr Pro Ile Leu Pro Ala Phe Ser Asn Gln Thr Tyr Pro
            20   25   30

Thr Ile Glu Pro Lys Pro Phe Leu Tyr Val Val Gly Arg Lys Lys Met
        35   40   45

Met Asp Ala Gln Tyr Lys Cys Tyr Asp Arg Met Gln Gln Leu Pro Ala
    50   55   60

Tyr Gln Gly Glu Gly Pro Tyr Cys Asn Arg Thr Trp Asp Gly Trp Leu
65   70   75   80

Cys Trp Asp Asp Thr Pro Ala Gly Val Leu Ser Tyr Gln Phe Cys Pro
                85   90   95

Asp Tyr Phe Pro Asp Phe Asp Pro Ser Glu Lys Val Thr Lys Tyr Cys
            100   105   110

Asp Glu Lys Gly Val Trp Phe Lys His Pro Glu Asn Asn Arg Thr Trp
        115   120   125

Ser Asn Tyr Thr Met Cys Asn Ala Phe Thr Pro Glu Lys Leu Lys Asn
    130   135   140

Ala Tyr Val Leu Tyr Tyr Leu Ala Ile Val Gly His Ser Cys Gln Phe
145   150   155   160

Ser Pro

<210> 10503
<211> 474
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 2101; "

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<223> /note="Gene Name: calcitonin receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000377959"

<400> 10503

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Met Arg Phe Thr Phe Thr Ser Arg Cys Leu Ala Leu Phe Leu Leu Leu
1               5                  10                  15

Asn His Pro Thr Pro Ile Leu Pro Ala Phe Ser Asn Gln Thr Tyr Pro
            20                  25                  30

Thr Ile Glu Pro Lys Pro Phe Leu Tyr Val Val Gly Arg Lys Lys Met
        35                  40                  45

Met Asp Ala Gln Tyr Lys Cys Tyr Asp Arg Met Gln Gln Leu Pro Ala
    50                  55                  60

Tyr Gln Gly Glu Gly Pro Tyr Cys Asn Arg Thr Trp Asp Gly Trp Leu
65                  70                  75                  80

Cys Trp Asp Asp Thr Pro Ala Gly Val Leu Ser Tyr Gln Phe Cys Pro
                85                  90                  95

Asp Tyr Phe Pro Asp Phe Asp Pro Ser Glu Lys Val Thr Lys Tyr Cys
            100                 105                 110

Asp Glu Lys Gly Val Trp Phe Lys His Pro Glu Asn Asn Arg Thr Trp
        115                 120                 125

Ser Asn Tyr Thr Met Cys Asn Ala Phe Thr Pro Glu Lys Leu Lys Asn
    130                 135                 140

Ala Tyr Val Leu Tyr Tyr Leu Ala Ile Val Gly His Ser Leu Ser Ile
145                 150                 155                 160

Phe Thr Leu Val Ile Ser Leu Gly Ile Phe Val Phe Phe Arg Ser Leu
                165                 170                 175
```

```
Gly Cys Gln Arg Val Thr Leu His Lys Asn Met Phe Leu Thr Tyr Ile
            180                 185                 190

Leu Asn Ser Met Ile Ile Ile Ile His Leu Val Glu Val Val Pro Asn
        195                 200                 205

Gly Glu Leu Val Arg Arg Asp Pro Val Ser Cys Lys Ile Leu His Phe
    210                 215                 220

Phe His Gln Tyr Met Met Ala Cys Asn Tyr Phe Trp Met Leu Cys Glu
225                 230                 235                 240

Gly Ile Tyr Leu His Thr Leu Ile Val Val Ala Val Phe Thr Glu Lys
                245                 250                 255

Gln Arg Leu Arg Trp Tyr Tyr Leu Leu Gly Trp Gly Phe Pro Leu Val
            260                 265                 270

Pro Thr Thr Ile His Ala Ile Thr Arg Ala Val Tyr Phe Asn Asp Asn
        275                 280                 285

Cys Trp Leu Ser Val Glu Thr His Leu Leu Tyr Ile Ile His Gly Pro
    290                 295                 300

Val Met Ala Ala Leu Val Val Asn Phe Phe Phe Leu Leu Asn Ile Val
305                 310                 315                 320

Arg Val Leu Val Thr Lys Met Arg Glu Thr His Glu Ala Glu Ser His
                325                 330                 335

Met Tyr Leu Lys Ala Val Lys Ala Thr Met Ile Leu Val Pro Leu Leu
            340                 345                 350

Gly Ile Gln Phe Val Val Phe Pro Trp Arg Pro Ser Asn Lys Met Leu
        355                 360                 365

Gly Lys Ile Tyr Asp Tyr Val Met His Ser Leu Ile His Phe Gln Gly
    370                 375                 380

Phe Phe Val Ala Thr Ile Tyr Cys Phe Cys Asn Asn Glu Val Gln Thr
385                 390                 395                 400
```

```
Thr Val Lys Arg Gln Trp Ala Gln Phe Lys Ile Gln Trp Asn Gln Arg
                405                 410                 415

Trp Gly Arg Arg Pro Ser Asn Arg Ser Ala Arg Ala Ala Ala Ala Ala
            420                 425                 430

Ala Glu Ala Gly Asp Ile Pro Ile Tyr Ile Cys His Gln Glu Leu Arg
        435                 440                 445

Asn Glu Pro Ala Asn Asn Gln Gly Glu Glu Ser Ala Glu Ile Ile Pro
    450                 455                 460

Leu Asn Ile Ile Glu Gln Glu Ser Ser Ala
465                 470


<210> 10504
<211> 474
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
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<220>
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<400> 10504
Met Arg Phe Thr Phe Thr Ser Arg Cys Leu Ala Leu Phe Leu Leu Leu
1               5                   10                  15

Asn His Pro Thr Pro Ile Leu Pro Ala Phe Ser Asn Gln Thr Tyr Pro
            20                  25                  30

Thr Ile Glu Pro Lys Pro Phe Leu Tyr Val Val Gly Arg Lys Lys Met
        35                  40                  45

Met Asp Ala Gln Tyr Lys Cys Tyr Asp Arg Met Gln Gln Leu Pro Ala
    50                  55                  60
```

```
Tyr Gln Gly Glu Gly Pro Tyr Cys Asn Arg Thr Trp Asp Gly Trp Leu
65                  70                  75                  80

Cys Trp Asp Asp Thr Pro Ala Gly Val Leu Ser Tyr Gln Phe Cys Pro
                85                  90                  95

Asp Tyr Phe Pro Asp Phe Asp Pro Ser Glu Lys Val Thr Lys Tyr Cys
            100                 105                 110

Asp Glu Lys Gly Val Trp Phe Lys His Pro Glu Asn Asn Arg Thr Trp
        115                 120                 125

Ser Asn Tyr Thr Met Cys Asn Ala Phe Thr Pro Glu Lys Leu Lys Asn
    130                 135                 140

Ala Tyr Val Leu Tyr Tyr Leu Ala Ile Val Gly His Ser Leu Ser Ile
145                 150                 155                 160

Phe Thr Leu Val Ile Ser Leu Gly Ile Phe Val Phe Phe Arg Ser Leu
                165                 170                 175

Gly Cys Gln Arg Val Thr Leu His Lys Asn Met Phe Leu Thr Tyr Ile
            180                 185                 190

Leu Asn Ser Met Ile Ile Ile Ile His Leu Val Glu Val Val Pro Asn
        195                 200                 205

Gly Glu Leu Val Arg Arg Asp Pro Val Ser Cys Lys Ile Leu His Phe
    210                 215                 220

Phe His Gln Tyr Met Met Ala Cys Asn Tyr Phe Trp Met Leu Cys Glu
225                 230                 235                 240

Gly Ile Tyr Leu His Thr Leu Ile Val Val Ala Val Phe Thr Glu Lys
                245                 250                 255

Gln Arg Leu Arg Trp Tyr Tyr Leu Leu Gly Trp Gly Phe Pro Leu Val
            260                 265                 270

Pro Thr Thr Ile His Ala Ile Thr Arg Ala Val Tyr Phe Asn Asp Asn
        275                 280                 285
```

```
Cys Trp Leu Ser Val Glu Thr His Leu Leu Tyr Ile Ile His Gly Pro
    290                 295                 300

Val Met Ala Ala Leu Val Val Asn Phe Phe Phe Leu Leu Asn Ile Val
305                 310                 315                 320

Arg Val Leu Val Thr Lys Met Arg Glu Thr His Glu Ala Glu Ser His
                325                 330                 335

Met Tyr Leu Lys Ala Val Lys Ala Thr Met Ile Leu Val Pro Leu Leu
            340                 345                 350

Gly Ile Gln Phe Val Val Phe Pro Trp Arg Pro Ser Asn Lys Met Leu
        355                 360                 365

Gly Lys Ile Tyr Asp Tyr Val Met His Ser Leu Ile His Phe Gln Gly
    370                 375                 380

Phe Phe Val Ala Thr Ile Tyr Cys Phe Cys Asn Asn Glu Val Gln Thr
385                 390                 395                 400

Thr Val Lys Arg Gln Trp Ala Gln Phe Lys Ile Gln Trp Asn Gln Arg
                405                 410                 415

Trp Gly Arg Arg Pro Ser Asn Arg Ser Ala Arg Ala Ala Ala Ala Ala
            420                 425                 430

Ala Glu Ala Gly Asp Ile Pro Ile Tyr Ile Cys His Gln Glu Leu Arg
        435                 440                 445

Asn Glu Pro Ala Asn Asn Gln Gly Glu Glu Ser Ala Glu Ile Ile Pro
    450                 455                 460

Leu Asn Ile Ile Glu Gln Glu Ser Ser Ala
465                 470


<210> 10505
<211> 290
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcitonin receptor; "

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<220>
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<400> 10505

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Met Arg Phe Thr Phe Thr Ser Arg Cys Leu Ala Leu Phe Leu Leu Leu
1               5                  10                  15

Asn His Pro Thr Pro Ile Leu Pro Ala Phe Ser Asn Gln Thr Tyr Pro
            20                  25                  30

Thr Ile Glu Pro Lys Pro Phe Leu Tyr Val Val Gly Arg Lys Lys Met
        35                  40                  45

Met Asp Ala Gln Tyr Lys Cys Tyr Asp Arg Met Gln Gln Leu Pro Ala
    50                  55                  60

Tyr Gln Gly Glu Gly Pro Tyr Cys Asn Arg Thr Trp Asp Gly Trp Leu
65                  70                  75                  80

Cys Trp Asp Asp Thr Pro Ala Gly Val Leu Ser Tyr Gln Phe Cys Pro
                85                  90                  95

Asp Tyr Phe Pro Asp Phe Asp Pro Ser Glu Lys Val Thr Lys Tyr Cys
            100                 105                 110

Asp Glu Lys Gly Val Trp Phe Lys His Pro Glu Asn Asn Arg Thr Trp
        115                 120                 125

Ser Asn Tyr Thr Met Cys Asn Ala Phe Thr Pro Glu Lys Leu Lys Asn
    130                 135                 140

Ala Tyr Val Leu Tyr Tyr Leu Ala Ile Val Gly His Ser Leu Ser Ile
145                 150                 155                 160
```

```
Phe Thr Leu Val Ile Ser Leu Gly Ile Phe Val Phe Phe Arg Lys Leu
                165                 170                 175

Thr Thr Ile Phe Pro Leu Asn Trp Lys Tyr Arg Lys Ala Leu Ser Leu
            180                 185                 190

Gly Cys Gln Arg Val Thr Leu His Lys Asn Met Phe Leu Thr Tyr Ile
        195                 200                 205

Leu Asn Ser Met Ile Ile Ile Ile His Leu Val Glu Val Val Pro Asn
    210                 215                 220

Gly Glu Leu Val Arg Arg Asp Pro Val Ser Cys Lys Ile Leu His Phe
225                 230                 235                 240

Phe His Gln Tyr Met Met Ala Cys Asn Tyr Phe Trp Met Leu Cys Glu
                245                 250                 255

Gly Ile Tyr Leu His Thr Leu Ile Val Val Ala Val Phe Thr Glu Lys
            260                 265                 270

Gln Arg Leu Arg Trp Tyr Tyr Leu Leu Gly Trp Ala Pro Ala Phe His
        275                 280                 285

Arg Asp
    290
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<210> 10506
<211> 490
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcitonin receptor; "

<220>
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<400> 10506
Met Arg Phe Thr Phe Thr Ser Arg Cys Leu Ala Leu Phe Leu Leu Leu
1 5 10 15

Asn His Pro Thr Pro Ile Leu Pro Ala Phe Ser Asn Gln Thr Tyr Pro
20 25 30

Thr Ile Glu Pro Lys Pro Phe Leu Tyr Val Val Gly Arg Lys Lys Met
35 40 45

Met Asp Ala Gln Tyr Lys Cys Tyr Asp Arg Met Gln Gln Leu Pro Ala
50 55 60

Tyr Gln Gly Glu Gly Pro Tyr Cys Asn Arg Thr Trp Asp Gly Trp Leu
65 70 75 80

Cys Trp Asp Asp Thr Pro Ala Gly Val Leu Ser Tyr Gln Phe Cys Pro
85 90 95

Asp Tyr Phe Pro Asp Phe Asp Pro Ser Glu Lys Val Thr Lys Tyr Cys
100 105 110

Asp Glu Lys Gly Val Trp Phe Lys His Pro Glu Asn Asn Arg Thr Trp
115 120 125

Ser Asn Tyr Thr Met Cys Asn Ala Phe Thr Pro Glu Lys Leu Lys Asn
130 135 140

Ala Tyr Val Leu Tyr Tyr Leu Ala Ile Val Gly His Ser Leu Ser Ile
145 150 155 160

Phe Thr Leu Val Ile Ser Leu Gly Ile Phe Val Phe Phe Arg Lys Leu
165 170 175

Thr Thr Ile Phe Pro Leu Asn Trp Lys Tyr Arg Lys Ala Leu Ser Leu
180 185 190

Gly Cys Gln Arg Val Thr Leu His Lys Asn Met Phe Leu Thr Tyr Ile
195 200 205

Leu Asn Ser Met Ile Ile Ile Ile His Leu Val Glu Val Val Pro Asn
210 215 220

```
Gly Glu Leu Val Arg Arg Asp Pro Val Ser Cys Lys Ile Leu His Phe
225                 230                 235                 240

Phe His Gln Tyr Met Met Ala Cys Asn Tyr Phe Trp Met Leu Cys Glu
                245                 250                 255

Gly Ile Tyr Leu His Thr Leu Ile Val Val Ala Val Phe Thr Glu Lys
            260                 265                 270

Gln Arg Leu Arg Trp Tyr Tyr Leu Leu Gly Trp Gly Phe Pro Leu Val
        275                 280                 285

Pro Thr Thr Ile His Ala Ile Thr Arg Ala Val Tyr Phe Asn Asp Asn
    290                 295                 300

Cys Trp Leu Ser Val Glu Thr His Leu Leu Tyr Ile Ile His Gly Pro
305                 310                 315                 320

Val Met Ala Ala Leu Val Val Asn Phe Phe Phe Leu Leu Asn Ile Val
                325                 330                 335

Arg Val Leu Val Thr Lys Met Arg Glu Thr His Glu Ala Glu Ser His
            340                 345                 350

Met Tyr Leu Lys Ala Val Lys Ala Thr Met Ile Leu Val Pro Leu Leu
        355                 360                 365

Gly Ile Gln Phe Val Val Phe Pro Trp Arg Pro Ser Asn Lys Met Leu
    370                 375                 380

Gly Lys Ile Tyr Asp Tyr Val Met His Ser Leu Ile His Phe Gln Gly
385                 390                 395                 400

Phe Phe Val Ala Thr Ile Tyr Cys Phe Cys Asn Asn Glu Val Gln Thr
                405                 410                 415

Thr Val Lys Arg Gln Trp Ala Gln Phe Lys Ile Gln Trp Asn Gln Arg
            420                 425                 430

Trp Gly Arg Arg Pro Ser Asn Arg Ser Ala Arg Ala Ala Ala Ala Ala
        435                 440                 445
```

```
Ala Glu Ala Gly Asp Ile Pro Ile Tyr Ile Cys His Gln Glu Leu Arg
    450                 455                 460

Asn Glu Pro Ala Asn Asn Gln Gly Glu Glu Ser Ala Glu Ile Ile Pro
465                 470                 475                 480

Leu Asn Ile Ile Glu Gln Glu Ser Ser Ala
                485                 490


<210> 10507
<211> 274
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000413179"

<400> 10507
Met Arg Phe Thr Phe Thr Ser Arg Cys Leu Ala Leu Phe Leu Leu Leu
1               5                   10                  15

Asn His Pro Thr Pro Ile Leu Pro Ala Phe Ser Asn Gln Thr Tyr Pro
            20                  25                  30

Thr Ile Glu Pro Lys Pro Phe Leu Tyr Val Val Gly Arg Lys Lys Met
        35                  40                  45

Met Asp Ala Gln Tyr Lys Cys Tyr Asp Arg Met Gln Gln Leu Pro Ala
    50                  55                  60

Tyr Gln Gly Glu Gly Pro Tyr Cys Asn Arg Thr Trp Asp Gly Trp Leu
65                  70                  75                  80
```

```
Cys Trp Asp Asp Thr Pro Ala Gly Val Leu Ser Tyr Gln Phe Cys Pro
                85                  90                  95

Asp Tyr Phe Pro Asp Phe Asp Pro Ser Glu Lys Val Thr Lys Tyr Cys
            100                 105                 110

Asp Glu Lys Gly Val Trp Phe Lys His Pro Glu Asn Asn Arg Thr Trp
        115                 120                 125

Ser Asn Tyr Thr Met Cys Asn Ala Phe Thr Pro Glu Lys Leu Lys Asn
    130                 135                 140

Ala Tyr Val Leu Tyr Tyr Leu Ala Ile Val Gly His Ser Leu Ser Ile
145                 150                 155                 160

Phe Thr Leu Val Ile Ser Leu Gly Ile Phe Val Phe Phe Arg Ser Leu
                165                 170                 175

Gly Cys Gln Arg Val Thr Leu His Lys Asn Met Phe Leu Thr Tyr Ile
            180                 185                 190

Leu Asn Ser Met Ile Ile Ile Ile His Leu Val Glu Val Val Pro Asn
        195                 200                 205

Gly Glu Leu Val Arg Arg Asp Pro Val Ser Cys Lys Ile Leu His Phe
    210                 215                 220

Phe His Gln Tyr Met Met Ala Cys Asn Tyr Phe Trp Met Leu Cys Glu
225                 230                 235                 240

Gly Ile Tyr Leu His Thr Leu Ile Val Val Ala Val Phe Thr Glu Lys
                245                 250                 255

Gln Arg Leu Arg Trp Tyr Tyr Leu Leu Gly Trp Ala Pro Ala Phe His
            260                 265                 270

Arg Asp
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<210> 10508
<211> 461
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
<221> source
<223> /note="Gene Name: calcitonin receptor-like; "

<220>
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<223> /note="Uniprot ID: Q16602; "

<220>
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<223> /note="ENSP ID: ENSP00000376177"

<400> 10508
Met Glu Lys Lys Cys Thr Leu Tyr Phe Leu Val Leu Leu Pro Phe Phe
1   5   10   15

Met Ile Leu Val Thr Ala Glu Leu Glu Glu Ser Pro Glu Asp Ser Ile
            20   25   30

Gln Leu Gly Val Thr Arg Asn Lys Ile Met Thr Ala Gln Tyr Glu Cys
        35   40   45

Tyr Gln Lys Ile Met Gln Asp Pro Ile Gln Gln Ala Glu Gly Val Tyr
    50   55   60

Cys Asn Arg Thr Trp Asp Gly Trp Leu Cys Trp Asn Asp Val Ala Ala
65   70   75   80

Gly Thr Glu Ser Met Gln Leu Cys Pro Asp Tyr Phe Gln Asp Phe Asp
                85   90   95

Pro Ser Glu Lys Val Thr Lys Ile Cys Asp Gln Asp Gly Asn Trp Phe
            100   105   110

Arg His Pro Ala Ser Asn Arg Thr Trp Thr Asn Tyr Thr Gln Cys Asn
        115   120   125

Val Asn Thr His Glu Lys Val Lys Thr Ala Leu Asn Leu Phe Tyr Leu
    130   135   140

Thr Ile Ile Gly His Gly Leu Ser Ile Ala Ser Leu Leu Ile Ser Leu
145 150 155 160

Gly Ile Phe Phe Tyr Phe Lys Ser Leu Ser Cys Gln Arg Ile Thr Leu
165 170 175

His Lys Asn Leu Phe Phe Ser Phe Val Cys Asn Ser Val Val Thr Ile
180 185 190

Ile His Leu Thr Ala Val Ala Asn Asn Gln Ala Leu Val Ala Thr Asn
195 200 205

Pro Val Ser Cys Lys Val Ser Gln Phe Ile His Leu Tyr Leu Met Gly
210 215 220

Cys Asn Tyr Phe Trp Met Leu Cys Glu Gly Ile Tyr Leu His Thr Leu
225 230 235 240

Ile Val Val Ala Val Phe Ala Glu Lys Gln His Leu Met Trp Tyr Tyr
245 250 255

Phe Leu Gly Trp Gly Phe Pro Leu Ile Pro Ala Cys Ile His Ala Ile
260 265 270

Ala Arg Ser Leu Tyr Tyr Asn Asp Asn Cys Trp Ile Ser Ser Asp Thr
275 280 285

His Leu Leu Tyr Ile Ile His Gly Pro Ile Cys Ala Ala Leu Leu Val
290 295 300

Asn Leu Phe Phe Leu Leu Asn Ile Val Arg Val Leu Ile Thr Lys Leu
305 310 315 320

Lys Val Thr His Gln Ala Glu Ser Asn Leu Tyr Met Lys Ala Val Arg
325 330 335

Ala Thr Leu Ile Leu Val Pro Leu Leu Gly Ile Glu Phe Val Leu Ile
340 345 350

Pro Trp Arg Pro Glu Gly Lys Ile Ala Glu Glu Val Tyr Asp Tyr Ile
355 360 365

```
Met His Ile Leu Met His Phe Gln Gly Leu Leu Val Ser Thr Ile Phe
    370                 375                 380

Cys Phe Phe Asn Gly Glu Val Gln Ala Ile Leu Arg Arg Asn Trp Asn
385                 390                 395                 400

Gln Tyr Lys Ile Gln Phe Gly Asn Ser Phe Ser Asn Ser Glu Ala Leu
                405                 410                 415

Arg Ser Ala Ser Tyr Thr Val Ser Thr Ile Ser Asp Gly Pro Gly Tyr
            420                 425                 430

Ser His Asp Cys Pro Ser Glu His Leu Asn Gly Lys Ser Ile His Asp
        435                 440                 445

Ile Glu Asn Val Leu Leu Lys Pro Glu Asn Leu Tyr Asn
    450                 455                 460
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<210> 10509
<211> 37
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2102; "

<220>
<221> source
<223> /note="Gene Symbol: CALCRL; "

<220>
<221> source
<223> /note="Gene Name: calcitonin receptor-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386599"

<400> 10509

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Met Glu Lys Lys Cys Thr Leu Tyr Phe Leu Val Leu Leu Pro Phe Phe
1               5                   10                  15

Met Ile Leu Val Thr Ala Glu Leu Glu Glu Ser Pro Glu Asp Ser Ile
            20                  25                  30

Gln Leu Gly Val Thr
        35
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<210> 10510
<211> 461
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<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcitonin receptor-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q16602; "

<220>
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<400> 10510
Met Glu Lys Lys Cys Thr Leu Tyr Phe Leu Val Leu Leu Pro Phe Phe
1   5   10   15

Met Ile Leu Val Thr Ala Glu Leu Glu Glu Ser Pro Glu Asp Ser Ile
            20   25   30

Gln Leu Gly Val Thr Arg Asn Lys Ile Met Thr Ala Gln Tyr Glu Cys
        35   40   45

Tyr Gln Lys Ile Met Gln Asp Pro Ile Gln Gln Ala Glu Gly Val Tyr
    50   55   60

Cys Asn Arg Thr Trp Asp Gly Trp Leu Cys Trp Asn Asp Val Ala Ala
65   70   75   80

Gly Thr Glu Ser Met Gln Leu Cys Pro Asp Tyr Phe Gln Asp Phe Asp
                85   90   95

Pro Ser Glu Lys Val Thr Lys Ile Cys Asp Gln Asp Gly Asn Trp Phe
            100   105   110

Arg His Pro Ala Ser Asn Arg Thr Trp Thr Asn Tyr Thr Gln Cys Asn
        115   120   125

```
Val Asn Thr His Glu Lys Val Lys Thr Ala Leu Asn Leu Phe Tyr Leu
    130                 135                 140

Thr Ile Ile Gly His Gly Leu Ser Ile Ala Ser Leu Leu Ile Ser Leu
145                 150                 155                 160

Gly Ile Phe Phe Tyr Phe Lys Ser Leu Ser Cys Gln Arg Ile Thr Leu
                165                 170                 175

His Lys Asn Leu Phe Phe Ser Phe Val Cys Asn Ser Val Val Thr Ile
            180                 185                 190

Ile His Leu Thr Ala Val Ala Asn Asn Gln Ala Leu Val Ala Thr Asn
        195                 200                 205

Pro Val Ser Cys Lys Val Ser Gln Phe Ile His Leu Tyr Leu Met Gly
    210                 215                 220

Cys Asn Tyr Phe Trp Met Leu Cys Glu Gly Ile Tyr Leu His Thr Leu
225                 230                 235                 240

Ile Val Val Ala Val Phe Ala Glu Lys Gln His Leu Met Trp Tyr Tyr
                245                 250                 255

Phe Leu Gly Trp Gly Phe Pro Leu Ile Pro Ala Cys Ile His Ala Ile
            260                 265                 270

Ala Arg Ser Leu Tyr Tyr Asn Asp Asn Cys Trp Ile Ser Ser Asp Thr
        275                 280                 285

His Leu Leu Tyr Ile Ile His Gly Pro Ile Cys Ala Ala Leu Leu Val
    290                 295                 300

Asn Leu Phe Phe Leu Leu Asn Ile Val Arg Val Leu Ile Thr Lys Leu
305                 310                 315                 320

Lys Val Thr His Gln Ala Glu Ser Asn Leu Tyr Met Lys Ala Val Arg
                325                 330                 335

Ala Thr Leu Ile Leu Val Pro Leu Leu Gly Ile Glu Phe Val Leu Ile
            340                 345                 350
```

```
Pro Trp Arg Pro Glu Gly Lys Ile Ala Glu Glu Val Tyr Asp Tyr Ile
        355                 360                 365

Met His Ile Leu Met His Phe Gln Gly Leu Leu Val Ser Thr Ile Phe
    370                 375                 380

Cys Phe Phe Asn Gly Glu Val Gln Ala Ile Leu Arg Arg Asn Trp Asn
385                 390                 395                 400

Gln Tyr Lys Ile Gln Phe Gly Asn Ser Phe Ser Asn Ser Glu Ala Leu
                405                 410                 415

Arg Ser Ala Ser Tyr Thr Val Ser Thr Ile Ser Asp Gly Pro Gly Tyr
            420                 425                 430

Ser His Asp Cys Pro Ser Glu His Leu Asn Gly Lys Ser Ile His Asp
        435                 440                 445

Ile Glu Asn Val Leu Leu Lys Pro Glu Asn Leu Tyr Asn
    450                 455                 460
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<210> 10511
<211> 461
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcitonin receptor-like; "

<220>
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<220>
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<400> 10511

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Met Glu Lys Lys Cys Thr Leu Tyr Phe Leu Val Leu Leu Pro Phe Phe
1               5                  10                  15
```

```
Met Ile Leu Val Thr Ala Glu Leu Glu Glu Ser Pro Glu Asp Ser Ile
            20                  25                  30

Gln Leu Gly Val Thr Arg Asn Lys Ile Met Thr Ala Gln Tyr Glu Cys
        35                  40                  45

Tyr Gln Lys Ile Met Gln Asp Pro Ile Gln Gln Ala Glu Gly Val Tyr
    50                  55                  60

Cys Asn Arg Thr Trp Asp Gly Trp Leu Cys Trp Asn Asp Val Ala Ala
65                  70                  75                  80

Gly Thr Glu Ser Met Gln Leu Cys Pro Asp Tyr Phe Gln Asp Phe Asp
                85                  90                  95

Pro Ser Glu Lys Val Thr Lys Ile Cys Asp Gln Asp Gly Asn Trp Phe
            100                 105                 110

Arg His Pro Ala Ser Asn Arg Thr Trp Thr Asn Tyr Thr Gln Cys Asn
        115                 120                 125

Val Asn Thr His Glu Lys Val Lys Thr Ala Leu Asn Leu Phe Tyr Leu
    130                 135                 140

Thr Ile Ile Gly His Gly Leu Ser Ile Ala Ser Leu Leu Ile Ser Leu
145                 150                 155                 160

Gly Ile Phe Phe Tyr Phe Lys Ser Leu Ser Cys Gln Arg Ile Thr Leu
                165                 170                 175

His Lys Asn Leu Phe Phe Ser Phe Val Cys Asn Ser Val Val Thr Ile
            180                 185                 190

Ile His Leu Thr Ala Val Ala Asn Asn Gln Ala Leu Val Ala Thr Asn
        195                 200                 205

Pro Val Ser Cys Lys Val Ser Gln Phe Ile His Leu Tyr Leu Met Gly
    210                 215                 220

Cys Asn Tyr Phe Trp Met Leu Cys Glu Gly Ile Tyr Leu His Thr Leu
225                 230                 235                 240
```

```
Ile Val Val Ala Val Phe Ala Glu Lys Gln His Leu Met Trp Tyr Tyr
                245                 250                 255

Phe Leu Gly Trp Gly Phe Pro Leu Ile Pro Ala Cys Ile His Ala Ile
            260                 265                 270

Ala Arg Ser Leu Tyr Tyr Asn Asp Asn Cys Trp Ile Ser Ser Asp Thr
        275                 280                 285

His Leu Leu Tyr Ile Ile His Gly Pro Ile Cys Ala Ala Leu Leu Val
    290                 295                 300

Asn Leu Phe Phe Leu Leu Asn Ile Val Arg Val Leu Ile Thr Lys Leu
305                 310                 315                 320

Lys Val Thr His Gln Ala Glu Ser Asn Leu Tyr Met Lys Ala Val Arg
                325                 330                 335

Ala Thr Leu Ile Leu Val Pro Leu Leu Gly Ile Glu Phe Val Leu Ile
            340                 345                 350

Pro Trp Arg Pro Glu Gly Lys Ile Ala Glu Glu Val Tyr Asp Tyr Ile
        355                 360                 365

Met His Ile Leu Met His Phe Gln Gly Leu Leu Val Ser Thr Ile Phe
    370                 375                 380

Cys Phe Phe Asn Gly Glu Val Gln Ala Ile Leu Arg Arg Asn Trp Asn
385                 390                 395                 400

Gln Tyr Lys Ile Gln Phe Gly Asn Ser Phe Ser Asn Ser Glu Ala Leu
                405                 410                 415

Arg Ser Ala Ser Tyr Thr Val Ser Thr Ile Ser Asp Gly Pro Gly Tyr
            420                 425                 430

Ser His Asp Cys Pro Ser Glu His Leu Asn Gly Lys Ser Ile His Asp
        435                 440                 445

Ile Glu Asn Val Leu Leu Lys Pro Glu Asn Leu Tyr Asn
    450                 455                 460
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<210> 10512
<211> 77
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcitonin receptor-like; "

<220>
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<400> 10512
Met Glu Lys Lys Cys Thr Leu Tyr Phe Leu Val Leu Leu Pro Phe Phe
1   5   10   15

Met Ile Leu Val Thr Ala Glu Leu Glu Glu Ser Pro Glu Asp Ser Ile
            20   25   30

Gln Leu Gly Val Thr Arg Asn Lys Ile Met Thr Ala Gln Tyr Glu Cys
        35   40   45

Tyr Gln Lys Ile Met Gln Asp Pro Ile Gln Gln Ala Glu Gly Val Tyr
    50   55   60

Cys Asn Arg Thr Trp Asp Gly Trp Leu Cys Trp Asn Asp
65   70   75

<210> 10513
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2103; "

<220>
<221> source
<223> /note="Gene Symbol: CALCA; "

<220>
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<223> /note="Gene Name: calcitonin-related polypeptide alpha; "

<220>
<221> source
<223> /note="Uniprot ID: P01258; "

<220>
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<223> /note="ENSP ID: ENSP00000331746"

<400> 10513
Met Gly Phe Gln Lys Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val
1   5   10   15

Leu Leu Gln Ala Gly Ser Leu His Ala Ala Pro Phe Arg Ser Ala Leu
            20   25   30

Glu Ser Ser Pro Ala Asp Pro Ala Thr Leu Ser Glu Asp Glu Ala Arg
        35   40   45

Leu Leu Leu Ala Ala Leu Val Gln Asp Tyr Val Gln Met Lys Ala Ser
    50   55   60

Glu Leu Glu Gln Glu Gln Glu Arg Glu Gly Ser Ser Leu Asp Ser Pro
65   70   75   80

Arg Ser Lys Arg Cys Gly Asn Leu Ser Thr Cys Met Leu Gly Thr Tyr
                85   90   95

Thr Gln Asp Phe Asn Lys Phe His Thr Phe Pro Gln Thr Ala Ile Gly
            100   105   110

Val Gly Ala Pro Gly Lys Lys Arg Asp Met Ser Ser Asp Leu Glu Arg
        115   120   125

Asp His Arg Pro His Val Ser Met Pro Gln Asn Ala Asn
    130   135   140

<210> 10514
<211> 128
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2103; "

<220>

<221> source
<223> /note="Gene Symbol: CALCA; "

<220>
<221> source
<223> /note="Gene Name: calcitonin-related polypeptide alpha; "

<220>
<221> source
<223> /note="Uniprot ID: P06881; "

<220>
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<223> /note="ENSP ID: ENSP00000354286"

<400> 10514
Met Gly Phe Gln Lys Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val
1   5   10   15

Leu Leu Gln Ala Gly Ser Leu His Ala Ala Pro Phe Arg Ser Ala Leu
            20   25   30

Glu Ser Ser Pro Ala Asp Pro Ala Thr Leu Ser Glu Asp Glu Ala Arg
        35   40   45

Leu Leu Leu Ala Ala Leu Val Gln Asp Tyr Val Gln Met Lys Ala Ser
    50   55   60

Glu Leu Glu Gln Glu Gln Glu Arg Glu Gly Ser Arg Ile Ile Ala Gln
65   70   75   80

Lys Arg Ala Cys Asp Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly
                85   90   95

Leu Leu Ser Arg Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr
            100   105   110

Asn Val Gly Ser Lys Ala Phe Gly Arg Arg Arg Arg Asp Leu Gln Ala
        115   120   125

<210> 10515
<211> 141
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcitonin-related polypeptide alpha; "

<220>
<221> source
<223> /note="Uniprot ID: P01258; "

<220>
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<223> /note="ENSP ID: ENSP00000379657"

<400> 10515
Met Gly Phe Gln Lys Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val
1   5   10   15

Leu Leu Gln Ala Gly Ser Leu His Ala Ala Pro Phe Arg Ser Ala Leu
            20   25   30

Glu Ser Ser Pro Ala Asp Pro Ala Thr Leu Ser Glu Asp Glu Ala Arg
        35   40   45

Leu Leu Leu Ala Ala Leu Val Gln Asp Tyr Val Gln Met Lys Ala Ser
    50   55   60

Glu Leu Glu Gln Glu Gln Glu Arg Glu Gly Ser Ser Leu Asp Ser Pro
65   70   75   80

Arg Ser Lys Arg Cys Gly Asn Leu Ser Thr Cys Met Leu Gly Thr Tyr
                85   90   95

Thr Gln Asp Phe Asn Lys Phe His Thr Phe Pro Gln Thr Ala Ile Gly
            100   105   110

Val Gly Ala Pro Gly Lys Lys Arg Asp Met Ser Ser Asp Leu Glu Arg
        115   120   125

Asp His Arg Pro His Val Ser Met Pro Gln Asn Ala Asn
    130   135   140

<210> 10516
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2103; "

<220>
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<223> /note="Gene Name: calcitonin-related polypeptide alpha; "

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<223> /note="Uniprot ID: P06881; "

<220>
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<223> /note="ENSP ID: ENSP00000417833"

<400> 10516
Met Gly Phe Gln Lys Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val
1   5   10   15

Leu Leu Gln Ala Gly Ser Leu His Ala Ala Pro Phe Arg Ser Ala Leu
            20   25   30

Glu Ser Ser Pro Ala Asp Pro Ala Thr Leu Ser Glu Asp Glu Ala Arg
        35   40   45

Leu Leu Leu Ala Ala Leu Val Gln Asp Tyr Val Gln Met Lys Ala Ser
    50   55   60

Glu Leu Glu Gln Glu Gln Glu Arg Glu Gly Ser Arg Ile Ile Ala Gln
65   70   75   80

Lys Arg Ala Cys Asp Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly
                85   90   95

Leu Leu Ser Arg Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr
            100   105   110

Asn Val Gly Ser Lys Ala Phe Gly Arg Arg Arg Arg Asp Leu Gln Ala
        115   120   125

<210> 10517
<211> 141
<212> PRT

<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CALCA; "

<220>
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<223> /note="Gene Name: calcitonin-related polypeptide alpha; "

<220>
<221> source
<223> /note="Uniprot ID: P01258; "

<220>
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<223> /note="ENSP ID: ENSP00000420618"

<400> 10517
Met Gly Phe Gln Lys Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val
1   5   10   15

Leu Leu Gln Ala Gly Ser Leu His Ala Ala Pro Phe Arg Ser Ala Leu
            20   25   30

Glu Ser Ser Pro Ala Asp Pro Ala Thr Leu Ser Glu Asp Glu Ala Arg
        35   40   45

Leu Leu Leu Ala Ala Leu Val Gln Asp Tyr Val Gln Met Lys Ala Ser
    50   55   60

Glu Leu Glu Gln Glu Gln Glu Arg Glu Gly Ser Ser Leu Asp Ser Pro
65   70   75   80

Arg Ser Lys Arg Cys Gly Asn Leu Ser Thr Cys Met Leu Gly Thr Tyr
                85   90   95

Thr Gln Asp Phe Asn Lys Phe His Thr Phe Pro Gln Thr Ala Ile Gly
            100   105   110

Val Gly Ala Pro Gly Lys Lys Arg Asp Met Ser Ser Asp Leu Glu Arg
        115   120   125

Asp His Arg Pro His Asn His Cys Pro Glu Glu Ser Leu
    130   135   140

<210> 10518
<211> 127
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CALCB; "

<220>
<221> source
<223> /note="Gene Name: calcitonin-related polypeptide beta; "

<220>
<221> source
<223> /note="Uniprot ID: P10092; "

<220>
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<223> /note="ENSP ID: ENSP00000346017"

<400> 10518
Met Gly Phe Arg Lys Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val
1   5   10   15

Leu Tyr Gln Ala Gly Ser Leu Gln Ala Ala Pro Phe Arg Ser Ala Leu
            20   25   30

Glu Ser Ser Pro Asp Pro Ala Thr Leu Ser Lys Glu Asp Ala Arg Leu
        35   40   45

Leu Leu Ala Ala Leu Val Gln Asp Tyr Val Gln Met Lys Ala Ser Glu
    50   55   60

Leu Lys Gln Glu Gln Glu Thr Gln Gly Ser Ser Ser Ala Ala Gln Lys
65   70   75   80

Arg Ala Cys Asn Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu
                85   90   95

Leu Ser Arg Ser Gly Gly Met Val Lys Ser Asn Phe Val Pro Thr Asn
            100   105   110

Val Gly Ser Lys Ala Phe Gly Arg Arg Arg Arg Asp Leu Gln Ala

115 120 125

<210> 10519
<211> 138
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CALCB; "

<220>
<221> source
<223> /note="Gene Name: calcitonin-related polypeptide beta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000428882"

<400> 10519
Met Lys Lys Glu Ala Asn Leu Gln Arg Gly Gly Met Gly Phe Arg Lys
1 5 10 15

Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val Leu Tyr Gln Ala Gly
20 25 30

Ser Leu Gln Ala Ala Pro Phe Arg Ser Ala Leu Glu Ser Ser Pro Asp
35 40 45

Pro Ala Thr Leu Ser Lys Glu Asp Ala Arg Leu Leu Leu Ala Ala Leu
50 55 60

Val Gln Asp Tyr Val Gln Met Lys Ala Ser Glu Leu Lys Gln Glu Gln
65 70 75 80

Glu Thr Gln Gly Ser Ser Ser Ala Ala Gln Lys Arg Ala Cys Asn Thr
85 90 95

Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu Leu Ser Arg Ser Gly
100 105 110

Gly Met Val Lys Ser Asn Phe Val Pro Thr Asn Val Gly Ser Lys Ala
115 120 125

Phe Gly Arg Arg Arg Arg Asp Leu Gln Ala
130 135

<210> 10520
<211> 127
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CALCB; "

<220>
<221> source
<223> /note="Gene Name: calcitonin-related polypeptide beta; "

<220>
<221> source
<223> /note="Uniprot ID: P10092; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433490"

<400> 10520
Met Gly Phe Arg Lys Phe Ser Pro Phe Leu Ala Leu Ser Ile Leu Val
1 5 10 15

Leu Tyr Gln Ala Gly Ser Leu Gln Ala Ala Pro Phe Arg Ser Ala Leu
20 25 30

Glu Ser Ser Pro Asp Pro Ala Thr Leu Ser Lys Glu Asp Ala Arg Leu
35 40 45

Leu Leu Ala Ala Leu Val Gln Asp Tyr Val Gln Met Lys Ala Ser Glu
50 55 60

Leu Lys Gln Glu Gln Glu Thr Gln Gly Ser Ser Ser Ala Ala Gln Lys
65 70 75 80

Arg Ala Cys Asn Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu
85 90 95

Leu Ser Arg Ser Gly Gly Met Val Lys Ser Asn Phe Val Pro Thr Asn
100 105 110

Val Gly Ser Lys Ala Phe Gly Arg Arg Arg Arg Asp Leu Gln Ala
        115   120   125

<210> 10521
<211> 401
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WVQ1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000307674"

<400> 10521
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35   40   45

Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
    50   55   60

Ala Pro Gly Arg Pro Pro Thr His Asn Ala His Asn Trp Arg Leu Gly
65   70   75   80

Gln Ala Pro Ala Asn Trp Tyr Asn Asp Thr Tyr Pro Leu Ser Pro Pro
                85   90   95

Gln Arg Thr Pro Ala Gly Ile Arg Tyr Arg Ile Ala Val Ile Ala Asp
            100   105   110

```
Leu Asp Thr Glu Ser Arg Ala Gln Glu Glu Asn Thr Trp Phe Ser Tyr
        115                 120                 125

Leu Lys Lys Gly Tyr Leu Thr Leu Ser Asp Ser Gly Asp Lys Val Ala
    130                 135                 140

Val Glu Trp Asp Lys Asp His Gly Val Leu Glu Ser His Leu Ala Glu
145                 150                 155                 160

Lys Gly Arg Gly Met Glu Leu Ser Asp Leu Ile Val Phe Asn Gly Lys
                165                 170                 175

Leu Tyr Ser Val Asp Asp Arg Thr Gly Val Val Tyr Gln Ile Glu Gly
            180                 185                 190

Ser Lys Ala Val Pro Trp Val Ile Leu Ser Asp Gly Asp Gly Thr Val
        195                 200                 205

Glu Lys Gly Phe Lys Ala Glu Trp Leu Ala Val Lys Asp Glu Arg Leu
    210                 215                 220

Tyr Val Gly Gly Leu Gly Lys Glu Trp Thr Thr Thr Thr Gly Asp Val
225                 230                 235                 240

Val Asn Glu Asn Pro Glu Trp Val Lys Val Val Gly Tyr Lys Gly Ser
                245                 250                 255

Val Asp His Glu Asn Trp Val Ser Asn Tyr Asn Ala Leu Arg Ala Ala
            260                 265                 270

Ala Gly Ile Gln Pro Pro Gly Tyr Leu Ile His Glu Ser Ala Cys Trp
        275                 280                 285

Ser Asp Thr Leu Gln Arg Trp Phe Phe Leu Pro Arg Arg Ala Ser Gln
    290                 295                 300

Glu Arg Tyr Ser Glu Lys Asp Asp Glu Arg Lys Gly Ala Asn Leu Leu
305                 310                 315                 320

Leu Ser Ala Ser Pro Asp Phe Gly Asp Ile Ala Val Ser His Val Gly
                325                 330                 335
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Ala Val Val Pro Thr His Gly Phe Ser Ser Phe Lys Phe Ile Pro Asn
            340                 345                 350

Thr Asp Asp Gln Ile Ile Val Ala Leu Lys Ser Glu Glu Asp Ser Gly
        355                 360                 365

Arg Val Ala Ser Tyr Ile Met Ala Phe Thr Leu Asp Gly Arg Phe Leu
    370                 375                 380

Leu Pro Glu Thr Lys Ile Gly Ser Val Lys Tyr Glu Gly Ile Glu Phe
385                 390                 395                 400

Ile
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<210> 10522
<211> 401
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
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<223> /note="Gene Symbol: CANT1; "

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<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
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<223> /note="Uniprot ID: Q8WVQ1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376241"

<400> 10522

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Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1               5                  10                  15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20                  25                  30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35                  40                  45
```

```
Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
    50                  55                  60

Ala Pro Gly Arg Pro Pro Thr His Asn Ala His Asn Trp Arg Leu Gly
65                  70                  75                  80

Gln Ala Pro Ala Asn Trp Tyr Asn Asp Thr Tyr Pro Leu Ser Pro Pro
                85                  90                  95

Gln Arg Thr Pro Ala Gly Ile Arg Tyr Arg Ile Ala Val Ile Ala Asp
            100                 105                 110

Leu Asp Thr Glu Ser Arg Ala Gln Glu Glu Asn Thr Trp Phe Ser Tyr
        115                 120                 125

Leu Lys Lys Gly Tyr Leu Thr Leu Ser Asp Ser Gly Asp Lys Val Ala
    130                 135                 140

Val Glu Trp Asp Lys Asp His Gly Val Leu Glu Ser His Leu Ala Glu
145                 150                 155                 160

Lys Gly Arg Gly Met Glu Leu Ser Asp Leu Ile Val Phe Asn Gly Lys
                165                 170                 175

Leu Tyr Ser Val Asp Asp Arg Thr Gly Val Val Tyr Gln Ile Glu Gly
            180                 185                 190

Ser Lys Ala Val Pro Trp Val Ile Leu Ser Asp Gly Asp Gly Thr Val
        195                 200                 205

Glu Lys Gly Phe Lys Ala Glu Trp Leu Ala Val Lys Asp Glu Arg Leu
    210                 215                 220

Tyr Val Gly Gly Leu Gly Lys Glu Trp Thr Thr Thr Thr Gly Asp Val
225                 230                 235                 240

Val Asn Glu Asn Pro Glu Trp Val Lys Val Val Gly Tyr Lys Gly Ser
                245                 250                 255

Val Asp His Glu Asn Trp Val Ser Asn Tyr Asn Ala Leu Arg Ala Ala
            260                 265                 270
```

```
Ala Gly Ile Gln Pro Pro Gly Tyr Leu Ile His Glu Ser Ala Cys Trp
        275                 280                 285

Ser Asp Thr Leu Gln Arg Trp Phe Phe Leu Pro Arg Arg Ala Ser Gln
    290                 295                 300

Glu Arg Tyr Ser Glu Lys Asp Asp Glu Arg Lys Gly Ala Asn Leu Leu
305                 310                 315                 320

Leu Ser Ala Ser Pro Asp Phe Gly Asp Ile Ala Val Ser His Val Gly
                325                 330                 335

Ala Val Val Pro Thr His Gly Phe Ser Ser Phe Lys Phe Ile Pro Asn
            340                 345                 350

Thr Asp Asp Gln Ile Ile Val Ala Leu Lys Ser Glu Glu Asp Ser Gly
        355                 360                 365

Arg Val Ala Ser Tyr Ile Met Ala Phe Thr Leu Asp Gly Arg Phe Leu
    370                 375                 380

Leu Pro Glu Thr Lys Ile Gly Ser Val Lys Tyr Glu Gly Ile Glu Phe
385                 390                 395                 400

Ile
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<210> 10523
<211> 38
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464841"

<400> 10523
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg
        35

<210> 10524
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465769"

<400> 10524
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35   40   45

Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
    50   55   60

Ala Pro Gly Arg Pro Pro Thr His Asn Ala His Asn
65   70   75

<210> 10525

<211> 118
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465816"

<400> 10525
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Asp Thr Gly Trp
        35   40   45

Asp Ser Val Ser Asn Arg Ser Tyr Arg Arg Pro Gly His Arg Val Lys
    50   55   60

Gly Pro Arg Gly Lys His Leu Val Gln Leu Pro Glu Lys Gly Leu Pro
65   70   75   80

Asp Pro Val Arg Gln Trp Gly Gln Gly Gly Arg Gly Met Gly Gln Arg
                85   90   95

Pro Trp Gly Pro Gly Val Pro Pro Gly Gly Glu Gly Glu Arg His Gly
            100   105   110

Ala Ile Arg Pro Asp Cys
        115

<210> 10526
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000466637"

<400> 10526
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35   40   45

Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
    50   55   60

Ala
65

<210> 10527
<211> 264
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000466743"

<400> 10527

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Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1               5                  10                  15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20                  25                  30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35                  40                  45

Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
    50                  55                  60

Ala Pro Gly Arg Pro Pro Thr His Asn Ala His Asn Trp Arg Leu Gly
65                  70                  75                  80

Gln Ala Pro Ala Asn Trp Tyr Asn Asp Thr Tyr Pro Leu Ser Pro Pro
                85                  90                  95

Gln Arg Thr Pro Ala Gly Ile Arg Tyr Arg Ile Ala Val Ile Ala Asp
            100                 105                 110

Leu Asp Thr Glu Ser Arg Ala Gln Glu Glu Asn Thr Trp Phe Ser Tyr
        115                 120                 125

Leu Lys Lys Gly Tyr Leu Thr Leu Ser Asp Ser Gly Asp Lys Val Ala
    130                 135                 140

Val Glu Trp Asp Lys Asp His Gly Val Leu Glu Ser His Leu Ala Glu
145                 150                 155                 160

Lys Gly Arg Gly Met Glu Leu Ser Asp Leu Ile Val Phe Asn Gly Lys
                165                 170                 175

Leu Tyr Ser Val Asp Asp Arg Thr Gly Val Val Tyr Gln Ile Glu Gly
            180                 185                 190

Ser Lys Ala Val Pro Trp Val Ile Leu Ser Asp Gly Asp Gly Thr Val
        195                 200                 205

Glu Lys Gly Asn Trp Thr Leu Ser Ser Ala Gly Asp Cys Lys Glu Ala
    210                 215                 220
```

```
Val Ala Ala Gly Glu Ala Ser Leu Thr Cys Arg Arg Ser Trp Pro Met
225                 230                 235                 240


Asp Thr Lys Ile Lys Lys Met Leu Pro Phe Ser Arg Asn Cys Gln Lys
                245                 250                 255


Ser Ser Cys Leu Ser Arg Leu Leu
            260


<210> 10528
<211> 401
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8WVQ1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467437"

<400> 10528
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1               5                   10                  15


Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20                  25                  30


Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35                  40                  45


Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
    50                  55                  60


Ala Pro Gly Arg Pro Pro Thr His Asn Ala His Asn Trp Arg Leu Gly
```

65 70 75 80

Gln Ala Pro Ala Asn Trp Tyr Asn Asp Thr Tyr Pro Leu Ser Pro Pro
85 90 95

Gln Arg Thr Pro Ala Gly Ile Arg Tyr Arg Ile Ala Val Ile Ala Asp
100 105 110

Leu Asp Thr Glu Ser Arg Ala Gln Glu Glu Asn Thr Trp Phe Ser Tyr
115 120 125

Leu Lys Lys Gly Tyr Leu Thr Leu Ser Asp Ser Gly Asp Lys Val Ala
130 135 140

Val Glu Trp Asp Lys Asp His Gly Val Leu Glu Ser His Leu Ala Glu
145 150 155 160

Lys Gly Arg Gly Met Glu Leu Ser Asp Leu Ile Val Phe Asn Gly Lys
165 170 175

Leu Tyr Ser Val Asp Asp Arg Thr Gly Val Val Tyr Gln Ile Glu Gly
180 185 190

Ser Lys Ala Val Pro Trp Val Ile Leu Ser Asp Gly Asp Gly Thr Val
195 200 205

Glu Lys Gly Phe Lys Ala Glu Trp Leu Ala Val Lys Asp Glu Arg Leu
210 215 220

Tyr Val Gly Gly Leu Gly Lys Glu Trp Thr Thr Thr Thr Gly Asp Val
225 230 235 240

Val Asn Glu Asn Pro Glu Trp Val Lys Val Val Gly Tyr Lys Gly Ser
245 250 255

Val Asp His Glu Asn Trp Val Ser Asn Tyr Asn Ala Leu Arg Ala Ala
260 265 270

Ala Gly Ile Gln Pro Pro Gly Tyr Leu Ile His Glu Ser Ala Cys Trp
275 280 285

Ser Asp Thr Leu Gln Arg Trp Phe Phe Leu Pro Arg Arg Ala Ser Gln
290 295 300

Glu Arg Tyr Ser Glu Lys Asp Asp Glu Arg Lys Gly Ala Asn Leu Leu
305 310 315 320

Leu Ser Ala Ser Pro Asp Phe Gly Asp Ile Ala Val Ser His Val Gly
325 330 335

Ala Val Val Pro Thr His Gly Phe Ser Ser Phe Lys Phe Ile Pro Asn
340 345 350

Thr Asp Asp Gln Ile Ile Val Ala Leu Lys Ser Glu Glu Asp Ser Gly
355 360 365

Arg Val Ala Ser Tyr Ile Met Ala Phe Thr Leu Asp Gly Arg Phe Leu
370 375 380

Leu Pro Glu Thr Lys Ile Gly Ser Val Lys Tyr Glu Gly Ile Glu Phe
385 390 395 400

Ile

<210> 10529
<211> 15
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467777"

<400> 10529
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met
1 5 10 15

<210> 10530

<211> 38
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467886"

<400> 10530
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg
        35

<210> 10531
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467970"

<400> 10531
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35   40   45

Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser
    50   55   60

<210> 10532
<211> 401
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2105; "

<220>
<221> source
<223> /note="Gene Symbol: CANT1; "

<220>
<221> source
<223> /note="Gene Name: calcium activated nucleotidase 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WVQ1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477798"

<400> 10532
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
1   5   10   15

Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
            20   25   30

Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
        35   40   45

Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
    50   55   60

Ala Pro Gly Arg Pro Pro Thr His Asn Ala His Asn Trp Arg Leu Gly

65 70 75 80

Gln Ala Pro Ala Asn Trp Tyr Asn Asp Thr Tyr Pro Leu Ser Pro Pro
85 90 95

Gln Arg Thr Pro Ala Gly Ile Arg Tyr Arg Ile Ala Val Ile Ala Asp
100 105 110

Leu Asp Thr Glu Ser Arg Ala Gln Glu Glu Asn Thr Trp Phe Ser Tyr
115 120 125

Leu Lys Lys Gly Tyr Leu Thr Leu Ser Asp Ser Gly Asp Lys Val Ala
130 135 140

Val Glu Trp Asp Lys Asp His Gly Val Leu Glu Ser His Leu Ala Glu
145 150 155 160

Lys Gly Arg Gly Met Glu Leu Ser Asp Leu Ile Val Phe Asn Gly Lys
165 170 175

Leu Tyr Ser Val Asp Asp Arg Thr Gly Val Val Tyr Gln Ile Glu Gly
180 185 190

Ser Lys Ala Val Pro Trp Val Ile Leu Ser Asp Gly Asp Gly Thr Val
195 200 205

Glu Lys Gly Phe Lys Ala Glu Trp Leu Ala Val Lys Asp Glu Arg Leu
210 215 220

Tyr Val Gly Gly Leu Gly Lys Glu Trp Thr Thr Thr Thr Gly Asp Val
225 230 235 240

Val Asn Glu Asn Pro Glu Trp Val Lys Val Val Gly Tyr Lys Gly Ser
245 250 255

Val Asp His Glu Asn Trp Val Ser Asn Tyr Asn Ala Leu Arg Ala Ala
260 265 270

Ala Gly Ile Gln Pro Pro Gly Tyr Leu Ile His Glu Ser Ala Cys Trp
275 280 285

Ser Asp Thr Leu Gln Arg Trp Phe Phe Leu Pro Arg Arg Ala Ser Gln
290 295 300

```
Glu Arg Tyr Ser Glu Lys Asp Asp Glu Arg Lys Gly Ala Asn Leu Leu
305                 310                 315                 320

Leu Ser Ala Ser Pro Asp Phe Gly Asp Ile Ala Val Ser His Val Gly
                325                 330                 335

Ala Val Val Pro Thr His Gly Phe Ser Ser Phe Lys Phe Ile Pro Asn
            340                 345                 350

Thr Asp Asp Gln Ile Ile Val Ala Leu Lys Ser Glu Glu Asp Ser Gly
        355                 360                 365

Arg Val Ala Ser Tyr Ile Met Ala Phe Thr Leu Asp Gly Arg Phe Leu
    370                 375                 380

Leu Pro Glu Thr Lys Ile Gly Ser Val Lys Tyr Glu Gly Ile Glu Phe
385                 390                 395                 400

Ile
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<210> 10533
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2106; "

<220>
<221> source
<223> /note="Gene Symbol: CIB1; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding
1 (calmyrin); "

<220>
<221> source
<223> /note="Uniprot ID: Q99828; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000333873"

<400> 10533

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Met Gly Gly Ser Gly Ser Arg Leu Ser Lys Glu Leu Leu Ala Glu Tyr
1               5                  10                  15

Gln Asp Leu Thr Phe Leu Thr Lys Gln Glu Ile Leu Leu Ala His Arg
            20                  25                  30

Arg Phe Cys Glu Leu Leu Pro Gln Glu Gln Arg Ser Val Glu Ser Ser
        35                  40                  45

Leu Arg Ala Gln Val Pro Phe Glu Gln Ile Leu Ser Leu Pro Glu Leu
    50                  55                  60

Lys Ala Asn Pro Phe Lys Glu Arg Ile Cys Arg Val Phe Ser Thr Ser
65                  70                  75                  80

Pro Ala Lys Asp Ser Leu Ser Phe Glu Asp Phe Leu Asp Leu Leu Ser
                85                  90                  95

Val Phe Ser Asp Thr Ala Thr Pro Asp Ile Lys Ser His Tyr Ala Phe
            100                 105                 110

Arg Ile Phe Asp Phe Asp Asp Asp Gly Thr Leu Asn Arg Glu Asp Leu
        115                 120                 125

Ser Arg Leu Val Asn Cys Leu Thr Gly Glu Gly Glu Asp Thr Arg Leu
    130                 135                 140

Ser Ala Ser Glu Met Lys Gln Leu Ile Asp Asn Ile Leu Glu Glu Ser
145                 150                 155                 160

Asp Ile Asp Arg Asp Gly Thr Ile Asn Leu Ser Glu Phe Gln His Val
                165                 170                 175

Ile Ser Arg Ser Pro Asp Phe Ala Ser Ser Phe Lys Ile Val Leu
            180                 185                 190


<210> 10534
<211> 231
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2106; "
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<220>
<221> source
<223> /note="Gene Symbol: CIB1; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding
1 (calmyrin); "

<220>
<221> source
<223> /note="Uniprot ID: Q99828; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479860"

<400> 10534
Met Gly Gly Ser Gly Ser Arg Leu Ser Lys Glu Leu Leu Ala Glu Tyr
1 5 10 15

Gln Asp Leu Thr Phe Leu Thr Lys Gln Glu Ile Leu Leu Ser Val Tyr
20 25 30

Val Val Leu Ala Pro His Leu Val Asp Asn Glu Gln Gln Ala Arg Ser
35 40 45

Gly Asn Glu His Thr Gly Arg Pro Ile Ala Glu Asn Thr Asp Ser Ser
50 55 60

Pro Leu Ser Thr Arg Ala His Arg Arg Phe Cys Glu Leu Leu Pro Gln
65 70 75 80

Glu Gln Arg Ser Val Glu Ser Ser Leu Arg Ala Gln Val Pro Phe Glu
85 90 95

Gln Ile Leu Ser Leu Pro Glu Leu Lys Ala Asn Pro Phe Lys Glu Arg
100 105 110

Ile Cys Arg Val Phe Ser Thr Ser Pro Ala Lys Asp Ser Leu Ser Phe
115 120 125

Glu Asp Phe Leu Asp Leu Leu Ser Val Phe Ser Asp Thr Ala Thr Pro
130 135 140

Asp Ile Lys Ser His Tyr Ala Phe Arg Ile Phe Asp Phe Asp Asp Asp
145 150 155 160

```
Gly Thr Leu Asn Arg Glu Asp Leu Ser Arg Leu Val Asn Cys Leu Thr
                165                 170                 175

Gly Glu Gly Glu Asp Thr Arg Leu Ser Ala Ser Glu Met Lys Gln Leu
            180                 185                 190

Ile Asp Asn Ile Leu Glu Glu Ser Asp Ile Asp Arg Asp Gly Thr Ile
        195                 200                 205

Asn Leu Ser Glu Phe Gln His Val Ile Ser Arg Ser Pro Asp Phe Ala
    210                 215                 220

Ser Ser Phe Lys Ile Val Leu
225                 230


<210> 10535
<211> 187
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2107; "

<220>
<221> source
<223> /note="Gene Symbol: CIB2; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding family
      member 2; "

<220>
<221> source
<223> /note="Uniprot ID:  O75838; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000258930"

<400> 10535
Met Gly Asn Lys Gln Thr Ile Phe Thr Glu Glu Gln Leu Asp Asn Tyr
1               5                   10                  15

Gln Asp Cys Thr Phe Phe Asn Lys Lys Asp Ile Leu Lys Leu His Ser
            20                  25                  30

Arg Phe Tyr Glu Leu Ala Pro Asn Leu Val Pro Met Asp Tyr Arg Lys
```

```
        35                  40                  45

Ser Pro Ile Val His Val Pro Met Ser Leu Ile Ile Gln Met Pro Glu
    50                  55                  60

Leu Arg Glu Asn Pro Phe Lys Glu Arg Ile Val Ala Ala Phe Ser Glu
65                  70                  75                  80

Asp Gly Glu Gly Asn Leu Thr Phe Asn Asp Phe Val Asp Met Phe Ser
                85                  90                  95

Val Leu Cys Glu Ser Ala Pro Arg Glu Leu Lys Ala Asn Tyr Ala Phe
            100                 105                 110

Lys Ile Tyr Asp Phe Asn Thr Asp Asn Phe Ile Cys Lys Glu Asp Leu
        115                 120                 125

Glu Leu Thr Leu Ala Arg Leu Thr Lys Ser Glu Leu Asp Glu Glu Glu
    130                 135                 140

Val Val Leu Val Cys Asp Lys Val Ile Glu Glu Ala Asp Leu Asp Gly
145                 150                 155                 160

Asp Gly Lys Leu Gly Phe Ala Asp Phe Glu Asp Met Ile Ala Lys Ala
                165                 170                 175

Pro Asp Phe Leu Ser Thr Phe His Ile Arg Ile
            180                 185


<210> 10536
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2107; "

<220>
<221> source
<223> /note="Gene Symbol: CIB2; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding family
      member 2; "
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<220>
<221> source
<223> /note="Uniprot ID: O75838; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000442459"

<400> 10536
Met Asp Tyr Arg Lys Ser Pro Ile Val His Val Pro Met Ser Leu Ile
1   5   10   15

Ile Gln Met Pro Glu Leu Arg Glu Asn Pro Phe Lys Glu Arg Ile Val
            20   25   30

Ala Ala Phe Ser Glu Asp Gly Glu Gly Asn Leu Thr Phe Asn Asp Phe
        35   40   45

Val Asp Met Phe Ser Val Leu Cys Glu Ser Ala Pro Arg Glu Leu Lys
    50   55   60

Ala Asn Tyr Ala Phe Lys Ile Tyr Asp Phe Asn Thr Asp Asn Phe Ile
65   70   75   80

Cys Lys Glu Asp Leu Glu Leu Thr Leu Ala Arg Leu Thr Lys Ser Glu
                85   90   95

Leu Asp Glu Glu Glu Val Val Leu Val Cys Asp Lys Val Ile Glu Glu
            100   105   110

Ala Asp Leu Asp Gly Asp Gly Lys Leu Gly Phe Ala Asp Phe Glu Asp
        115   120   125

Met Ile Ala Lys Ala Pro Asp Phe Leu Ser Thr Phe His Ile Arg Ile
    130   135   140

<210> 10537
<211> 167
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2107; "

<220>
<221> source
<223> /note="Gene Symbol: CIB2; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding family
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452752"

<400> 10537
Met Asp Tyr Arg Lys Ser Pro Ile Val His Val Pro Met Ser Leu Ile
1 5 10 15

Ile Gln Met Pro Glu Leu Arg Glu Asn Pro Phe Lys Glu Arg Ile Val
20 25 30

Ala Ala Phe Ser Glu Asp Gly Glu Gly Asn Leu Thr Phe Asn Asp Phe
35 40 45

Val Asp Met Phe Ser Val Leu Cys Glu Ser Ala Pro Arg Glu Leu Lys
50 55 60

Ala Asn Tyr Ala Phe Lys Ile Tyr Asp Phe Asn Thr Asp Asn Phe Ile
65 70 75 80

Cys Lys Glu Asp Leu Glu Leu Thr Leu Ala Arg Leu Thr Lys Ser Glu
85 90 95

Leu Asp Glu Glu Glu Val Val Leu Val Cys Asp Lys Val Ile Glu Glu
100 105 110

Ala Asp Leu Asp Gly Asp Gly Lys Leu Gly Phe Ala Asp Phe Glu Asp
115 120 125

Met Ile Ala Lys Ala Pro Asp Phe Leu Arg Cys Cys His Tyr Arg Gly
130 135 140

Arg Ala Trp Ala Gly Gln Ser Arg Ala Gly Arg Asp Val Gly Ala Glu
145 150 155 160

Ala Pro Ile Thr Arg Tyr Leu
165

<210> 10538
<211> 147

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2107; "

<220>
<221> source
<223> /note="Gene Symbol: CIB2; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding family
member 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452980"

<400> 10538
Met Gly Asn Lys Gln Thr Ile Phe Thr Glu Glu Gln Leu Asp Asn Tyr
1 5 10 15

Gln Asp Cys Thr Phe Phe Asn Lys Lys Asp Ile Leu Lys Trp Gly Asn
20 25 30

Arg Gly Ser Glu Gly Phe Gly His Ser Ser Arg Val Thr Gln Ala Val
35 40 45

His Ser Leu Ala Pro Gly Pro Ser Cys Leu Ser Cys Thr His Ser Asp
50 55 60

Cys Cys Val Cys Phe Leu Gln Glu Asn Pro Phe Lys Glu Arg Ile Val
65 70 75 80

Ala Ala Phe Ser Glu Asp Gly Glu Gly Asn Leu Thr Phe Asn Asp Phe
85 90 95

Val Asp Met Phe Ser Val Leu Cys Glu Ser Ala Pro Arg Glu Leu Lys
100 105 110

Ala Asn Tyr Ala Phe Lys Ile Tyr Asp Phe Asn Thr Asp Asn Phe Ile
115 120 125

Cys Lys Glu Asp Leu Glu Leu Thr Leu Ala Arg Leu Thr Lys Ser Glu
130 135 140

Leu Asp Glu
145

<210> 10539
<211> 126
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: calcium and integrin binding family
member 2; "

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<400> 10539
Met Gly Asn Lys Gln Thr Ile Phe Thr Glu Glu Gln Leu Asp Asn Tyr
1 5 10 15

Gln Asp Cys Thr Phe Phe Asn Lys Lys Asp Ile Leu Lys Leu His Ser
20 25 30

Arg Phe Tyr Glu Leu Ala Pro Asn Leu Val Pro Met Asp Tyr Arg Lys
35 40 45

Ser Pro Ile Val His Val Pro Met Ser Leu Ile Ile Gln Met Pro Glu
50 55 60

Leu Arg Glu Asn Pro Phe Lys Glu Arg Ile Val Ala Ala Phe Ser Glu
65 70 75 80

Asp Gly Glu Gly Asn Leu Thr Phe Asn Asp Phe Val Asp Met Phe Ser
85 90 95

Val Leu Cys Glu Ser Ala Pro Arg Glu Leu Lys Ala Asn Tyr Ala Phe
100 105 110

Lys Ile Tyr Ala Leu Ser Thr Ser Gly Ser Glu Asp Thr Ala
115 120 125

<210> 10540
<211> 54
<212> PRT
<213> Homo sapiens

<220>
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member 2; "

<220>
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<400> 10540
Met Asp Tyr Arg Lys Ser Pro Ile Val His Val Pro Met Ser Leu Ile
1 5 10 15

Ile Gln Met Pro Glu Leu Arg Glu Asn Pro Phe Lys Glu Arg Ile Val
20 25 30

Ala Ala Phe Ser Glu Asp Gly Glu Gly Asn Leu Thr Phe Asn Asp Phe
35 40 45

Val Asp Met Phe Ser Val
50

<210> 10541
<211> 138
<212> PRT
<213> Homo sapiens

<220>
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member 2; "

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<223> /note="Uniprot ID: O75838; "

<220>
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<223> /note="ENSP ID: ENSP00000453488"

<400> 10541
Met Gly Asn Lys Gln Thr Ile Phe Thr Glu Glu Gln Leu Asp Asn Tyr
1   5   10   15

Gln Glu Asn Pro Phe Lys Glu Arg Ile Val Ala Ala Phe Ser Glu Asp
            20   25   30

Gly Glu Gly Asn Leu Thr Phe Asn Asp Phe Val Asp Met Phe Ser Val
        35   40   45

Leu Cys Glu Ser Ala Pro Arg Glu Leu Lys Ala Asn Tyr Ala Phe Lys
    50   55   60

Ile Tyr Asp Phe Asn Thr Asp Asn Phe Ile Cys Lys Glu Asp Leu Glu
65   70   75   80

Leu Thr Leu Ala Arg Leu Thr Lys Ser Glu Leu Asp Glu Glu Glu Val
                85   90   95

Val Leu Val Cys Asp Lys Val Ile Glu Glu Ala Asp Leu Asp Gly Asp
            100   105   110

Gly Lys Leu Gly Phe Ala Asp Phe Glu Asp Met Ile Ala Lys Ala Pro
        115   120   125

Asp Phe Leu Ser Thr Phe His Ile Arg Ile
    130   135

<210> 10542
<211> 48
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcium and integrin binding family
member 2; "

<220>
<221> source
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<400> 10542
Arg Phe Tyr Glu Leu Ala Pro Asn Leu Val Pro Met Asp Tyr Arg Lys
1 5 10 15

Ser Pro Ile Val His Val Pro Met Ser Leu Ile Ile Gln Met Pro Glu
20 25 30

Leu Arg Gly Ser Cys Pro Asn Ala Asn Ser Gly Ser Val His Val Glu
35 40 45

<210> 10543
<211> 92
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcium and integrin binding family
member 2; "

<220>
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<400> 10543
Met Gly Asn Lys Gln Thr Ile Phe Thr Glu Glu Gln Leu Asp Asn Tyr
1 5 10 15

Gln Asp Cys Thr Phe Phe Asn Lys Lys Asp Ile Leu Lys Arg Ile Pro
20 25 30

Ser Lys Lys Gly Ser Trp Arg Arg Phe Pro Arg Met Val Arg Gly Thr

```
        35                  40                  45

Ser Leu Ser Thr Thr Leu Trp Thr Cys Phe Pro Cys Ser Ala Ser Arg
    50                  55                  60

Leu Pro Glu Ser Ser Arg Gln Thr Met Pro Ser Arg Ser Met Thr Ser
65                  70                  75                  80

Thr Leu Thr Thr Ser Ser Ala Arg Arg Thr Trp Ser
                85                  90


<210> 10544
<211> 187
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CIB3; "

<220>
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<223> /note="Gene Name: calcium and integrin binding family
      member 3; "

<220>
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<223> /note="Uniprot ID:  Q96Q77; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000269878"

<400> 10544
Met Gly Asn Lys Gln Thr Val Phe Thr His Glu Gln Leu Glu Ala Tyr
1               5                   10                  15

Gln Asp Cys Thr Phe Phe Thr Arg Lys Glu Ile Met Arg Leu Phe Tyr
            20                  25                  30

Arg Tyr Gln Asp Leu Ala Pro Gln Leu Val Pro Leu Asp Tyr Thr Thr
        35                  40                  45

Cys Pro Asp Val Lys Val Pro Tyr Glu Leu Ile Gly Ser Met Pro Glu
    50                  55                  60
```

```
Leu Lys Asp Asn Pro Phe Arg Gln Arg Ile Ala Gln Val Phe Ser Glu
65                  70                  75                  80

Asp Gly Asp Gly His Met Thr Leu Asp Asn Phe Leu Asp Met Phe Ser
                85                  90                  95

Val Met Ser Glu Met Ala Pro Arg Asp Leu Lys Ala Tyr Tyr Ala Phe
            100                 105                 110

Lys Ile Tyr Asp Phe Asn Asn Asp Asp Tyr Ile Cys Ala Trp Asp Leu
        115                 120                 125

Glu Gln Thr Val Thr Lys Leu Thr Arg Gly Gly Leu Ser Ala Glu Glu
    130                 135                 140

Val Ser Leu Val Cys Glu Lys Val Leu Asp Glu Ala Asp Gly Asp His
145                 150                 155                 160

Asp Gly Arg Leu Ser Leu Glu Asp Phe Gln Asn Met Ile Leu Arg Ala
                165                 170                 175

Pro Asp Phe Leu Ser Thr Phe His Ile Arg Ile
            180                 185


<210> 10545
<211> 138
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      member 3; "

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<220>
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<223> /note="ENSP ID: ENSP00000369188"

<400> 10545
Met Gly Asn Lys Gln Thr Val Phe Thr His Glu Gln Leu Glu Ala Tyr
1 5 10 15

Gln Asp Asn Pro Phe Arg Gln Arg Ile Ala Gln Val Phe Ser Glu Asp
20 25 30

Gly Asp Gly His Met Thr Leu Asp Asn Phe Leu Asp Met Phe Ser Val
35 40 45

Met Ser Glu Met Ala Pro Arg Asp Leu Lys Ala Tyr Tyr Ala Phe Lys
50 55 60

Ile Tyr Asp Phe Asn Asn Asp Asp Tyr Ile Cys Ala Trp Asp Leu Glu
65 70 75 80

Gln Thr Val Thr Lys Leu Thr Arg Gly Gly Leu Ser Ala Glu Glu Val
85 90 95

Ser Leu Val Cys Glu Lys Val Leu Asp Glu Ala Asp Gly Asp His Asp
100 105 110

Gly Arg Leu Ser Leu Glu Asp Phe Gln Asn Met Ile Leu Arg Ala Pro
115 120 125

Asp Phe Leu Ser Thr Phe His Ile Arg Ile
130 135

<210> 10546
<211> 45
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2108; "

<220>
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<223> /note="Gene Symbol: CIB3; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding family
member 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000470250"

<400> 10546
Met Gly Asn Lys Gln Thr Val Phe Thr His Glu Gln Leu Glu Ala Tyr
1   5   10   15

Gln Asp Cys Thr Phe Phe Thr Arg Lys Glu Ile Met Arg Thr Trp Pro
            20   25   30

His Ser Ser Cys Pro Ser Thr Ile Pro Pro Ala Pro Met
        35   40   45

<210> 10547
<211> 185
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CIB4; "

<220>
<221> source
<223> /note="Gene Name: calcium and integrin binding family
      member 4; "

<220>
<221> source
<223> /note="Uniprot ID: A0PJX0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000288861"

<400> 10547
Met Gly Gln Cys Leu Arg Tyr Gln Met His Trp Glu Asp Leu Glu Glu
1   5   10   15

Tyr Gln Ala Leu Thr Phe Leu Thr Arg Asn Glu Ile Leu Cys Ile His
            20   25   30

Asp Thr Phe Leu Lys Leu Cys Pro Pro Gly Lys Tyr Tyr Lys Glu Ala
        35   40   45

Thr Leu Thr Met Asp Gln Val Ser Ser Leu Pro Ala Leu Arg Val Asn

```
    50                  55                  60

Pro Phe Arg Asp Arg Ile Cys Arg Val Phe Ser His Lys Gly Met Phe
65                  70                  75                  80

Ser Phe Glu Asp Val Leu Gly Met Ala Ser Val Phe Ser Glu Gln Ala
                85                  90                  95

Cys Pro Ser Leu Lys Ile Glu Tyr Ala Phe Arg Ile Tyr Asp Phe Asn
            100                 105                 110

Glu Asn Gly Phe Ile Asp Glu Glu Asp Leu Gln Arg Ile Ile Leu Arg
        115                 120                 125

Leu Leu Asn Ser Asp Asp Met Ser Glu Asp Leu Leu Met Asp Leu Thr
    130                 135                 140

Asn His Val Leu Ser Glu Ser Asp Leu Asp Asn Asp Asn Met Leu Ser
145                 150                 155                 160

Phe Ser Glu Phe Glu His Ala Met Ala Lys Ser Pro Asp Phe Met Asn
                165                 170                 175

Ser Phe Arg Ile His Phe Trp Gly Cys
            180                 185


<210> 10548
<211> 690
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2110; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain
1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9P1Z2; "
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<220>
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<223> /note="ENSP ID: ENSP00000262059"

<400> 10548
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1   5   10   15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
            20   25   30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
        35   40   45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
    50   55   60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65   70   75   80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
                85   90   95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
            100   105   110

Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met Asp Glu Leu Val
        115   120   125

Thr Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu Leu Val Val Pro
    130   135   140

Lys Ala Thr Val Leu Gln Asn Gln Leu Asp Glu Ser Gln Gln Glu Arg
145   150   155   160

Asn Asp Leu Met Gln Leu Lys Leu Gln Leu Glu Gly Gln Val Thr Glu
                165   170   175

Leu Arg Ser Arg Val Gln Glu Leu Glu Arg Ala Leu Ala Thr Ala Arg
            180   185   190

Gln Glu His Thr Glu Leu Met Glu Gln Tyr Lys Gly Ile Ser Arg Ser
        195   200   205

```
His Gly Glu Ile Thr Glu Glu Arg Asp Ile Leu Ser Arg Gln Gln Gly
    210                 215                 220

Asp His Val Ala Arg Ile Leu Glu Leu Glu Asp Asp Ile Gln Thr Ile
225                 230                 235                 240

Ser Glu Lys Val Leu Thr Lys Glu Val Glu Leu Asp Arg Leu Arg Asp
                245                 250                 255

Thr Val Lys Ala Leu Thr Arg Glu Gln Glu Lys Leu Leu Gly Gln Leu
            260                 265                 270

Lys Glu Val Gln Ala Asp Lys Glu Gln Ser Glu Ala Glu Leu Gln Val
        275                 280                 285

Ala Gln Gln Glu Asn His His Leu Asn Leu Asp Leu Lys Glu Ala Lys
    290                 295                 300

Ser Trp Gln Glu Glu Gln Ser Ala Gln Ala Gln Arg Leu Lys Asp Lys
305                 310                 315                 320

Val Ala Gln Met Lys Asp Thr Leu Gly Gln Ala Gln Gln Arg Val Ala
                325                 330                 335

Glu Leu Glu Pro Leu Lys Glu Gln Leu Arg Gly Ala Gln Glu Leu Ala
            340                 345                 350

Ala Ser Ser Gln Gln Lys Ala Thr Leu Leu Gly Glu Glu Leu Ala Ser
        355                 360                 365

Ala Ala Ala Ala Arg Asp Arg Thr Ile Ala Glu Leu His Arg Ser Arg
    370                 375                 380

Leu Glu Val Ala Glu Val Asn Gly Arg Leu Ala Glu Leu Gly Leu His
385                 390                 395                 400

Leu Lys Glu Glu Lys Cys Gln Trp Ser Lys Glu Arg Ala Gly Leu Leu
                405                 410                 415

Gln Ser Val Glu Ala Glu Lys Asp Lys Ile Leu Lys Leu Ser Ala Glu
            420                 425                 430

Ile Leu Arg Leu Glu Lys Ala Val Gln Glu Glu Arg Thr Gln Asn Gln
```

```
        435                 440                 445

Val Phe Lys Thr Glu Leu Ala Arg Glu Lys Asp Ser Ser Leu Val Gln
    450                 455                 460

Leu Ser Glu Ser Lys Arg Glu Leu Thr Glu Leu Arg Ser Ala Leu Arg
465                 470                 475                 480

Val Leu Gln Lys Glu Lys Glu Gln Leu Gln Glu Glu Lys Gln Glu Leu
                485                 490                 495

Leu Glu Tyr Met Arg Lys Leu Glu Ala Arg Leu Glu Lys Val Ala Asp
            500                 505                 510

Glu Lys Trp Asn Glu Asp Ala Thr Thr Glu Asp Glu Glu Ala Ala Val
        515                 520                 525

Gly Leu Ser Cys Pro Ala Ala Leu Thr Asp Ser Glu Asp Glu Ser Pro
    530                 535                 540

Glu Asp Met Arg Leu Pro Pro Tyr Gly Leu Cys Glu Arg Gly Asp Pro
545                 550                 555                 560

Gly Ser Ser Pro Ala Gly Pro Arg Glu Ala Ser Pro Leu Val Val Ile
                565                 570                 575

Ser Gln Pro Ala Pro Ile Ser Pro His Leu Ser Gly Pro Ala Glu Asp
            580                 585                 590

Ser Ser Ser Asp Ser Ala Glu Asp Glu Lys Ser Val Leu Met Ala Ala
        595                 600                 605

Val Gln Ser Gly Gly Glu Glu Ala Asn Leu Leu Leu Pro Glu Leu Gly
    610                 615                 620

Ser Ala Phe Tyr Asp Met Ala Ser Gly Phe Thr Val Gly Thr Leu Ser
625                 630                 635                 640

Glu Thr Ser Thr Gly Gly Pro Ala Thr Pro Thr Trp Lys Glu Cys Pro
                645                 650                 655

Ile Cys Lys Glu Arg Phe Pro Ala Glu Ser Asp Lys Asp Ala Leu Glu
            660                 665                 670
```

Asp His Met Asp Gly His Phe Phe Phe Ser Thr Gln Asp Pro Phe Thr
675 680 685

Phe Glu
690

<210> 10549
<211> 606
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2110; "

<220>
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<223> /note="Gene Symbol: CALCOCO1; "

<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P1Z2; "

<220>
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<223> /note="ENSP ID: ENSP00000397189"

<400> 10549
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1 5 10 15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
20 25 30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
35 40 45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
50 55 60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65 70 75 80

```
Thr Ser Val Gln Phe Gln Glu Pro Arg Pro Met Asp Glu Leu Val Thr
                85                  90                  95

Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu Leu Val Val Pro Lys
            100                 105                 110

Ala Thr Val Leu Gln Asn Gln Leu Asp Glu Ser Gln Gln Glu Arg Asn
        115                 120                 125

Asp Leu Met Gln Leu Lys Leu Gln Leu Glu Gly Gln Val Thr Glu Leu
    130                 135                 140

Arg Ser Arg Val Gln Glu Leu Glu Arg Ala Leu Ala Thr Ala Arg Gln
145                 150                 155                 160

Glu His Thr Glu Leu Met Glu Gln Tyr Lys Gly Ile Ser Arg Ser His
                165                 170                 175

Gly Glu Ile Thr Glu Glu Arg Asp Ile Leu Ser Arg Gln Gln Gly Asp
            180                 185                 190

His Val Ala Arg Ile Leu Glu Leu Glu Asp Asp Ile Gln Thr Ile Ser
        195                 200                 205

Glu Lys Val Leu Thr Lys Glu Val Glu Leu Asp Arg Leu Arg Asp Thr
    210                 215                 220

Val Lys Ala Leu Thr Arg Glu Gln Glu Lys Leu Leu Gly Gln Leu Lys
225                 230                 235                 240

Glu Val Gln Ala Asp Lys Glu Gln Ser Glu Ala Glu Leu Glu Pro Leu
                245                 250                 255

Lys Glu Gln Leu Arg Gly Ala Gln Glu Leu Ala Ala Ser Ser Gln Gln
            260                 265                 270

Lys Ala Thr Leu Leu Gly Glu Glu Leu Ala Ser Ala Ala Ala Ala Arg
        275                 280                 285

Asp Arg Thr Ile Ala Glu Leu His Arg Ser Arg Leu Glu Val Ala Glu
    290                 295                 300

Val Asn Gly Arg Leu Ala Glu Leu Gly Leu His Leu Lys Glu Glu Lys
```

```
305                 310                 315                 320

Cys Gln Trp Ser Lys Glu Arg Ala Gly Leu Leu Gln Ser Val Glu Ala
                325                 330                 335

Glu Lys Asp Lys Ile Leu Lys Leu Ser Ala Glu Ile Leu Arg Leu Glu
            340                 345                 350

Lys Ala Val Gln Glu Glu Arg Thr Gln Asn Gln Val Phe Lys Thr Glu
        355                 360                 365

Leu Ala Arg Glu Lys Asp Ser Ser Leu Val Gln Leu Ser Glu Ser Lys
    370                 375                 380

Arg Glu Leu Thr Glu Leu Arg Ser Ala Leu Arg Val Leu Gln Lys Glu
385                 390                 395                 400

Lys Glu Gln Leu Gln Glu Glu Lys Gln Glu Leu Leu Glu Tyr Met Arg
                405                 410                 415

Lys Leu Glu Ala Arg Leu Glu Lys Val Ala Asp Glu Lys Trp Asn Glu
            420                 425                 430

Asp Ala Thr Thr Glu Asp Glu Glu Ala Ala Val Gly Leu Ser Cys Pro
        435                 440                 445

Ala Ala Leu Thr Asp Ser Glu Asp Glu Ser Pro Glu Asp Met Arg Leu
    450                 455                 460

Pro Pro Tyr Gly Leu Cys Glu Arg Gly Asp Pro Gly Ser Ser Pro Ala
465                 470                 475                 480

Gly Pro Arg Glu Ala Ser Pro Leu Val Val Ile Ser Gln Pro Ala Pro
                485                 490                 495

Ile Ser Pro His Leu Ser Gly Pro Ala Glu Asp Ser Ser Ser Asp Ser
            500                 505                 510

Glu Ala Glu Asp Glu Lys Ser Val Leu Met Ala Ala Val Gln Ser Gly
        515                 520                 525

Gly Glu Glu Ala Asn Leu Leu Leu Pro Glu Leu Gly Ser Ala Phe Tyr
    530                 535                 540
```

```
Asp Met Ala Ser Gly Phe Thr Val Gly Thr Leu Ser Glu Thr Ser Thr
545                 550                 555                 560

Gly Gly Pro Ala Thr Pro Thr Trp Lys Glu Cys Pro Ile Cys Lys Glu
                565                 570                 575

Arg Phe Pro Ala Glu Ser Asp Lys Asp Ala Leu Glu Asp His Met Asp
            580                 585                 590

Gly His Phe Phe Phe Ser Thr Gln Asp Pro Phe Thr Phe Glu
        595                 600                 605
```

<210> 10550
<211> 134
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2110; "

<220>
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<220>
<221> source
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000446820"

<400> 10550

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Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1               5                   10                  15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
            20                  25                  30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
        35                  40                  45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
    50                  55                  60
```

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65 70 75 80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
85 90 95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
100 105 110

Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met Asp Glu Leu Val
115 120 125

Thr Leu Glu Glu Ala Asp
130

<210> 10551
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2110; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447117"

<400> 10551
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1 5 10 15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
20 25 30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
35 40 45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
50 55 60

```
Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65                  70                  75                  80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
                85                  90                  95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
            100                 105                 110

Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met Asp Glu Leu Val
        115                 120                 125

Thr Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu Leu Val Val Pro
    130                 135                 140

Lys Ala Thr Val Leu
145
```

<210> 10552
<211> 633
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
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<223> /note="Uniprot ID: Q9P1Z2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447647"

<400> 10552

```
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1               5                   10                  15
```

```
Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
            20                  25                  30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
        35                  40                  45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
    50                  55                  60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65                  70                  75                  80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
                85                  90                  95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
            100                 105                 110

Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met Asp Glu Leu Val
        115                 120                 125

Thr Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu Leu Val Val Pro
    130                 135                 140

Lys Ala Thr Val Leu Gln Asn Gln Leu Asp Glu Ser Gln Gln Glu Arg
145                 150                 155                 160

Asn Asp Leu Met Gln Leu Lys Leu Gln Leu Glu Gly Gln Val Thr Glu
                165                 170                 175

Leu Arg Ser Arg Val Gln Glu Leu Glu Arg Ala Leu Ala Thr Ala Arg
            180                 185                 190

Gln Glu His Thr Glu Leu Met Glu Gln Tyr Lys Gly Ile Ser Arg Ser
        195                 200                 205

His Gly Glu Ile Thr Glu Glu Arg Asp Ile Leu Ser Arg Gln Gln Gly
    210                 215                 220

Asp His Val Ala Arg Ile Leu Glu Leu Glu Asp Asp Ile Gln Thr Ile
225                 230                 235                 240

Ser Glu Lys Val Leu Thr Lys Glu Val Glu Leu Asp Arg Leu Arg Asp
```

245 250 255

Thr Val Lys Ala Leu Thr Arg Glu Gln Glu Lys Leu Leu Gly Gln Leu
260 265 270

Lys Glu Val Gln Ala Asp Lys Glu Gln Ser Glu Ala Glu Leu Gln Val
275 280 285

Ala Gln Gln Glu Asn His His Leu Asn Leu Asp Leu Lys Glu Ala Lys
290 295 300

Ser Trp Gln Glu Glu Gln Ser Ala Gln Ala Gln Arg Leu Lys Asp Lys
305 310 315 320

Val Ala Gln Met Lys Asp Thr Leu Gly Gln Ala Gln Gln Arg Val Ala
325 330 335

Glu Leu Glu Pro Leu Lys Glu Gln Leu Arg Gly Ala Gln Glu Leu Ala
340 345 350

Ala Ser Ser Gln Gln Lys Ala Thr Leu Leu Gly Glu Glu Leu Ala Ser
355 360 365

Ala Ala Ala Ala Arg Asp Arg Thr Ile Ala Glu Leu His Arg Ser Arg
370 375 380

Leu Glu Val Ala Glu Val Asn Gly Arg Leu Ala Glu Leu Gly Leu His
385 390 395 400

Leu Lys Glu Glu Lys Cys Gln Trp Ser Lys Glu Arg Ala Gly Leu Leu
405 410 415

Gln Ser Val Glu Ala Glu Lys Asp Lys Ile Leu Lys Leu Ser Ala Glu
420 425 430

Ile Leu Arg Leu Glu Lys Ala Val Gln Glu Glu Arg Thr Gln Asn Gln
435 440 445

Val Phe Lys Thr Glu Leu Ala Arg Glu Lys Asp Ser Ser Leu Val Gln
450 455 460

Leu Ser Glu Ser Lys Arg Glu Leu Thr Glu Leu Arg Ser Ala Leu Arg
465 470 475 480

```
Val Leu Gln Lys Glu Lys Glu Gln Leu Gln Glu Glu Lys Gln Glu Leu
                485                 490                 495

Leu Glu Tyr Met Arg Lys Leu Glu Ala Arg Leu Glu Lys Val Ala Asp
            500                 505                 510

Glu Lys Trp Asn Glu Asp Ala Thr Thr Glu Asp Glu Glu Ala Ala Val
        515                 520                 525

Gly Leu Ser Cys Pro Ala Ala Leu Thr Asp Ser Glu Asp Glu Ser Pro
    530                 535                 540

Glu Asp Met Arg Leu Pro Pro Tyr Gly Leu Cys Glu Arg Gly Asp Pro
545                 550                 555                 560

Gly Ser Ser Pro Ala Gly Pro Arg Glu Ala Ser Pro Leu Val Val Ile
                565                 570                 575

Ser Gln Pro Ala Pro Ile Ser Pro His Leu Ser Gly Pro Ala Glu Asp
            580                 585                 590

Ser Ser Ser Asp Ser Glu Ala Glu Asp Glu Lys Ser Val Leu Met Ala
        595                 600                 605

Ala Val Gln Ser Gly Gly Glu Glu Ala Asn Leu Leu Leu Pro Glu Leu
    610                 615                 620

Gly Ser Ala Phe Tyr Asp Met Ala Arg
625                 630


<210> 10553
<211> 120
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2110; "

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<223> /note="Gene Symbol: CALCOCO1; "

<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
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<223> /note="ENSP ID: ENSP00000448026"

<400> 10553
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1 5 10 15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
20 25 30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
35 40 45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
50 55 60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65 70 75 80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
85 90 95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
100 105 110

Ser Pro Pro Phe Gln Phe Arg Glu
115 120

<210> 10554
<211> 159
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000448621"

<400> 10554
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1   5   10   15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
            20   25   30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
        35   40   45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
    50   55   60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65   70   75   80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
                85   90   95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
            100   105   110

Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met Asp Glu Leu Val
        115   120   125

Thr Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu Leu Val Val Pro
    130   135   140

Lys Ala Thr Val Leu Gln Asn Gln Leu Asp Glu Ser Gln Gln Glu
145   150   155

<210> 10555
<211> 160
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CALCOCO1; "

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<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
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<400> 10555
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1 5 10 15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
20 25 30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
35 40 45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
50 55 60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65 70 75 80

Thr Ser Val Gln Phe Gln Gly Thr Arg Glu Asp Gly Lys Leu Gly Glu
85 90 95

Arg Ser Gln Gly Ser Gly Gly Leu Lys Glu Ala Ser Tyr Leu Pro Lys
100 105 110

Pro Gly Ala Gln Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln
115 120 125

Val Cys Gly Gln Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met
130 135 140

Asp Glu Leu Val Thr Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu
145 150 155 160

<210> 10556
<211> 104
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CALCOCO1; "

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<220>
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<223> /note="ENSP ID: ENSP00000449796"

<400> 10556
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1 5 10 15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
20 25 30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
35 40 45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
50 55 60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65 70 75 80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
85 90 95

Leu Tyr Gln Phe Arg Tyr Val Asn
100

<210> 10557
<211> 691
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CALCOCO1; "

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<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
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<220>
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<223> /note="ENSP ID: ENSP00000449960"

<400> 10557

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Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1               5                   10                  15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
            20                  25                  30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
        35                  40                  45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
    50                  55                  60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65                  70                  75                  80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
                85                  90                  95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
            100                 105                 110

Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met Asp Glu Leu Val
        115                 120                 125

Thr Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu Leu Val Val Pro
    130                 135                 140

Lys Ala Thr Val Leu Gln Asn Gln Leu Asp Glu Ser Gln Gln Glu Arg
145                 150                 155                 160

Asn Asp Leu Met Gln Leu Lys Leu Gln Leu Glu Gly Gln Val Thr Glu
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                165                 170                 175

Leu Arg Ser Arg Val Gln Glu Leu Glu Arg Ala Leu Ala Thr Ala Arg
            180                 185                 190

Gln Glu His Thr Glu Leu Met Glu Gln Tyr Lys Gly Ile Ser Arg Ser
        195                 200                 205

His Gly Glu Ile Thr Glu Glu Arg Asp Ile Leu Ser Arg Gln Gln Gly
    210                 215                 220

Asp His Val Ala Arg Ile Leu Glu Leu Glu Asp Asp Ile Gln Thr Ile
225                 230                 235                 240

Ser Glu Lys Val Leu Thr Lys Glu Val Glu Leu Asp Arg Leu Arg Asp
                245                 250                 255

Thr Val Lys Ala Leu Thr Arg Glu Gln Glu Lys Leu Leu Gly Gln Leu
            260                 265                 270

Lys Glu Val Gln Ala Asp Lys Glu Gln Ser Glu Ala Glu Leu Gln Val
        275                 280                 285

Ala Gln Gln Glu Asn His His Leu Asn Leu Asp Leu Lys Glu Ala Lys
    290                 295                 300

Ser Trp Gln Glu Glu Gln Ser Ala Gln Ala Gln Arg Leu Lys Asp Lys
305                 310                 315                 320

Val Ala Gln Met Lys Asp Thr Leu Gly Gln Ala Gln Gln Arg Val Ala
                325                 330                 335

Glu Leu Glu Pro Leu Lys Glu Gln Leu Arg Gly Ala Gln Glu Leu Ala
            340                 345                 350

Ala Ser Ser Gln Gln Lys Ala Thr Leu Leu Gly Glu Glu Leu Ala Ser
        355                 360                 365

Ala Ala Ala Ala Arg Asp Arg Thr Ile Ala Glu Leu His Arg Ser Arg
    370                 375                 380

Leu Glu Val Ala Glu Val Asn Gly Arg Leu Ala Glu Leu Gly Leu His
385                 390                 395                 400
```

Leu Lys Glu Glu Lys Cys Gln Trp Ser Lys Glu Arg Ala Gly Leu Leu
405 410 415

Gln Ser Val Glu Ala Glu Lys Asp Lys Ile Leu Lys Leu Ser Ala Glu
420 425 430

Ile Leu Arg Leu Glu Lys Ala Val Gln Glu Glu Arg Thr Gln Asn Gln
435 440 445

Val Phe Lys Thr Glu Leu Ala Arg Glu Lys Asp Ser Ser Leu Val Gln
450 455 460

Leu Ser Glu Ser Lys Arg Glu Leu Thr Glu Leu Arg Ser Ala Leu Arg
465 470 475 480

Val Leu Gln Lys Glu Lys Glu Gln Leu Gln Glu Glu Lys Gln Glu Leu
485 490 495

Leu Glu Tyr Met Arg Lys Leu Glu Ala Arg Leu Glu Lys Val Ala Asp
500 505 510

Glu Lys Trp Asn Glu Asp Ala Thr Thr Glu Asp Glu Glu Ala Ala Val
515 520 525

Gly Leu Ser Cys Pro Ala Ala Leu Thr Asp Ser Glu Asp Glu Ser Pro
530 535 540

Glu Asp Met Arg Leu Pro Pro Tyr Gly Leu Cys Glu Arg Gly Asp Pro
545 550 555 560

Gly Ser Ser Pro Ala Gly Pro Arg Glu Ala Ser Pro Leu Val Val Ile
565 570 575

Ser Gln Pro Ala Pro Ile Ser Pro His Leu Ser Gly Pro Ala Glu Asp
580 585 590

Ser Ser Ser Asp Ser Glu Ala Glu Asp Glu Lys Ser Val Leu Met Ala
595 600 605

Ala Val Gln Ser Gly Gly Glu Glu Ala Asn Leu Leu Leu Pro Glu Leu
610 615 620

Gly Ser Ala Phe Tyr Asp Met Ala Ser Gly Phe Thr Val Gly Thr Leu
625 630 635 640

Ser Glu Thr Ser Thr Gly Gly Pro Ala Thr Pro Thr Trp Lys Glu Cys
645 650 655

Pro Ile Cys Lys Glu Arg Phe Pro Ala Glu Ser Asp Lys Asp Ala Leu
660 665 670

Glu Asp His Met Asp Gly His Phe Phe Phe Ser Thr Gln Asp Pro Phe
675 680 685

Thr Phe Glu
690

<210> 10558
<211> 115
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2110; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO1; "

<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
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<223> /note="ENSP ID: ENSP00000450012"

<400> 10558
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1 5 10 15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
20 25 30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
35 40 45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe

50 55 60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65 70 75 80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
85 90 95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
100 105 110

Ser Pro Pro
115

<210> 10559
<211> 164
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2110; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000450083"

<400> 10559
Met Glu Glu Ser Pro Leu Ser Arg Ala Pro Ser Arg Gly Gly Val Asn
1 5 10 15

Phe Leu Asn Val Ala Arg Thr Tyr Ile Pro Asn Thr Lys Val Glu Cys
20 25 30

His Tyr Thr Leu Pro Pro Gly Thr Met Pro Ser Ala Ser Asp Trp Ile
35 40 45

Gly Ile Phe Lys Val Glu Ala Ala Cys Val Arg Asp Tyr His Thr Phe
50 55 60

Val Trp Ser Ser Val Pro Glu Ser Thr Thr Asp Gly Ser Pro Ile His
65 70 75 80

Thr Ser Val Gln Phe Gln Ala Ser Tyr Leu Pro Lys Pro Gly Ala Gln
85 90 95

Leu Tyr Gln Phe Arg Tyr Val Asn Arg Gln Gly Gln Val Cys Gly Gln
100 105 110

Ser Pro Pro Phe Gln Phe Arg Glu Pro Arg Pro Met Asp Glu Leu Val
115 120 125

Thr Leu Glu Glu Ala Asp Gly Gly Ser Asp Ile Leu Leu Val Val Pro
130 135 140

Lys Ala Thr Val Leu Gln Asn Gln Leu Asp Glu Ser Gln Gln Glu Arg
145 150 155 160

Asn Asp Leu Met

<210> 10560
<211> 232
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2110; "

<220>
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<223> /note="Gene Symbol: CALCOCO1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456437"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10560
Xaa Glu Lys Glu Gln Leu Gln Glu Glu Lys Gln Glu Leu Leu Glu Tyr
1 5 10 15

Met Arg Lys Leu Glu Ala Arg Leu Glu Lys Val Ala Asp Glu Lys Trp
20 25 30

Asn Glu Asp Ala Thr Thr Glu Asp Glu Glu Ala Ala Val Gly Leu Ser
35 40 45

Cys Pro Ala Ala Leu Thr Asp Ser Glu Asp Glu Ser Pro Glu Asp Met
50 55 60

Arg Leu Pro Pro Tyr Gly Leu Cys Glu Arg Gly Asp Pro Gly Ser Ser
65 70 75 80

Pro Ala Gly Pro Arg Glu Ala Ser Pro Leu Val Val Ile Ser Gln Pro
85 90 95

Ala Pro Ile Ser Pro His Leu Ser Gly Pro Ala Glu Asp Ser Ser Ser
100 105 110

Asp Ser Glu Ala Glu Asp Glu Lys Ser Val Leu Met Ala Ala Val Gln
115 120 125

Ser Gly Gly Glu Glu Ala Asn Leu Leu Leu Pro Glu Leu Gly Ser Ala
130 135 140

Phe Tyr Asp Met Ala Ser Thr Ile Phe Cys Arg Ala Gln Ile Ala Leu
145 150 155 160

Leu Pro Leu Ser Pro Ala Ser Thr Pro Ser Pro Thr Thr Ser Gly Phe
165 170 175

Thr Val Gly Thr Leu Ser Glu Thr Ser Thr Gly Gly Pro Ala Thr Pro
180 185 190

Thr Trp Lys Glu Cys Pro Ile Cys Lys Glu Arg Phe Pro Ala Glu Ser
195 200 205

Asp Lys Asp Ala Leu Glu Asp His Met Asp Gly His Phe Phe Phe Ser
210 215 220

Thr Gln Asp Pro Phe Thr Phe Glu
225 230

<210> 10561
<211> 446
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2111; "

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<223> /note="Gene Symbol: CALCOCO2; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q13137; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000258947"

<400> 10561
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
1 5 10 15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
20 25 30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
35 40 45

Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Val Gly Trp Lys
50 55 60

Thr Thr Arg Glu Tyr Tyr Thr Phe Met Trp Val Thr Leu Pro Ile Asp
65 70 75 80

Leu Asn Asn Lys Ser Ala Lys Gln Gln Glu Val Gln Phe Lys Ala Tyr
85 90 95

Tyr Leu Pro Lys Asp Asp Glu Tyr Tyr Gln Phe Cys Tyr Val Asp Glu
100 105 110

```
Asp Gly Val Val Arg Gly Ala Ser Ile Pro Phe Gln Phe Arg Pro Glu
        115                 120                 125

Asn Glu Glu Asp Ile Leu Val Val Thr Thr Gln Gly Glu Val Glu Glu
    130                 135                 140

Ile Glu Gln His Asn Lys Glu Leu Cys Lys Glu Asn Gln Glu Leu Lys
145                 150                 155                 160

Asp Ser Cys Ile Ser Leu Gln Lys Gln Asn Ser Asp Met Gln Ala Glu
                165                 170                 175

Leu Gln Lys Lys Gln Glu Glu Leu Glu Thr Leu Gln Ser Ile Asn Lys
            180                 185                 190

Lys Leu Glu Leu Lys Val Lys Glu Gln Lys Asp Tyr Trp Glu Thr Glu
        195                 200                 205

Leu Leu Gln Leu Lys Glu Gln Asn Gln Lys Met Ser Ser Glu Asn Glu
    210                 215                 220

Lys Met Gly Ile Arg Val Asp Gln Leu Gln Ala Gln Leu Ser Thr Gln
225                 230                 235                 240

Glu Lys Glu Met Glu Lys Leu Val Gln Gly Asp Gln Asp Lys Thr Glu
                245                 250                 255

Gln Leu Glu Gln Leu Lys Lys Glu Asn Asp His Leu Phe Leu Ser Leu
            260                 265                 270

Thr Glu Gln Arg Lys Asp Gln Lys Lys Leu Glu Gln Thr Val Glu Gln
        275                 280                 285

Met Lys Gln Asn Glu Thr Thr Ala Met Lys Lys Gln Gln Glu Leu Met
    290                 295                 300

Asp Glu Asn Phe Asp Leu Ser Lys Arg Leu Ser Glu Asn Glu Ile Ile
305                 310                 315                 320

Cys Asn Ala Leu Gln Arg Gln Lys Glu Arg Leu Glu Gly Glu Asn Asp
                325                 330                 335
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```
Leu Leu Lys Arg Glu Asn Ser Arg Leu Leu Ser Tyr Met Gly Leu Asp
            340                 345                 350

Phe Asn Ser Leu Pro Tyr Gln Val Pro Thr Ser Asp Glu Gly Gly Ala
        355                 360                 365

Arg Gln Asn Pro Gly Leu Ala Tyr Gly Asn Pro Tyr Ser Gly Ile Gln
    370                 375                 380

Glu Ser Ser Ser Pro Ser Pro Leu Ser Ile Lys Lys Cys Pro Ile Cys
385                 390                 395                 400

Lys Ala Asp Asp Ile Cys Asp His Thr Leu Glu Gln Gln Gln Met Gln
                405                 410                 415

Pro Leu Cys Phe Asn Cys Pro Ile Cys Asp Lys Ile Phe Pro Ala Thr
            420                 425                 430

Glu Lys Gln Ile Phe Glu Asp His Val Phe Cys His Ser Leu
        435                 440                 445


<210> 10562
<211> 470
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

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<221> source
<223> /note="Gene Symbol: CALCOCO2; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain
2; "

<220>
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<223> /note="Uniprot ID:  Q13137; "

<220>
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<223> /note="ENSP ID: ENSP00000398523"

<400> 10562
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
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1               5                   10                  15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
            20                  25                  30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
        35                  40                  45

Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Ala Phe Lys Cys
    50                  55                  60

Phe Gln Asp Lys Leu Glu Gln Glu Leu Leu Lys Trp Arg Ser Gln Gly
65                  70                  75                  80

Gln Lys Leu Gln Val Gly Trp Lys Thr Thr Arg Glu Tyr Tyr Thr Phe
                85                  90                  95

Met Trp Val Thr Leu Pro Ile Asp Leu Asn Asn Lys Ser Ala Lys Gln
            100                 105                 110

Gln Glu Val Gln Phe Lys Ala Tyr Tyr Leu Pro Lys Asp Asp Glu Tyr
        115                 120                 125

Tyr Gln Phe Cys Tyr Val Asp Glu Asp Gly Val Val Arg Gly Ala Ser
    130                 135                 140

Ile Pro Phe Gln Phe Arg Pro Glu Asn Glu Glu Asp Ile Leu Val Val
145                 150                 155                 160

Thr Thr Gln Gly Glu Val Glu Glu Ile Glu Gln His Asn Lys Glu Leu
                165                 170                 175

Cys Lys Glu Asn Gln Glu Leu Lys Asp Ser Cys Ile Ser Leu Gln Lys
            180                 185                 190

Gln Asn Ser Asp Met Gln Ala Glu Leu Gln Lys Lys Gln Glu Glu Leu
        195                 200                 205

Glu Thr Leu Gln Ser Ile Asn Lys Lys Leu Glu Leu Lys Val Lys Glu
    210                 215                 220

Gln Lys Asp Tyr Trp Glu Thr Glu Leu Leu Gln Leu Lys Glu Gln Asn
225                 230                 235                 240
```

```
Gln Lys Met Ser Ser Glu Asn Glu Lys Met Gly Ile Arg Val Asp Gln
                245                 250                 255

Leu Gln Ala Gln Leu Ser Thr Gln Glu Lys Glu Met Glu Lys Leu Val
            260                 265                 270

Gln Gly Asp Gln Asp Lys Thr Glu Gln Leu Glu Gln Leu Lys Lys Glu
        275                 280                 285

Asn Asp His Leu Phe Leu Ser Leu Thr Glu Gln Arg Lys Asp Gln Lys
    290                 295                 300

Lys Leu Glu Gln Thr Val Glu Gln Met Lys Gln Asn Glu Thr Thr Ala
305                 310                 315                 320

Met Lys Lys Gln Gln Glu Leu Met Asp Glu Asn Phe Asp Leu Ser Lys
                325                 330                 335

Arg Leu Ser Glu Asn Glu Ile Ile Cys Asn Ala Leu Gln Arg Gln Lys
            340                 345                 350

Glu Arg Leu Glu Gly Glu Asn Asp Leu Leu Lys Arg Glu Asn Ser Arg
        355                 360                 365

Leu Leu Ser Tyr Met Gly Leu Asp Phe Asn Ser Leu Pro Tyr Gln Val
    370                 375                 380

Pro Thr Ser Asp Glu Gly Gly Ala Arg Gln Asn Pro Gly Leu Ala Tyr
385                 390                 395                 400

Gly Asn Pro Tyr Ser Gly Ile Gln Glu Ser Ser Ser Pro Ser Pro Leu
                405                 410                 415

Ser Ile Lys Lys Cys Pro Ile Cys Lys Ala Asp Asp Ile Cys Asp His
            420                 425                 430

Thr Leu Glu Gln Gln Gln Met Gln Pro Leu Cys Phe Asn Cys Pro Ile
        435                 440                 445

Cys Asp Lys Ile Phe Pro Ala Thr Glu Lys Gln Ile Phe Glu Asp His
    450                 455                 460
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Val Phe Cys His Ser Leu
465 470

<210> 10563
<211> 404
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
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<223> /note="Gene Symbol: CALCOCO2; "

<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q13137; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406974"

<400> 10563
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
1 5 10 15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
20 25 30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
35 40 45

Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Val Gly Trp Lys
50 55 60

Thr Thr Arg Glu Tyr Tyr Thr Phe Met Trp Val Thr Leu Pro Ile Asp
65 70 75 80

Leu Asn Asn Lys Ser Ala Lys Gln Gln Glu Val Gln Phe Lys Ala Tyr
85 90 95

Tyr Leu Pro Lys Asp Asp Glu Tyr Tyr Gln Phe Cys Tyr Val Asp Glu

```
            100                 105                 110

Asp Gly Val Val Arg Gly Ala Ser Ile Pro Phe Gln Phe Arg Pro Glu
        115                 120                 125

Asn Glu Glu Asp Ile Leu Val Val Thr Thr Gln Glu Glu Leu Glu Thr
    130                 135                 140

Leu Gln Ser Ile Asn Lys Lys Leu Glu Leu Lys Val Lys Glu Gln Lys
145                 150                 155                 160

Asp Tyr Trp Glu Thr Glu Leu Leu Gln Leu Lys Glu Gln Asn Gln Lys
                165                 170                 175

Met Ser Ser Glu Asn Glu Lys Met Gly Ile Arg Val Asp Gln Leu Gln
            180                 185                 190

Ala Gln Leu Ser Thr Gln Glu Lys Glu Met Glu Lys Leu Val Gln Gly
        195                 200                 205

Asp Gln Asp Lys Thr Glu Gln Leu Glu Gln Leu Lys Lys Glu Asn Asp
    210                 215                 220

His Leu Phe Leu Ser Leu Thr Glu Gln Arg Lys Asp Gln Lys Lys Leu
225                 230                 235                 240

Glu Gln Thr Val Glu Gln Met Lys Gln Asn Glu Thr Thr Ala Met Lys
                245                 250                 255

Lys Gln Gln Glu Leu Met Asp Glu Asn Phe Asp Leu Ser Lys Arg Leu
            260                 265                 270

Ser Glu Asn Glu Ile Ile Cys Asn Ala Leu Gln Arg Gln Lys Glu Arg
        275                 280                 285

Leu Glu Gly Glu Asn Asp Leu Leu Lys Arg Glu Asn Ser Arg Leu Leu
    290                 295                 300

Ser Tyr Met Gly Leu Asp Phe Asn Ser Leu Pro Tyr Gln Val Pro Thr
305                 310                 315                 320

Ser Asp Glu Gly Gly Ala Arg Gln Asn Pro Gly Leu Ala Tyr Gly Asn
                325                 330                 335
```

Pro Tyr Ser Gly Ile Gln Glu Ser Ser Ser Pro Ser Pro Leu Ser Ile
340 345 350

Lys Lys Cys Pro Ile Cys Lys Ala Asp Asp Ile Cys Asp His Thr Leu
355 360 365

Glu Gln Gln Gln Met Gln Pro Leu Cys Phe Asn Cys Pro Ile Cys Asp
370 375 380

Lys Ile Phe Pro Ala Thr Glu Lys Gln Ile Phe Glu Asp His Val Phe
385 390 395 400

Cys His Ser Leu

<210> 10564
<211> 154
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO2; "

<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 2; "

<220>
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<223> /note="ENSP ID: ENSP00000422697"

<400> 10564
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
1 5 10 15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
20 25 30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
35 40 45

```
Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Val Gly Trp Lys
    50                  55                  60

Thr Thr Arg Glu Tyr Tyr Thr Phe Met Trp Val Thr Leu Pro Ile Asp
65                  70                  75                  80

Leu Asn Asn Lys Ser Ala Lys Gln Gln Glu Val Gln Phe Lys Ala Tyr
                85                  90                  95

Tyr Leu Pro Lys Asp Asp Glu Tyr Tyr Gln Phe Cys Tyr Val Asp Glu
            100                 105                 110

Asp Gly Val Val Arg Gly Ala Ser Ile Pro Phe Gln Phe Arg Pro Glu
        115                 120                 125

Asn Glu Glu Asp Ile Leu Val Val Thr Thr Gln Phe Trp Pro Thr Ala
    130                 135                 140

Cys Leu Ser Tyr Gly Glu Val Glu Glu Ile
145                 150


<210> 10565
<211> 374
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
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2; "

<220>
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<223> /note="Uniprot ID:  Q13137; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423437"

<400> 10565
Met Trp Val Thr Leu Pro Ile Asp Leu Asn Asn Lys Ser Ala Lys Gln
1               5                   10                  15
```

```
Gln Glu Val Gln Phe Lys Ala Tyr Tyr Leu Pro Lys Asp Asp Glu Tyr
            20                  25                  30

Tyr Gln Phe Cys Tyr Val Asp Glu Asp Gly Val Val Arg Gly Ala Ser
        35                  40                  45

Ile Pro Phe Gln Phe Arg Pro Glu Asn Glu Glu Asp Ile Leu Val Val
    50                  55                  60

Thr Thr Gln Gly Glu Val Glu Glu Ile Glu Gln His Asn Lys Glu Leu
65                  70                  75                  80

Cys Lys Glu Asn Gln Glu Leu Lys Asp Ser Cys Ile Ser Leu Gln Lys
                85                  90                  95

Gln Asn Ser Asp Met Gln Ala Glu Leu Gln Lys Lys Gln Glu Glu Leu
            100                 105                 110

Glu Thr Leu Gln Ser Ile Asn Lys Lys Leu Glu Leu Lys Val Lys Glu
        115                 120                 125

Gln Lys Asp Tyr Trp Glu Thr Glu Leu Leu Gln Leu Lys Glu Gln Asn
    130                 135                 140

Gln Lys Met Ser Ser Glu Asn Glu Lys Met Gly Ile Arg Val Asp Gln
145                 150                 155                 160

Leu Gln Ala Gln Leu Ser Thr Gln Glu Lys Glu Met Glu Lys Leu Val
                165                 170                 175

Gln Gly Asp Gln Asp Lys Thr Glu Gln Leu Glu Gln Leu Lys Lys Glu
            180                 185                 190

Asn Asp His Leu Phe Leu Ser Leu Thr Glu Gln Arg Lys Asp Gln Lys
        195                 200                 205

Lys Leu Glu Gln Thr Val Glu Gln Met Lys Gln Asn Glu Thr Thr Ala
    210                 215                 220

Met Lys Lys Gln Gln Glu Leu Met Asp Glu Asn Phe Asp Leu Ser Lys
225                 230                 235                 240
```

```
Arg Leu Ser Glu Asn Glu Ile Ile Cys Asn Ala Leu Gln Arg Gln Lys
                245                 250                 255

Glu Arg Leu Glu Gly Glu Asn Asp Leu Leu Lys Arg Glu Asn Ser Arg
            260                 265                 270

Leu Leu Ser Tyr Met Gly Leu Asp Phe Asn Ser Leu Pro Tyr Gln Val
        275                 280                 285

Pro Thr Ser Asp Glu Gly Gly Ala Arg Gln Asn Pro Gly Leu Ala Tyr
    290                 295                 300

Gly Asn Pro Tyr Ser Gly Ile Gln Glu Ser Ser Ser Pro Ser Pro Leu
305                 310                 315                 320

Ser Ile Lys Lys Cys Pro Ile Cys Lys Ala Asp Asp Ile Cys Asp His
                325                 330                 335

Thr Leu Glu Gln Gln Gln Met Gln Pro Leu Cys Phe Asn Cys Pro Ile
            340                 345                 350

Cys Asp Lys Ile Phe Pro Ala Thr Glu Lys Gln Ile Phe Glu Asp His
        355                 360                 365

Val Phe Cys His Ser Leu
    370


<210> 10566
<211> 129
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

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<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain
2; "

<220>
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<223> /note="ENSP ID: ENSP00000424083"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10566
Xaa Gln Met Lys Gln Asn Glu Thr Thr Ala Met Lys Lys Gln Gln Glu
1 5 10 15

Leu Met Asp Glu Asn Phe Asp Leu Ser Lys Arg Leu Ser Glu Asn Glu
20 25 30

Ile Ile Cys Asn Ala Leu Gln Arg Gln Lys Glu Arg Leu Glu Gly Glu
35 40 45

Asn Asp Val Ser Lys Lys Val Leu Pro Pro Ala Arg Ser Pro Ser Arg
50 55 60

Asn Ala Leu Ser Ala Lys Gln Met Ile Phe Val Ile Thr Pro Trp Ser
65 70 75 80

Asn Ser Arg Cys Ser Pro Phe Val Ser Ile Val Gln Phe Val Thr Arg
85 90 95

Ser Ser Gln Leu Gln Arg Ser Arg Ser Leu Lys Thr Thr Cys Ser Ala
100 105 110

Thr Leu Ser Glu Tyr Pro Asn Leu Leu Asp Val Tyr Arg Asp Phe Ile
115 120 125

Glu

<210> 10567
<211> 27
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
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<223> /note="Gene Symbol: CALCOCO2; "

<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain
2; "

<220>
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<223> /note="ENSP ID: ENSP00000424169"

<400> 10567
Met Trp Val Thr Leu Pro Ile Asp Leu Asn Asn Lys Ser Ala Lys Gln
1   5   10   15

Gln Glu Val Gln Phe Lys Ala Tyr Tyr Leu Pro
            20   25

<210> 10568
<211> 467
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
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<223> /note="Gene Symbol: CALCOCO2; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain
2; "

<220>
<221> source
<223> /note="Uniprot ID: Q13137; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424352"

<400> 10568
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
1   5   10   15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
            20   25   30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
        35   40   45

```
Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Cys Ser Leu Asn
    50                  55                  60

Gln Thr Ile Gln Leu Leu Ile Thr Pro Asp Thr Gly Ser Ile Trp His
65                  70                  75                  80

Gln Val Gly Trp Lys Thr Thr Arg Glu Tyr Tyr Thr Phe Met Trp Val
                85                  90                  95

Thr Leu Pro Ile Asp Leu Asn Asn Lys Ser Ala Lys Gln Gln Glu Val
            100                 105                 110

Gln Phe Lys Ala Tyr Tyr Leu Pro Lys Asp Asp Glu Tyr Tyr Gln Phe
        115                 120                 125

Cys Tyr Val Asp Glu Asp Gly Val Val Arg Gly Ala Ser Ile Pro Phe
    130                 135                 140

Gln Phe Arg Pro Glu Asn Glu Glu Asp Ile Leu Val Val Thr Thr Gln
145                 150                 155                 160

Gly Glu Val Glu Glu Ile Glu Gln His Asn Lys Glu Leu Cys Lys Glu
                165                 170                 175

Asn Gln Glu Leu Lys Asp Ser Cys Ile Ser Leu Gln Lys Gln Asn Ser
            180                 185                 190

Asp Met Gln Ala Glu Leu Gln Lys Lys Gln Glu Glu Leu Glu Thr Leu
        195                 200                 205

Gln Ser Ile Asn Lys Lys Leu Glu Leu Lys Val Lys Glu Gln Lys Asp
    210                 215                 220

Tyr Trp Glu Thr Glu Leu Leu Gln Leu Lys Glu Gln Asn Gln Lys Met
225                 230                 235                 240

Ser Ser Glu Asn Glu Lys Met Gly Ile Arg Val Asp Gln Leu Gln Ala
                245                 250                 255

Gln Leu Ser Thr Gln Glu Lys Glu Met Glu Lys Leu Val Gln Gly Asp
            260                 265                 270
```

```
Gln Asp Lys Thr Glu Gln Leu Glu Gln Leu Lys Lys Glu Asn Asp His
        275                 280                 285

Leu Phe Leu Ser Leu Thr Glu Gln Arg Lys Asp Gln Lys Lys Leu Glu
    290                 295                 300

Gln Thr Val Glu Gln Met Lys Gln Asn Glu Thr Thr Ala Met Lys Lys
305                 310                 315                 320

Gln Gln Glu Leu Met Asp Glu Asn Phe Asp Leu Ser Lys Arg Leu Ser
                325                 330                 335

Glu Asn Glu Ile Ile Cys Asn Ala Leu Gln Arg Gln Lys Glu Arg Leu
            340                 345                 350

Glu Gly Glu Asn Asp Leu Leu Lys Arg Glu Asn Ser Arg Leu Leu Ser
        355                 360                 365

Tyr Met Gly Leu Asp Phe Asn Ser Leu Pro Tyr Gln Val Pro Thr Ser
    370                 375                 380

Asp Glu Gly Gly Ala Arg Gln Asn Pro Gly Leu Ala Tyr Gly Asn Pro
385                 390                 395                 400

Tyr Ser Gly Ile Gln Glu Ser Ser Ser Pro Ser Pro Leu Ser Ile Lys
                405                 410                 415

Lys Cys Pro Ile Cys Lys Ala Asp Asp Ile Cys Asp His Thr Leu Glu
            420                 425                 430

Gln Gln Gln Met Gln Pro Leu Cys Phe Asn Cys Pro Ile Cys Asp Lys
        435                 440                 445

Ile Phe Pro Ala Thr Glu Lys Gln Ile Phe Glu Asp His Val Phe Cys
    450                 455                 460

His Ser Leu
465
```

<210> 10569
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO2; "

<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424889"

<400> 10569
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
1   5   10   15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
            20   25   30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
        35   40   45

Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Val Gly Trp Lys
    50   55   60

Thr Thr Arg Glu Tyr Tyr Thr Phe Met Trp Val Thr Leu Pro Ile Asp
65   70   75   80

Leu Asn Asn Lys Ser Ala Lys Gln Gln Glu Val Gln Phe Lys Ala Tyr
                85   90   95

Tyr Leu Pro Lys Asp Asp Glu Tyr Tyr Gln Phe Cys Tyr Val Asp Glu
            100   105   110

Asp Gly Val Val Arg Gly Ala Ser Ile Pro Phe Gln Phe Arg Pro Glu
        115   120   125

Asn Glu Glu Asp Ile Leu Val Val Thr Thr Gln Gly Glu Val Glu Glu
    130   135   140

Ile Glu Gln His Asn Lys Glu Leu Cys Lys Glu Asn Gln Glu Leu Lys
145   150   155   160

```
Asp Ser Cys Ile Ser Leu Gln Lys Gln Asn Ser Asp Met Gln Ala Glu
                165                 170                 175

Leu Gln Lys Lys Gln Glu Glu Leu Glu Thr Leu Gln Ser Ile Asn Lys
            180                 185                 190

Lys
```

<210> 10570
<211> 259
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
<221> source
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<220>
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<223> /note="Gene Name: calcium binding and coiled-coil domain 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425090"

<400> 10570

```
Met Trp Val Thr Leu Pro Ile Asp Leu Asn Asn Lys Ser Ala Lys Gln
1               5                   10                  15

Gln Glu Val Gln Phe Lys Ala Tyr Tyr Leu Pro Lys Asp Asp Glu Tyr
            20                  25                  30

Tyr Gln Phe Cys Tyr Val Asp Glu Asp Gly Val Val Arg Gly Ala Ser
        35                  40                  45

Ile Pro Phe Gln Phe Arg Pro Glu Asn Glu Glu Asp Ile Leu Val Val
    50                  55                  60

Thr Thr Gln Gly Glu Val Glu Glu Ile Glu Gln His Asn Lys Glu Leu
65                  70                  75                  80

Cys Lys Glu Asn Gln Glu Leu Lys Asp Ser Cys Ile Ser Leu Gln Lys
```

```
                85                  90                  95

Gln Asn Ser Asp Met Gln Ala Glu Leu Gln Lys Lys Gln Glu Glu Leu
            100                 105                 110

Glu Thr Leu Gln Ser Ile Asn Lys Lys Leu Glu Leu Lys Val Lys Glu
        115                 120                 125

Gln Lys Asp Tyr Trp Glu Thr Glu Leu Leu Gln Leu Lys Glu Gln Asn
    130                 135                 140

Gln Lys Met Ser Ser Glu Asn Glu Lys Met Gly Ile Arg Val Asp Gln
145                 150                 155                 160

Leu Gln Ala Gln Leu Ser Thr Gln Glu Lys Glu Met Glu Lys Leu Val
                165                 170                 175

Gln Gly Asp Gln Asp Lys Thr Glu Gln Leu Glu Gln Leu Lys Lys Glu
            180                 185                 190

Asn Asp His Leu Phe Leu Ser Leu Thr Glu Gln Arg Lys Asp Gln Lys
        195                 200                 205

Lys Leu Glu Gln Thr Val Glu Gln Met Lys Gln Asn Glu Thr Thr Ala
    210                 215                 220

Met Lys Lys Gln Gln Glu Leu Met Asp Glu Asn Phe Asp Leu Ser Lys
225                 230                 235                 240

Arg Leu Ser Glu Asn Glu Ile Ile Cys Asn Ala Leu Gln Arg Gln Lys
                245                 250                 255

Glu Arg Leu
```

<210> 10571
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>

<221> source
<223> /note="Gene Symbol: CALCOCO2; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425692"

<400> 10571

```
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
1               5                  10                  15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
            20                  25                  30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
        35                  40                  45

Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Val Gly Trp Lys
    50                  55                  60

Thr Thr Pro Tyr Tyr Leu Pro Lys Asp Asp Glu Tyr Tyr Gln Phe Cys
65                  70                  75                  80

Tyr Val Asp Glu Asp Gly Val Val Arg Gly Ala Ser Ile Pro Phe Gln
                85                  90                  95

Phe Arg Pro Glu Asn Glu Glu Asp Ile Leu Val Val Thr Thr Gln Gly
            100                 105                 110

Glu Val Glu Glu Ile Glu Gln His Asn Lys Glu Leu Cys Lys Glu Asn
        115                 120                 125

Gln Glu Leu Lys Asp Ser Cys Ile Ser Leu Gln Lys Gln Asn Ser Asp
    130                 135                 140

Met Gln Ala Glu Leu Gln Lys Lys Gln Glu Glu Leu Glu Thr Leu Gln
145                 150                 155                 160

Ser Ile Asn Lys Lys Leu Glu Leu
                165
```

<210> 10572
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO2; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain
2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000429963"

<400> 10572
Phe Asp Leu Ser Lys Arg Leu Ser Glu Asn Glu Ile Ile Cys Asn Ala
1   5   10   15

Leu Gln Arg Gln Lys Glu Arg Leu Glu Gly Glu Asn Asp Glu Gln Lys
            20   25   30

Trp Trp Ser Val Pro Val Leu Asp Pro Cys Phe
        35   40

<210> 10573
<211> 121
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO2; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain
2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461083"

<400> 10573
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp
1   5   10   15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
            20   25   30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
        35   40   45

Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Val Gly Trp Lys
    50   55   60

Thr Thr Arg Glu Tyr Tyr Thr Phe Met Trp Val Thr Leu Pro Ile Asp
65   70   75   80

Leu Asn Asn Lys Ser Ala Lys Gln Gln Glu Val Gln Phe Lys Ala Tyr
                85   90   95

Tyr Leu Pro Lys Asp Asp Glu Tyr Tyr Gln Phe Cys Tyr Val Asp Glu
            100   105   110

Asp Gly Val Val Arg Gly Ala Ser Ile
        115   120

<210> 10574
<211> 108
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2111; "

<220>
<221> source
<223> /note="Gene Symbol: CALCOCO2; "

<220>
<221> source
<223> /note="Gene Name: calcium binding and coiled-coil domain
2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000461184"

<400> 10574
Met Glu Glu Thr Ile Lys Asp Pro Pro Thr Ser Ala Val Leu Leu Asp

```
1               5                   10                  15

His Cys His Phe Ser Gln Val Ile Phe Asn Ser Val Glu Lys Phe Tyr
            20                  25                  30

Ile Pro Gly Gly Asp Val Thr Cys His Tyr Thr Phe Thr Gln His Phe
        35                  40                  45

Ile Pro Arg Arg Lys Asp Trp Ile Gly Ile Phe Arg Arg Gln Ser Phe
    50                  55                  60

Val Leu Leu Pro Arg Leu Glu Cys Asn Gly Ala Ile Ser Ala His Arg
65                  70                  75                  80

Asn Leu Arg Leu Pro Gly Ser Ser Asp Ser Pro Ala Ser Ala Ser Arg
                85                  90                  95

Val Ala Gly Ile Thr Gly Gly Val Glu Asp Asn Pro
            100                 105


<210> 10575
<211> 167
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2112; "

<220>
<221> source
<223> /note="Gene Symbol: CABP1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
      prt 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NZU7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000288615"

<400> 10575
Met Gly Asn Cys Val Lys Tyr Pro Leu Arg Asn Leu Ser Arg Lys Asp
1               5                   10                  15
```

```
Arg Ser Leu Arg Pro Glu Glu Ile Glu Glu Leu Arg Glu Ala Phe Arg
            20                  25                  30

Glu Phe Asp Lys Asp Lys Asp Gly Tyr Ile Asn Cys Arg Asp Leu Gly
        35                  40                  45

Asn Cys Met Arg Thr Met Gly Tyr Met Pro Thr Glu Met Glu Leu Ile
    50                  55                  60

Glu Leu Ser Gln Gln Ile Asn Met Asn Leu Gly Gly His Val Asp Phe
65                  70                  75                  80

Asp Asp Phe Val Glu Leu Met Gly Pro Lys Leu Leu Ala Glu Thr Ala
                85                  90                  95

Asp Met Ile Gly Val Lys Glu Leu Arg Asp Ala Phe Arg Glu Phe Asp
            100                 105                 110

Thr Asn Gly Asp Gly Glu Ile Ser Thr Ser Glu Leu Arg Glu Ala Met
        115                 120                 125

Arg Lys Leu Leu Gly His Gln Val Gly His Arg Asp Ile Glu Glu Ile
    130                 135                 140

Ile Arg Asp Val Asp Leu Asn Gly Asp Gly Arg Val Asp Phe Glu Glu
145                 150                 155                 160

Phe Val Arg Met Met Ser Arg
                165


<210> 10576
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2112; "

<220>
<221> source
<223> /note="Gene Symbol: CABP1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
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prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NZU7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000288616"

<400> 10576

```
Met Gly Asn Cys Val Lys Tyr Pro Leu Arg Asn Leu Ser Arg Lys Met
1               5                  10                  15

Cys Gln Glu Glu Gln Thr Ser Tyr Met Val Val Gln Thr Ser Glu Glu
            20                  25                  30

Gly Leu Ala Ala Asp Ala Glu Leu Pro Gly Pro Leu Leu Met Leu Ala
        35                  40                  45

Gln Asn Cys Ala Val Met His Asn Leu Leu Gly Pro Ala Cys Ile Phe
    50                  55                  60

Leu Arg Lys Gly Phe Ala Glu Asn Arg Gln Pro Asp Arg Ser Leu Arg
65                  70                  75                  80

Pro Glu Glu Ile Glu Glu Leu Arg Glu Ala Phe Arg Glu Phe Asp Lys
                85                  90                  95

Asp Lys Asp Gly Tyr Ile Asn Cys Arg Asp Leu Gly Asn Cys Met Arg
            100                 105                 110

Thr Met Gly Tyr Met Pro Thr Glu Met Glu Leu Ile Glu Leu Ser Gln
        115                 120                 125

Gln Ile Asn Met Asn Leu Gly Gly His Val Asp Phe Asp Asp Phe Val
    130                 135                 140

Glu Leu Met Gly Pro Lys Leu Leu Ala Glu Thr Ala Asp Met Ile Gly
145                 150                 155                 160

Val Lys Glu Leu Arg Asp Ala Phe Arg Glu Phe Asp Thr Asn Gly Asp
                165                 170                 175

Gly Glu Ile Ser Thr Ser Glu Leu Arg Glu Ala Met Arg Lys Leu Leu
            180                 185                 190
```

Gly His Gln Val Gly His Arg Asp Ile Glu Glu Ile Ile Arg Asp Val
        195   200   205

Asp Leu Asn Gly Asp Gly Arg Val Asp Phe Glu Glu Phe Val Arg Met
    210   215   220

Met Ser Arg
225

<210> 10577
<211> 370
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2112; "

<220>
<221> source
<223> /note="Gene Symbol: CABP1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
      prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NZU7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000317310"

<400> 10577
Met Gly Gly Gly Asp Gly Ala Ala Phe Lys Arg Pro Gly Asp Gly Ala
1   5   10   15

Arg Leu Gln Arg Val Leu Gly Leu Gly Ser Arg Arg Glu Pro Arg Ser
            20   25   30

Leu Pro Ala Gly Gly Pro Ala Pro Arg Arg Thr Ala Pro Pro Pro Pro
        35   40   45

Gly His Ala Ser Ala Gly Pro Ala Ala Met Ser Ser His Ile Ala Lys
    50   55   60

```
Ser Glu Ser Lys Thr Ser Leu Leu Lys Ala Ala Ala Ala Ala Ala Ser
65                  70                  75                  80

Gly Gly Ser Arg Ala Pro Arg His Gly Pro Ala Arg Asp Pro Gly Leu
                85                  90                  95

Pro Ser Arg Arg Leu Pro Gly Ser Cys Pro Ala Thr Pro Gln Ser Ser
            100                 105                 110

Gly Asp Pro Ser Ser Arg Arg Pro Leu Cys Arg Pro Ala Pro Arg Glu
        115                 120                 125

Glu Gly Ala Arg Gly Ser Gln Arg Val Leu Pro Gln Ala His Cys Arg
    130                 135                 140

Pro Arg Glu Ala Leu Pro Ala Ala Ala Ser Arg Pro Ser Pro Ser Ser
145                 150                 155                 160

Pro Leu Pro Pro Ala Arg Gly Arg Asp Gly Glu Glu Arg Gly Leu Ser
                165                 170                 175

Pro Ala Leu Gly Leu Arg Gly Ser Leu Arg Ala Arg Gly Arg Gly Asp
            180                 185                 190

Ser Val Pro Ala Ala Ala Ser Glu Ala Asp Pro Phe Leu His Arg Leu
        195                 200                 205

Arg Pro Met Leu Ser Ser Ala Phe Gly Gln Asp Arg Ser Leu Arg Pro
    210                 215                 220

Glu Glu Ile Glu Glu Leu Arg Glu Ala Phe Arg Glu Phe Asp Lys Asp
225                 230                 235                 240

Lys Asp Gly Tyr Ile Asn Cys Arg Asp Leu Gly Asn Cys Met Arg Thr
                245                 250                 255

Met Gly Tyr Met Pro Thr Glu Met Glu Leu Ile Glu Leu Ser Gln Gln
            260                 265                 270

Ile Asn Met Asn Leu Gly Gly His Val Asp Phe Asp Asp Phe Val Glu
        275                 280                 285

Leu Met Gly Pro Lys Leu Leu Ala Glu Thr Ala Asp Met Ile Gly Val
```

290 295 300

Lys Glu Leu Arg Asp Ala Phe Arg Glu Phe Asp Thr Asn Gly Asp Gly
305 310 315 320

Glu Ile Ser Thr Ser Glu Leu Arg Glu Ala Met Arg Lys Leu Leu Gly
325 330 335

His Gln Val Gly His Arg Asp Ile Glu Glu Ile Ile Arg Asp Val Asp
340 345 350

Leu Asn Gly Asp Gly Arg Val Asp Phe Glu Glu Phe Val Arg Met Met
355 360 365

Ser Arg
370

<210> 10578
<211> 306
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2112; "

<220>
<221> source
<223> /note="Gene Symbol: CABP1; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
prt 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000398959"

<400> 10578
Met Cys Gln Cys Val Arg Ala Cys Val Cys Val Cys Val Cys Ala Cys
1 5 10 15

Ala Thr Gln Arg Ala Ser His Ser Ala Leu Pro Gly Thr Thr Ile Ser
20 25 30

Val Lys Asp Trp Arg Leu Cys Leu Leu Asp Gln Phe Asp Ala Cys Ala
35 40 45

```
Arg Ser Gly Leu Ser Glu Pro Arg Ser Leu Thr Leu Arg Val Pro Ser
    50                  55                  60

Cys Gly Lys Pro Leu Pro Gly Pro Gly Ala Arg Leu Gly Arg Glu Val
65                  70                  75                  80

Thr Pro Cys Leu Ser Phe Ala Phe Ala Trp Cys Trp Leu Lys Met Cys
                85                  90                  95

Gln Glu Glu Gln Thr Ser Tyr Met Val Val Gln Thr Ser Glu Glu Gly
            100                 105                 110

Leu Ala Ala Asp Ala Glu Leu Pro Gly Pro Leu Leu Met Leu Ala Gln
        115                 120                 125

Asn Cys Ala Val Met His Asn Leu Leu Gly Pro Ala Cys Ile Phe Leu
    130                 135                 140

Arg Lys Gly Phe Ala Glu Asn Arg Gln Pro Asp Arg Ser Leu Arg Pro
145                 150                 155                 160

Glu Glu Ile Glu Glu Leu Arg Glu Ala Phe Arg Glu Phe Asp Lys Asp
                165                 170                 175

Lys Asp Gly Tyr Ile Asn Cys Arg Asp Leu Gly Asn Cys Met Arg Thr
            180                 185                 190

Met Gly Tyr Met Pro Thr Glu Met Glu Leu Ile Glu Leu Ser Gln Gln
        195                 200                 205

Ile Asn Met Asn Leu Gly Gly His Val Asp Phe Asp Asp Phe Val Glu
    210                 215                 220

Leu Met Gly Pro Lys Leu Leu Ala Glu Thr Ala Asp Met Ile Gly Val
225                 230                 235                 240

Lys Glu Leu Arg Asp Ala Phe Arg Glu Phe Asp Thr Asn Gly Asp Gly
                245                 250                 255

Glu Ile Ser Thr Ser Glu Leu Arg Glu Ala Met Arg Lys Leu Leu Gly
            260                 265                 270
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```
His Gln Val Gly His Arg Asp Ile Glu Glu Ile Ile Arg Asp Val Asp
        275                 280                 285


Leu Asn Gly Asp Gly Arg Val Asp Phe Glu Glu Phe Val Arg Met Met
    290                 295                 300


Ser Arg
305


<210> 10579
<211> 220
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcium binding
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<220>
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<223> /note="Uniprot ID:  Q9NPB3; "

<220>
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<400> 10579
Met Gly Asn Cys Ala Lys Arg Pro Trp Arg Arg Gly Pro Lys Asp Pro
1               5                   10                  15


Leu Gln Trp Leu Gly Ser Pro Pro Arg Gly Ser Cys Pro Ser Pro Ser
            20                  25                  30


Ser Ser Pro Lys Glu Gln Gly Asp Pro Ala Pro Gly Val Gln Gly Tyr
        35                  40                  45


Ser Val Leu Asn Ser Leu Val Gly Pro Ala Cys Ile Phe Leu Arg Pro
    50                  55                  60


Ser Ile Ala Ala Thr Gln Leu Asp Arg Glu Leu Arg Pro Glu Glu Ile
65                  70                  75                  80
```

```
Glu Glu Leu Gln Val Ala Phe Gln Glu Phe Asp Arg Asp Arg Asp Gly
                85                  90                  95

Tyr Ile Gly Cys Arg Glu Leu Gly Ala Cys Met Arg Thr Leu Gly Tyr
            100                 105                 110

Met Pro Thr Glu Met Glu Leu Ile Glu Ile Ser Gln Gln Ile Ser Gly
        115                 120                 125

Gly Lys Val Asp Phe Glu Asp Phe Val Glu Leu Met Gly Pro Lys Leu
    130                 135                 140

Leu Ala Glu Thr Ala Asp Met Ile Gly Val Arg Glu Leu Arg Asp Ala
145                 150                 155                 160

Phe Arg Glu Phe Asp Thr Asn Gly Asp Gly Arg Ile Ser Val Gly Glu
                165                 170                 175

Leu Arg Ala Ala Leu Lys Ala Leu Leu Gly Glu Arg Leu Ser Gln Arg
            180                 185                 190

Glu Val Asp Glu Ile Leu Gln Asp Val Asp Leu Asn Gly Asp Gly Leu
        195                 200                 205

Val Asp Phe Glu Glu Phe Val Arg Met Met Ser Arg
    210                 215                 220


<210> 10580
<211> 163
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 10580
Met Gly Asn Cys Ala Lys Arg Pro Trp Arg Arg Gly Pro Lys Asp Arg
1   5   10   15

Glu Leu Arg Pro Glu Glu Ile Glu Glu Leu Gln Val Ala Phe Gln Glu
            20   25   30

Phe Asp Arg Asp Arg Asp Gly Tyr Ile Gly Cys Arg Glu Leu Gly Ala
        35   40   45

Cys Met Arg Thr Leu Gly Tyr Met Pro Thr Glu Met Glu Leu Ile Glu
    50   55   60

Ile Ser Gln Gln Ile Ser Gly Gly Lys Val Asp Phe Glu Asp Phe Val
65   70   75   80

Glu Leu Met Gly Pro Lys Leu Leu Ala Glu Thr Ala Asp Met Ile Gly
                85   90   95

Val Arg Glu Leu Arg Asp Ala Phe Arg Glu Phe Asp Thr Asn Gly Asp
            100   105   110

Gly Arg Ile Ser Val Gly Glu Leu Arg Ala Ala Leu Lys Ala Leu Leu
        115   120   125

Gly Glu Arg Leu Ser Gln Arg Glu Val Asp Glu Ile Leu Gln Asp Val
    130   135   140

Asp Leu Asn Gly Asp Gly Leu Val Asp Phe Glu Glu Phe Val Arg Met
145   150   155   160

Met Ser Arg

<210> 10581
<211> 72
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcium binding
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<220>
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<400> 10581
Met Gly Asn Cys Ala Lys Arg Pro Trp Arg Arg Gly Pro Lys Asp Pro
1 5 10 15

Leu Gln Trp Leu Gly Ser Pro Pro Arg Gly Ser Cys Pro Ser Pro Ser
20 25 30

Ser Ser Pro Lys Glu Gln Gly Asp Pro Ala Pro Gly Val Gln Gly Tyr
35 40 45

Ser Val Leu Asn Ser Leu Val Gly Pro Ala Cys Ile Phe Leu Arg Pro
50 55 60

Ser Ile Ala Ala Thr Gln Leu Val
65 70

<210> 10582
<211> 341
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2114; "

<220>
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<223> /note="Gene Symbol: CAB39; "

<220>
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prt 39; "

<220>

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<223> /note="Uniprot ID: Q9Y376; "

<220>
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<223> /note="ENSP ID: ENSP00000258418"

<400> 10582
Met Pro Phe Pro Phe Gly Lys Ser His Lys Ser Pro Ala Asp Ile Val
1   5   10   15

Lys Asn Leu Lys Glu Ser Met Ala Val Leu Glu Lys Gln Asp Ile Ser
            20   25   30

Asp Lys Lys Ala Glu Lys Ala Thr Glu Glu Val Ser Lys Asn Leu Val
        35   40   45

Ala Met Lys Glu Ile Leu Tyr Gly Thr Asn Glu Lys Glu Pro Gln Thr
    50   55   60

Glu Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Asn Ser Gly Leu Leu
65   70   75   80

Ser Thr Leu Val Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys
                85   90   95

Asp Val Ala Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr
            100   105   110

Arg Thr Pro Thr Val Glu Tyr Ile Cys Thr Gln Gln Asn Ile Leu Phe
        115   120   125

Met Leu Leu Lys Gly Tyr Glu Ser Pro Glu Ile Ala Leu Asn Cys Gly
    130   135   140

Ile Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile
145   150   155   160

Leu Trp Ser Glu Gln Phe Tyr Asp Phe Phe Arg Tyr Val Glu Met Ser
                165   170   175

Thr Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu
            180   185   190

Thr Arg His Lys Leu Leu Ser Ala Glu Phe Leu Glu Gln His Tyr Asp

```
        195                 200                 205

Arg Phe Phe Ser Glu Tyr Glu Lys Leu Leu His Ser Glu Asn Tyr Val
    210                 215                 220

Thr Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Leu Leu Asp Arg
225                 230                 235                 240

His Asn Phe Thr Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu
                245                 250                 255

Lys Leu Met Met Asn Leu Leu Arg Asp Lys Ser Arg Asn Ile Gln Phe
            260                 265                 270

Glu Ala Phe His Val Phe Lys Val Phe Val Ala Asn Pro Asn Lys Thr
        275                 280                 285

Gln Pro Ile Leu Asp Ile Leu Leu Lys Asn Gln Ala Lys Leu Ile Glu
    290                 295                 300

Phe Leu Ser Lys Phe Gln Asn Asp Arg Thr Glu Asp Glu Gln Phe Asn
305                 310                 315                 320

Asp Glu Lys Thr Tyr Leu Val Lys Gln Ile Arg Asp Leu Lys Arg Pro
                325                 330                 335

Ala Gln Gln Glu Ala
            340


<210> 10583
<211> 341
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2114; "

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<223> /note="Gene Name: calcium binding
      prt 39; "
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<220>
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<220>
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<400> 10583
Met Pro Phe Pro Phe Gly Lys Ser His Lys Ser Pro Ala Asp Ile Val
1   5   10   15

Lys Asn Leu Lys Glu Ser Met Ala Val Leu Glu Lys Gln Asp Ile Ser
            20   25   30

Asp Lys Lys Ala Glu Lys Ala Thr Glu Glu Val Ser Lys Asn Leu Val
        35   40   45

Ala Met Lys Glu Ile Leu Tyr Gly Thr Asn Glu Lys Glu Pro Gln Thr
    50   55   60

Glu Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Asn Ser Gly Leu Leu
65   70   75   80

Ser Thr Leu Val Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys
                85   90   95

Asp Val Ala Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr
            100   105   110

Arg Thr Pro Thr Val Glu Tyr Ile Cys Thr Gln Gln Asn Ile Leu Phe
        115   120   125

Met Leu Leu Lys Gly Tyr Glu Ser Pro Glu Ile Ala Leu Asn Cys Gly
    130   135   140

Ile Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile
145   150   155   160

Leu Trp Ser Glu Gln Phe Tyr Asp Phe Phe Arg Tyr Val Glu Met Ser
                165   170   175

Thr Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu
            180   185   190

```
Thr Arg His Lys Leu Leu Ser Ala Glu Phe Leu Glu Gln His Tyr Asp
        195                 200                 205

Arg Phe Phe Ser Glu Tyr Glu Lys Leu Leu His Ser Glu Asn Tyr Val
    210                 215                 220

Thr Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Leu Leu Asp Arg
225                 230                 235                 240

His Asn Phe Thr Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu
                245                 250                 255

Lys Leu Met Met Asn Leu Leu Arg Asp Lys Ser Arg Asn Ile Gln Phe
            260                 265                 270

Glu Ala Phe His Val Phe Lys Val Phe Val Ala Asn Pro Asn Lys Thr
        275                 280                 285

Gln Pro Ile Leu Asp Ile Leu Leu Lys Asn Gln Ala Lys Leu Ile Glu
    290                 295                 300

Phe Leu Ser Lys Phe Gln Asn Asp Arg Thr Glu Asp Glu Gln Phe Asn
305                 310                 315                 320

Asp Glu Lys Thr Tyr Leu Val Lys Gln Ile Arg Asp Leu Lys Arg Pro
                325                 330                 335

Ala Gln Gln Glu Ala
            340
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<210> 10584
<211> 341
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2114; "

<220>
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<223> /note="Gene Symbol: CAB39; "

<220>
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<223> /note="Gene Name: calcium binding
prt 39; "

<220>
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<223> /note="Uniprot ID: Q9Y376; "

<220>
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<223> /note="ENSP ID: ENSP00000386642"

<400> 10584
Met Pro Phe Pro Phe Gly Lys Ser His Lys Ser Pro Ala Asp Ile Val
1   5   10   15

Lys Asn Leu Lys Glu Ser Met Ala Val Leu Glu Lys Gln Asp Ile Ser
            20   25   30

Asp Lys Lys Ala Glu Lys Ala Thr Glu Glu Val Ser Lys Asn Leu Val
        35   40   45

Ala Met Lys Glu Ile Leu Tyr Gly Thr Asn Glu Lys Glu Pro Gln Thr
    50   55   60

Glu Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Asn Ser Gly Leu Leu
65   70   75   80

Ser Thr Leu Val Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys
                85   90   95

Asp Val Ala Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr
            100   105   110

Arg Thr Pro Thr Val Glu Tyr Ile Cys Thr Gln Gln Asn Ile Leu Phe
        115   120   125

Met Leu Leu Lys Gly Tyr Glu Ser Pro Glu Ile Ala Leu Asn Cys Gly
    130   135   140

Ile Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile
145   150   155   160

Leu Trp Ser Glu Gln Phe Tyr Asp Phe Phe Arg Tyr Val Glu Met Ser
                165   170   175

Thr Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu
            180   185   190

```
Thr Arg His Lys Leu Leu Ser Ala Glu Phe Leu Glu Gln His Tyr Asp
        195                 200                 205

Arg Phe Phe Ser Glu Tyr Glu Lys Leu Leu His Ser Glu Asn Tyr Val
    210                 215                 220

Thr Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Leu Leu Asp Arg
225                 230                 235                 240

His Asn Phe Thr Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu
                245                 250                 255

Lys Leu Met Met Asn Leu Leu Arg Asp Lys Ser Arg Asn Ile Gln Phe
            260                 265                 270

Glu Ala Phe His Val Phe Lys Val Phe Val Ala Asn Pro Asn Lys Thr
        275                 280                 285

Gln Pro Ile Leu Asp Ile Leu Leu Lys Asn Gln Ala Lys Leu Ile Glu
    290                 295                 300

Phe Leu Ser Lys Phe Gln Asn Asp Arg Thr Glu Asp Glu Gln Phe Asn
305                 310                 315                 320

Asp Glu Lys Thr Tyr Leu Val Lys Gln Ile Arg Asp Leu Lys Arg Pro
                325                 330                 335

Ala Gln Gln Glu Ala
            340
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<210> 10585
<211> 339
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcium binding

prt 39; "

<220>
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<223> /note="ENSP ID: ENSP00000483459"

<400> 10585

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Met Pro Phe Pro Phe Gly Lys Ser His Lys Ser Pro Ala Asp Ile Val
1               5                  10                  15

Lys Asn Leu Lys Glu Ser Met Ala Val Leu Glu Lys Gln Asp Ile Ser
            20                  25                  30

Asp Lys Lys Ala Glu Lys Ala Thr Glu Glu Val Ser Lys Asn Leu Val
        35                  40                  45

Ala Met Lys Glu Ile Leu Tyr Gly Thr Asn Glu Lys Glu Pro Gln Thr
    50                  55                  60

Glu Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Asn Ser Gly Leu Leu
65                  70                  75                  80

Ser Thr Leu Val Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys
                85                  90                  95

Asp Val Ala Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr
            100                 105                 110

Arg Thr Pro Thr Val Glu Tyr Ile Cys Thr Gln Gln Asn Ile Leu Phe
        115                 120                 125

Met Leu Leu Lys Gly Tyr Glu Ser Pro Glu Ile Ala Leu Asn Cys Gly
    130                 135                 140

Ile Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile
145                 150                 155                 160

Leu Trp Ser Glu Gln Phe Tyr Asp Phe Phe Arg Tyr Val Glu Met Ser
                165                 170                 175

Thr Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu
            180                 185                 190

Thr Arg His Lys Leu Leu Ser Ala Glu Phe Leu Val Leu Leu Ser Phe
        195                 200                 205
```

```
Phe Ser Glu Tyr Glu Lys Leu Leu His Ser Glu Asn Tyr Val Thr Lys
    210                 215                 220

Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Leu Leu Asp Arg His Asn
225                 230                 235                 240

Phe Thr Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu Lys Leu
                245                 250                 255

Met Met Asn Leu Leu Arg Asp Lys Ser Arg Asn Ile Gln Phe Glu Ala
            260                 265                 270

Phe His Val Phe Lys Val Phe Val Ala Asn Pro Asn Lys Thr Gln Pro
        275                 280                 285

Ile Leu Asp Ile Leu Leu Lys Asn Gln Ala Lys Leu Ile Glu Phe Leu
    290                 295                 300

Ser Lys Phe Gln Asn Asp Arg Thr Glu Asp Glu Gln Phe Asn Asp Glu
305                 310                 315                 320

Lys Thr Tyr Leu Val Lys Gln Ile Arg Asp Leu Lys Arg Pro Ala Gln
                325                 330                 335

Gln Glu Ala
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<210> 10586
<211> 337
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2115; "

<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
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<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>

<221> source
<223> /note="Uniprot ID: Q9H9S4; "

<220>
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<223> /note="ENSP ID: ENSP00000261669"

<400> 10586
Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1   5   10   15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
            20   25   30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
        35   40   45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
    50   55   60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65   70   75   80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp
                85   90   95

Val Thr Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg
            100   105   110

Ser Pro Thr Val Glu Tyr Ile Ser Ala His Pro His Ile Leu Phe Met
        115   120   125

Leu Leu Lys Gly Tyr Glu Ala Pro Gln Ile Ala Leu Arg Cys Gly Ile
    130   135   140

Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu
145   150   155   160

Phe Ser Asn Gln Phe Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr
                165   170   175

Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu Thr
            180   185   190

Arg His Lys Val Leu Val Ala Asp Phe Leu Glu Gln Asn Tyr Asp Thr

```
        195                 200                 205

Ile Phe Glu Asp Tyr Glu Lys Leu Leu Gln Ser Glu Asn Tyr Val Thr
    210                 215                 220

Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Ile Leu Asp Arg His
225                 230                 235                 240

Asn Phe Ala Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu Lys
                245                 250                 255

Leu Met Met Asn Leu Leu Arg Asp Lys Ser Pro Asn Ile Gln Phe Glu
            260                 265                 270

Ala Phe His Val Phe Lys Val Phe Val Ala Ser Pro His Lys Thr Gln
        275                 280                 285

Pro Ile Val Glu Ile Leu Leu Lys Asn Gln Pro Lys Leu Ile Glu Phe
    290                 295                 300

Leu Ser Ser Phe Gln Lys Glu Arg Thr Asp Asp Glu Gln Phe Ala Asp
305                 310                 315                 320

Glu Lys Asn Tyr Leu Ile Lys Gln Ile Arg Asp Leu Lys Lys Thr Ala
                325                 330                 335

Pro
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<210> 10587
<211> 337
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H9S4; "

<220>
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<223> /note="ENSP ID: ENSP00000348113"

<400> 10587
Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1   5   10   15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
            20   25   30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
        35   40   45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
    50   55   60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65   70   75   80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp
                85   90   95

Val Thr Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg
            100   105   110

Ser Pro Thr Val Glu Tyr Ile Ser Ala His Pro His Ile Leu Phe Met
        115   120   125

Leu Leu Lys Gly Tyr Glu Ala Pro Gln Ile Ala Leu Arg Cys Gly Ile
    130   135   140

Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu
145   150   155   160

Phe Ser Asn Gln Phe Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr
                165   170   175

Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu Thr
            180   185   190

```
Arg His Lys Val Leu Val Ala Asp Phe Leu Glu Gln Asn Tyr Asp Thr
        195                 200                 205

Ile Phe Glu Asp Tyr Glu Lys Leu Leu Gln Ser Glu Asn Tyr Val Thr
    210                 215                 220

Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Ile Leu Asp Arg His
225                 230                 235                 240

Asn Phe Ala Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu Lys
                245                 250                 255

Leu Met Met Asn Leu Leu Arg Asp Lys Ser Pro Asn Ile Gln Phe Glu
            260                 265                 270

Ala Phe His Val Phe Lys Val Phe Val Ala Ser Pro His Lys Thr Gln
        275                 280                 285

Pro Ile Val Glu Ile Leu Leu Lys Asn Gln Pro Lys Leu Ile Glu Phe
    290                 295                 300

Leu Ser Ser Phe Gln Lys Glu Arg Thr Asp Asp Glu Gln Phe Ala Asp
305                 310                 315                 320

Glu Lys Asn Tyr Leu Ile Lys Gln Ile Arg Asp Leu Lys Lys Thr Ala
                325                 330                 335

Pro
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<210> 10588
<211> 337
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2115; "

<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H9S4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386328"

<400> 10588
Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1   5   10   15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
            20   25   30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
        35   40   45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
    50   55   60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65   70   75   80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp
                85   90   95

Val Thr Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg
            100   105   110

Ser Pro Thr Val Glu Tyr Ile Ser Ala His Pro His Ile Leu Phe Met
        115   120   125

Leu Leu Lys Gly Tyr Glu Ala Pro Gln Ile Ala Leu Arg Cys Gly Ile
    130   135   140

Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu
145   150   155   160

Phe Ser Asn Gln Phe Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr
                165   170   175

Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu Thr
            180   185   190

```
Arg His Lys Val Leu Val Ala Asp Phe Leu Glu Gln Asn Tyr Asp Thr
        195                 200                 205

Ile Phe Glu Asp Tyr Glu Lys Leu Leu Gln Ser Glu Asn Tyr Val Thr
    210                 215                 220

Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Ile Leu Asp Arg His
225                 230                 235                 240

Asn Phe Ala Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu Lys
                245                 250                 255

Leu Met Met Asn Leu Leu Arg Asp Lys Ser Pro Asn Ile Gln Phe Glu
            260                 265                 270

Ala Phe His Val Phe Lys Val Phe Val Ala Ser Pro His Lys Thr Gln
        275                 280                 285

Pro Ile Val Glu Ile Leu Leu Lys Asn Gln Pro Lys Leu Ile Glu Phe
    290                 295                 300

Leu Ser Ser Phe Gln Lys Glu Arg Thr Asp Asp Glu Gln Phe Ala Asp
305                 310                 315                 320

Glu Lys Asn Tyr Leu Ile Lys Gln Ile Arg Asp Leu Lys Lys Thr Ala
                325                 330                 335

Pro
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<210> 10589
<211> 337
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2115; "

<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
<221> source
<223> /note="Gene Name: calcium binding

prt 39-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H9S4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386375"

<400> 10589
Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1   5   10   15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
            20   25   30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
        35   40   45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
    50   55   60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65   70   75   80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp
                85   90   95

Val Thr Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg
            100   105   110

Ser Pro Thr Val Glu Tyr Ile Ser Ala His Pro His Ile Leu Phe Met
        115   120   125

Leu Leu Lys Gly Tyr Glu Ala Pro Gln Ile Ala Leu Arg Cys Gly Ile
    130   135   140

Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu
145   150   155   160

Phe Ser Asn Gln Phe Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr
                165   170   175

Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu Thr
            180   185   190

```
Arg His Lys Val Leu Val Ala Asp Phe Leu Glu Gln Asn Tyr Asp Thr
        195                 200                 205

Ile Phe Glu Asp Tyr Glu Lys Leu Leu Gln Ser Glu Asn Tyr Val Thr
    210                 215                 220

Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Ile Leu Asp Arg His
225                 230                 235                 240

Asn Phe Ala Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu Lys
                245                 250                 255

Leu Met Met Asn Leu Leu Arg Asp Lys Ser Pro Asn Ile Gln Phe Glu
            260                 265                 270

Ala Phe His Val Phe Lys Val Phe Val Ala Ser Pro His Lys Thr Gln
        275                 280                 285

Pro Ile Val Glu Ile Leu Leu Lys Asn Gln Pro Lys Leu Ile Glu Phe
    290                 295                 300

Leu Ser Ser Phe Gln Lys Glu Arg Thr Asp Asp Glu Gln Phe Ala Asp
305                 310                 315                 320

Glu Lys Asn Tyr Leu Ile Lys Gln Ile Arg Asp Leu Lys Lys Thr Ala
                325                 330                 335

Pro
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<210> 10590
<211> 93
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
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<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386979"

<400> 10590
Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1 5 10 15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
20 25 30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
35 40 45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
50 55 60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65 70 75 80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Val
85 90

<210> 10591
<211> 193
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000387245"

<400> 10591
Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu
1 5 10 15

```
Phe Ser Asn Gln Phe Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr
            20                  25                  30

Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu Thr
        35                  40                  45

Arg His Lys Val Leu Val Ala Asp Phe Leu Glu Gln Asn Tyr Asp Thr
    50                  55                  60

Ile Phe Glu Asp Tyr Glu Lys Leu Leu Gln Ser Glu Asn Tyr Val Thr
65                  70                  75                  80

Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Ile Leu Asp Arg His
                85                  90                  95

Asn Phe Ala Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu Lys
            100                 105                 110

Leu Met Met Asn Leu Leu Arg Asp Lys Ser Pro Asn Ile Gln Phe Glu
        115                 120                 125

Ala Phe His Val Phe Lys Val Phe Val Ala Ser Pro His Lys Thr Gln
    130                 135                 140

Pro Ile Val Glu Ile Leu Leu Lys Asn Gln Pro Lys Leu Ile Glu Phe
145                 150                 155                 160

Leu Ser Ser Phe Gln Lys Glu Arg Thr Asp Asp Glu Gln Phe Ala Asp
                165                 170                 175

Glu Lys Asn Tyr Leu Ile Lys Gln Ile Arg Asp Leu Lys Lys Thr Ala
            180                 185                 190

Pro
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<210> 10592
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 2115; "

<220>
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<223> /note="Gene Symbol: CAB39L; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404028"

<400> 10592
Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1 5 10 15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
20 25 30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
35 40 45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
50 55 60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65 70 75 80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp
85 90 95

Val Thr Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg
100 105 110

Ser Pro Thr Val Glu Tyr Ile Ser Ala His Pro His Ile Leu Phe Met
115 120 125

<210> 10593
<211> 188
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409253"

<400> 10593
Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1 5 10 15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
20 25 30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
35 40 45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
50 55 60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65 70 75 80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp
85 90 95

Val Thr Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg
100 105 110

Ser Pro Thr Val Glu Tyr Ile Ser Ala His Pro His Ile Leu Phe Met
115 120 125

Leu Leu Lys Gly Tyr Glu Ala Pro Gln Ile Ala Leu Arg Cys Gly Ile
130 135 140

Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu
145 150 155 160

Phe Ser Asn Gln Phe Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr
165 170 175

```
Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys
            180                 185


<210> 10594
<211> 280
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2115; "

<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
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<223> /note="Gene Name: calcium binding
      prt 39-like; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416719"

<400> 10594
Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala Met Lys Glu Ile Leu
1               5                   10                  15


Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu Ala Val Ala Gln Leu
            20                  25                  30


Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val Thr Leu Ile Ala Asp
        35                  40                  45


Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp Val Thr Gln Ile Phe
    50                  55                  60


Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg Ser Pro Thr Val Glu
65                  70                  75                  80


Tyr Ile Ser Ala His Pro His Ile Leu Phe Met Leu Leu Lys Gly Tyr
                85                  90                  95


Glu Ala Pro Gln Ile Ala Leu Arg Cys Gly Ile Met Leu Arg Glu Cys
            100                 105                 110


Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu Phe Ser Asn Gln Phe
```

```
        115                 120                 125

Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr Phe Asp Ile Ala Ser
    130                 135                 140

Asp Ala Phe Ala Thr Phe Lys Ile Phe Glu Asp Tyr Glu Lys Leu Leu
145                 150                 155                 160

Gln Ser Glu Asn Tyr Val Thr Lys Arg Gln Ser Leu Lys Leu Leu Gly
                165                 170                 175

Glu Leu Ile Leu Asp Arg His Asn Phe Ala Ile Met Thr Lys Tyr Ile
            180                 185                 190

Ser Lys Pro Glu Asn Leu Lys Leu Met Met Asn Leu Leu Arg Asp Lys
        195                 200                 205

Ser Pro Asn Ile Gln Phe Glu Ala Phe His Val Phe Lys Val Phe Val
    210                 215                 220

Ala Ser Pro His Lys Thr Gln Pro Ile Val Glu Ile Leu Leu Lys Asn
225                 230                 235                 240

Gln Pro Lys Leu Ile Glu Phe Leu Ser Ser Phe Gln Lys Glu Arg Thr
                245                 250                 255

Asp Asp Glu Gln Phe Ala Asp Glu Lys Asn Tyr Leu Ile Lys Gln Ile
            260                 265                 270

Arg Asp Leu Lys Lys Thr Ala Pro
        275                 280


<210> 10595
<211> 337
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2115; "

<220>
<221> source
<223> /note="Gene Symbol: CAB39L; "

<220>
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<221> source
<223> /note="Gene Name: calcium binding
prt 39-like; "

<220>
<221> source
<223> /note="Uniprot ID: Q9H9S4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479669"

<400> 10595

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Met Lys Lys Met Pro Leu Phe Ser Lys Ser His Lys Asn Pro Ala Glu
1               5                  10                  15

Ile Val Lys Ile Leu Lys Asp Asn Leu Ala Ile Leu Glu Lys Gln Asp
            20                  25                  30

Lys Lys Thr Asp Lys Ala Ser Glu Glu Val Ser Lys Ser Leu Gln Ala
        35                  40                  45

Met Lys Glu Ile Leu Cys Gly Thr Asn Glu Lys Glu Pro Pro Thr Glu
    50                  55                  60

Ala Val Ala Gln Leu Ala Gln Glu Leu Tyr Ser Ser Gly Leu Leu Val
65                  70                  75                  80

Thr Leu Ile Ala Asp Leu Gln Leu Ile Asp Phe Glu Gly Lys Lys Asp
                85                  90                  95

Val Thr Gln Ile Phe Asn Asn Ile Leu Arg Arg Gln Ile Gly Thr Arg
            100                 105                 110

Ser Pro Thr Val Glu Tyr Ile Ser Ala His Pro His Ile Leu Phe Met
        115                 120                 125

Leu Leu Lys Gly Tyr Glu Ala Pro Gln Ile Ala Leu Arg Cys Gly Ile
    130                 135                 140

Met Leu Arg Glu Cys Ile Arg His Glu Pro Leu Ala Lys Ile Ile Leu
145                 150                 155                 160

Phe Ser Asn Gln Phe Arg Asp Phe Phe Lys Tyr Val Glu Leu Ser Thr
                165                 170                 175
```

```
Phe Asp Ile Ala Ser Asp Ala Phe Ala Thr Phe Lys Asp Leu Leu Thr
            180                 185                 190

Arg His Lys Val Leu Val Ala Asp Phe Leu Glu Gln Asn Tyr Asp Thr
        195                 200                 205

Ile Phe Glu Asp Tyr Glu Lys Leu Leu Gln Ser Glu Asn Tyr Val Thr
    210                 215                 220

Lys Arg Gln Ser Leu Lys Leu Leu Gly Glu Leu Ile Leu Asp Arg His
225                 230                 235                 240

Asn Phe Ala Ile Met Thr Lys Tyr Ile Ser Lys Pro Glu Asn Leu Lys
                245                 250                 255

Leu Met Met Asn Leu Leu Arg Asp Lys Ser Pro Asn Ile Gln Phe Glu
            260                 265                 270

Ala Phe His Val Phe Lys Val Phe Val Ala Ser Pro His Lys Thr Gln
        275                 280                 285

Pro Ile Val Glu Ile Leu Leu Lys Asn Gln Pro Lys Leu Ile Glu Phe
    290                 295                 300

Leu Ser Ser Phe Gln Lys Glu Arg Thr Asp Asp Glu Gln Phe Ala Asp
305                 310                 315                 320

Glu Lys Asn Tyr Leu Ile Lys Gln Ile Arg Asp Leu Lys Lys Thr Ala
                325                 330                 335

Pro
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<210> 10596
<211> 275
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2116; "

<220>
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<223> /note="Gene Symbol: CABP4; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
prt 4; "

<220>
<221> source
<223> /note="Uniprot ID: P57796; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000324960"

<400> 10596
Met Thr Thr Glu Gln Ala Arg Gly Gln Gln Gly Pro Asn Leu Ala Ile
1   5   10   15

Gly Arg Gln Lys Pro Pro Ala Gly Val Val Thr Pro Lys Ser Asp Ala
            20   25   30

Glu Glu Pro Pro Leu Thr Arg Lys Arg Ser Lys Lys Glu Arg Gly Leu
        35   40   45

Arg Gly Ser Arg Lys Arg Thr Gly Ser Ser Gly Glu Gln Thr Gly Pro
    50   55   60

Glu Ala Pro Gly Ser Ser Asn Asn Pro Pro Ser Thr Gly Glu Gly Pro
65   70   75   80

Ala Gly Ala Pro Pro Ala Ser Pro Gly Pro Ala Ser Ser Arg Gln Ser
                85   90   95

His Arg His Arg Pro Asp Ser Leu His Asp Ala Ala Gln Arg Thr Tyr
            100   105   110

Gly Pro Leu Leu Asn Arg Val Phe Gly Lys Asp Arg Glu Leu Gly Pro
        115   120   125

Glu Glu Leu Asp Glu Leu Gln Ala Ala Phe Glu Glu Phe Asp Thr Asp
    130   135   140

Arg Asp Gly Tyr Ile Ser His Arg Glu Leu Gly Asp Cys Met Arg Thr
145   150   155   160

Leu Gly Tyr Met Pro Thr Glu Met Glu Leu Leu Glu Val Ser Gln His
                165   170   175

```
Ile Lys Met Arg Met Gly Gly Arg Val Asp Phe Glu Glu Phe Val Glu
            180                 185                 190

Leu Ile Gly Pro Lys Leu Arg Glu Glu Thr Ala His Met Leu Gly Val
        195                 200                 205

Arg Glu Leu Arg Ile Ala Phe Arg Glu Phe Asp Arg Asp Arg Asp Gly
    210                 215                 220

Arg Ile Thr Val Ala Glu Leu Arg Glu Ala Val Pro Ala Leu Leu Gly
225                 230                 235                 240

Glu Pro Leu Ala Gly Pro Glu Leu Asp Glu Met Leu Arg Glu Val Asp
                245                 250                 255

Leu Asn Gly Asp Gly Thr Val Asp Phe Asp Glu Phe Val Met Met Leu
            260                 265                 270

Ser Arg His
        275


<210> 10597
<211> 170
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2116; "

<220>
<221> source
<223> /note="Gene Symbol: CABP4; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
      prt 4; "

<220>
<221> source
<223> /note="Uniprot ID:  P57796; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000401555"

<400> 10597
Met Thr Glu Pro Trp Leu Ala Leu Gly Thr Ser Trp Thr Leu Pro Leu
```

```
1               5                   10                  15

Gln Asp Arg Glu Leu Gly Pro Glu Glu Leu Asp Glu Leu Gln Ala Ala
            20                  25                  30

Phe Glu Glu Phe Asp Thr Asp Arg Asp Gly Tyr Ile Ser His Arg Glu
        35                  40                  45

Leu Gly Asp Cys Met Arg Thr Leu Gly Tyr Met Pro Thr Glu Met Glu
    50                  55                  60

Leu Leu Glu Val Ser Gln His Ile Lys Met Arg Met Gly Gly Arg Val
65                  70                  75                  80

Asp Phe Glu Glu Phe Val Glu Leu Ile Gly Pro Lys Leu Arg Glu Glu
                85                  90                  95

Thr Ala His Met Leu Gly Val Arg Glu Leu Arg Ile Ala Phe Arg Glu
            100                 105                 110

Phe Asp Arg Asp Arg Asp Gly Arg Ile Thr Val Ala Glu Leu Arg Glu
        115                 120                 125

Ala Val Pro Ala Leu Leu Gly Glu Pro Leu Ala Gly Pro Glu Leu Asp
    130                 135                 140

Glu Met Leu Arg Glu Val Asp Leu Asn Gly Asp Gly Thr Val Asp Phe
145                 150                 155                 160

Asp Glu Phe Val Met Met Leu Ser Arg His
                165                 170


<210> 10598
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2116; "

<220>
<221> source
<223> /note="Gene Symbol: CABP4; "

<220>
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<221> source
<223> /note="Gene Name: calcium binding
prt 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000439145"

<400> 10598
Met Thr Thr Glu Gln Ala Arg Gly Gln Gln Gly Pro Asn Leu Ala Ile
1 5 10 15

Gly Arg Gln Lys Pro Pro Ala Gly Val Val Thr Pro Lys Ser Asp Ala
20 25 30

Glu Glu Pro Pro Leu Thr Arg Lys Arg Ser Lys Lys Glu Arg Gly Leu
35 40 45

Arg Gly Ser Arg Lys Arg Thr Gly Ser Ser Gly Glu Gln Thr Gly Pro
50 55 60

Glu Ala Pro Gly Ser Ser Asn Asn Pro Pro Ser Thr Gly Glu Gly Pro
65 70 75 80

Ala Gly Ala Pro Pro Ala Ser Pro Gly Pro Ala Ser Ser Arg Gln Ser
85 90 95

His Arg His Arg Pro Asp Ser Leu His Asp Ala Ala Gln Arg Thr Tyr
100 105 110

Gly Pro Leu Leu Asn Arg Val Phe Gly Lys Gly Met Lys Glu Glu Gly
115 120 125

<210> 10599
<211> 173
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2117; "

<220>
<221> source
<223> /note="Gene Symbol: CABP5; "

<220>
<221> source
<223> /note="Gene Name: calcium binding

prt 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NP86; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000293255"

<400> 10599
Met Gln Phe Pro Met Gly Pro Ala Cys Ile Phe Leu Arg Lys Gly Ile
1   5   10   15

Ala Glu Lys Gln Arg Glu Arg Pro Leu Gly Gln Asp Glu Ile Glu Glu
            20   25   30

Leu Arg Glu Ala Phe Leu Glu Phe Asp Lys Asp Arg Asp Gly Phe Ile
        35   40   45

Ser Cys Lys Asp Leu Gly Asn Leu Met Arg Thr Met Gly Tyr Met Pro
    50   55   60

Thr Glu Met Glu Leu Ile Glu Leu Gly Gln Gln Ile Arg Met Asn Leu
65   70   75   80

Gly Gly Arg Val Asp Phe Asp Asp Phe Val Glu Leu Met Thr Pro Lys
                85   90   95

Leu Leu Ala Glu Thr Ala Gly Met Ile Gly Val Gln Glu Met Arg Asp
            100   105   110

Ala Phe Lys Glu Phe Asp Thr Asn Gly Asp Gly Glu Ile Thr Leu Val
        115   120   125

Glu Leu Gln Gln Ala Met Gln Arg Leu Leu Gly Glu Arg Leu Thr Pro
    130   135   140

Arg Glu Ile Ser Glu Val Val Arg Glu Ala Asp Val Asn Gly Asp Gly
145   150   155   160

Thr Val Asp Phe Glu Glu Phe Val Lys Met Met Ser Arg
                165   170

<210> 10600
<211> 215

<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2118; "

<220>
<221> source
<223> /note="Gene Symbol: CABP7; "

<220>
<221> source
<223> /note="Gene Name: calcium binding
prt 7; "

<220>
<221> source
<223> /note="Uniprot ID: Q86V35; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000216144"

<400> 10600
Met Pro Phe His Pro Val Thr Ala Ala Leu Met Tyr Arg Gly Ile Tyr
1   5   10   15

Thr Val Pro Asn Leu Leu Ser Glu Gln Arg Pro Val Asp Ile Pro Glu
            20   25   30

Asp Glu Leu Glu Glu Ile Arg Glu Ala Phe Lys Val Phe Asp Arg Asp
        35   40   45

Gly Asn Gly Phe Ile Ser Lys Gln Glu Leu Gly Thr Ala Met Arg Ser
    50   55   60

Leu Gly Tyr Met Pro Asn Glu Val Glu Leu Glu Val Ile Ile Gln Arg
65   70   75   80

Leu Asp Met Asp Gly Asp Gly Gln Val Asp Phe Glu Glu Phe Val Thr
                85   90   95

Leu Leu Gly Pro Lys Leu Ser Thr Ser Gly Ile Pro Glu Lys Phe His
            100   105   110

Gly Thr Asp Phe Asp Thr Val Phe Trp Lys Cys Asp Met Gln Lys Leu
        115   120   125

```
Thr Val Asp Glu Leu Lys Arg Leu Leu Tyr Asp Thr Phe Cys Glu His
    130                 135                 140

Leu Ser Met Lys Asp Ile Glu Asn Ile Ile Met Thr Glu Glu Glu Ser
145                 150                 155                 160

His Leu Gly Thr Ala Glu Glu Cys Pro Val Asp Val Glu Thr Cys Ser
                165                 170                 175

Asn Gln Gln Ile Arg Gln Thr Cys Val Arg Lys Ser Leu Ile Cys Ala
            180                 185                 190

Phe Ala Ile Ala Phe Ile Ile Ser Val Met Leu Ile Ala Ala Asn Gln
        195                 200                 205

Val Leu Arg Ser Gly Met Lys
    210                 215


<210> 10601
<211> 281
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
      regulated; "

<220>
<221> source
<223> /note="Uniprot ID:  O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000317095"

<400> 10601
Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg Thr Glu
1               5                   10                  15

Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val Pro Gly
            20                  25                  30
```

```
Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro Ala Thr
        35                  40                  45

Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala Val Ser
    50                  55                  60

Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala Ala Gln
65                  70                  75                  80

Met Leu Ala Met Ala Thr Ser Glu Arg Gly Gln Pro Pro Pro Cys Ser
                85                  90                  95

Asn Met Trp Thr Leu Tyr Cys Leu Thr Asp Lys Asn Gln Gln Gly His
            100                 105                 110

Pro Ser Pro Pro Pro Ala Pro Gly Pro Phe Pro Gln Ala Thr Leu Tyr
        115                 120                 125

Leu Pro Asn Pro Lys Asp Pro Gln Phe Gln Gln His Pro Pro Lys Val
    130                 135                 140

Thr Phe Pro Thr Tyr Val Met Gly Asp Thr Lys Lys Thr Ser Ala Pro
145                 150                 155                 160

Pro Phe Ile Leu Val Gly Ser Asn Val Gln Glu Ala Gln Gly Trp Lys
                165                 170                 175

Pro Leu Pro Gly His Ala Val Val Ser Gln Ser Asp Val Leu Arg Tyr
            180                 185                 190

Val Ala Met Gln Val Pro Ile Ala Val Pro Ala Asp Glu Lys Tyr Gln
        195                 200                 205

Lys His Thr Leu Ser Pro Gln Asn Ala Asn Pro Pro Ser Gly Gln Asp
    210                 215                 220

Val Pro Arg Pro Lys Ser Pro Val Phe Leu Ser Val Ala Phe Pro Val
225                 230                 235                 240

Glu Asp Val Ala Lys Lys Ser Ser Gly Ser Gly Asp Lys Cys Ala Pro
                245                 250                 255
```

```
Phe Gly Ser Tyr Gly Ile Ala Gly Glu Val Thr Val Thr Thr Ala His
            260                 265                 270

Lys Arg Arg Lys Ala Glu Thr Glu Asn
        275                 280
```

<210> 10602
<211> 475
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
<221> source
<223> /note="Uniprot ID: O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000382404"

<400> 10602

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Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1               5                   10                  15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu Glu Cys
    50                  55                  60

Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro Thr Gln
65                  70                  75                  80

Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg Thr Glu
```

```
                85                  90                  95

Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val Pro Gly
            100                 105                 110

Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro Ala Thr
        115                 120                 125

Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala Val Ser
    130                 135                 140

Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala Ala Gln
145                 150                 155                 160

Met Leu Gly Lys Val Ser Ser Ile His Ser Asp Gln Ser Asp Val Leu
                165                 170                 175

Met Val Asp Val Ala Thr Ser Met Pro Val Val Ile Lys Glu Val Pro
            180                 185                 190

Ser Ser Glu Ala Ala Glu Asp Val Met Val Ala Ala Pro Leu Val Cys
        195                 200                 205

Ser Gly Lys Val Leu Glu Val Gln Val Val Asn Gln Thr Ser Val His
    210                 215                 220

Val Asp Leu Gly Ser Gln Pro Lys Glu Asn Glu Ala Glu Pro Ser Thr
225                 230                 235                 240

Ala Ser Ser Val Pro Leu Gln Asp Glu Gln Glu Pro Pro Ala Tyr Asp
                245                 250                 255

Gln Ala Pro Glu Val Thr Leu Gln Ala Asp Ile Glu Val Met Ser Thr
            260                 265                 270

Val His Ile Ser Ser Val Tyr Asn Asp Val Pro Val Thr Glu Gly Val
        275                 280                 285

Val Tyr Ile Glu Gln Leu Pro Glu Gln Ile Val Ile Pro Phe Thr Asp
    290                 295                 300

Gln Val Ala Cys Leu Lys Glu Asn Glu Gln Ser Lys Glu Asn Glu Gln
305                 310                 315                 320
```

```
Ser Pro Arg Val Ser Pro Lys Ser Val Val Glu Lys Thr Thr Ser Gly
                325                 330                 335

Met Ser Lys Lys Ser Val Glu Ser Val Lys Leu Ala Gln Leu Glu Glu
            340                 345                 350

Asn Ala Lys Tyr Ser Ser Val Tyr Met Glu Ala Glu Ala Thr Ala Leu
        355                 360                 365

Leu Ser Asp Thr Ser Leu Lys Gly Gln Pro Glu Val Pro Ala Gln Leu
    370                 375                 380

Leu Asp Ala Glu Gly Ala Ile Lys Ile Gly Ser Glu Lys Ser Leu His
385                 390                 395                 400

Leu Glu Val Glu Ile Thr Ser Ile Val Ser Asp Asn Thr Gly Gln Glu
                405                 410                 415

Glu Ser Gly Glu Asn Ser Val Pro Gln Glu Met Glu Gly Lys Pro Val
            420                 425                 430

Leu Ser Gly Glu Ala Ala Glu Ala Val His Ser Gly Thr Ser Val Lys
        435                 440                 445

Ser Ser Ser Gly Pro Phe Pro Pro Ala Pro Glu Gly Leu Thr Ala Pro
    450                 455                 460

Glu Ile Glu Pro Glu Gly Glu Ser Thr Ala Glu
465                 470                 475


<210> 10603
<211> 379
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
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<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation regulated; "

<220>
<221> source
<223> /note="Uniprot ID: O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000382419"

<400> 10603

```
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1               5                  10                  15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60

Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu
65                  70                  75                  80

Glu Cys Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro
                85                  90                  95

Thr Gln Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg
            100                 105                 110

Thr Glu Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val
        115                 120                 125

Pro Gly Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro
    130                 135                 140

Ala Thr Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala
145                 150                 155                 160

Val Ser Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala
                165                 170                 175

Ala Gln Met Leu Ala Met Ala Thr Ser Glu Arg Gly Gln Pro Pro Pro
```

```
            180                 185                 190

Cys Ser Asn Met Trp Thr Leu Tyr Cys Leu Thr Asp Lys Asn Gln Gln
        195                 200                 205

Gly His Pro Ser Pro Pro Pro Ala Pro Gly Pro Phe Pro Gln Ala Thr
    210                 215                 220

Leu Tyr Leu Pro Asn Pro Lys Asp Pro Gln Phe Gln Gln His Pro Pro
225                 230                 235                 240

Lys Val Thr Phe Pro Thr Tyr Val Met Gly Asp Thr Lys Lys Thr Ser
                245                 250                 255

Ala Pro Pro Phe Ile Leu Val Gly Ser Asn Val Gln Glu Ala Gln Gly
            260                 265                 270

Trp Lys Pro Leu Pro Gly His Ala Val Val Ser Gln Ser Asp Val Leu
        275                 280                 285

Arg Tyr Val Ala Met Gln Val Pro Ile Ala Val Pro Ala Asp Glu Lys
    290                 295                 300

Tyr Gln Lys His Thr Leu Ser Pro Gln Asn Ala Asn Pro Pro Ser Gly
305                 310                 315                 320

Gln Asp Val Pro Arg Pro Lys Ser Pro Val Phe Leu Ser Val Ala Phe
                325                 330                 335

Pro Val Glu Asp Val Ala Lys Lys Ser Ser Gly Ser Gly Asp Lys Cys
            340                 345                 350

Ala Pro Phe Gly Ser Tyr Gly Ile Ala Gly Glu Val Thr Val Thr Thr
        355                 360                 365

Ala His Lys Arg Arg Lys Ala Glu Thr Glu Asn
    370                 375
```

<210> 10604
<211> 379
<212> PRT
<213> Homo sapiens

<220>

<221> source
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<220>
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<220>
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<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
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<223> /note="Uniprot ID: O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000382421"

<400> 10604

```
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1               5                  10                  15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60

Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu
65                  70                  75                  80

Glu Cys Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro
                85                  90                  95

Thr Gln Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg
            100                 105                 110

Thr Glu Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val
        115                 120                 125

Pro Gly Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro
    130                 135                 140
```

```
Ala Thr Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala
145                 150                 155                 160

Val Ser Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala
                165                 170                 175

Ala Gln Met Leu Ala Met Ala Thr Ser Glu Arg Gly Gln Pro Pro Pro
            180                 185                 190

Cys Ser Asn Met Trp Thr Leu Tyr Cys Leu Thr Asp Lys Asn Gln Gln
        195                 200                 205

Gly His Pro Ser Pro Pro Pro Ala Pro Gly Pro Phe Pro Gln Ala Thr
    210                 215                 220

Leu Tyr Leu Pro Asn Pro Lys Asp Pro Gln Phe Gln Gln His Pro Pro
225                 230                 235                 240

Lys Val Thr Phe Pro Thr Tyr Val Met Gly Asp Thr Lys Lys Thr Ser
                245                 250                 255

Ala Pro Pro Phe Ile Leu Val Gly Ser Asn Val Gln Glu Ala Gln Gly
            260                 265                 270

Trp Lys Pro Leu Pro Gly His Ala Val Val Ser Gln Ser Asp Val Leu
        275                 280                 285

Arg Tyr Val Ala Met Gln Val Pro Ile Ala Val Pro Ala Asp Glu Lys
    290                 295                 300

Tyr Gln Lys His Thr Leu Ser Pro Gln Asn Ala Asn Pro Pro Ser Gly
305                 310                 315                 320

Gln Asp Val Pro Arg Pro Lys Ser Pro Val Phe Leu Ser Val Ala Phe
                325                 330                 335

Pro Val Glu Asp Val Ala Lys Lys Ser Ser Gly Ser Gly Asp Lys Cys
            340                 345                 350

Ala Pro Phe Gly Ser Tyr Gly Ile Ala Gly Glu Val Thr Val Thr Thr
        355                 360                 365

Ala His Lys Arg Arg Lys Ala Glu Thr Glu Asn
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370 375

<210> 10605
<211> 221
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
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<220>
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<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation regulated; "

<220>
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<223> /note="Uniprot ID: O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000399973"

<400> 10605
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1 5 10 15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
20 25 30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
35 40 45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
50 55 60

Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu
65 70 75 80

Glu Cys Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro
85 90 95

Thr Gln Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg
100 105 110

```
Thr Glu Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val
        115                 120                 125

Pro Gly Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro
    130                 135                 140

Ala Thr Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala
145                 150                 155                 160

Val Ser Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala
                165                 170                 175

Ala Gln Met Leu Glu Asp Val Ala Lys Lys Ser Ser Gly Ser Gly Asp
            180                 185                 190

Lys Cys Ala Pro Phe Gly Ser Tyr Gly Ile Ala Gly Glu Val Thr Val
        195                 200                 205

Thr Thr Ala His Lys Arg Arg Lys Ala Glu Thr Glu Asn
    210                 215                 220


<210> 10606
<211> 493
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
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<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
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<220>
<221> source
<223> /note="Uniprot ID:  O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431142"

<400> 10606
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
```

```
1               5                   10                  15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60

Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu
65                  70                  75                  80

Glu Cys Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro
                85                  90                  95

Thr Gln Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg
            100                 105                 110

Thr Glu Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val
        115                 120                 125

Pro Gly Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro
    130                 135                 140

Ala Thr Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala
145                 150                 155                 160

Val Ser Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala
                165                 170                 175

Ala Gln Met Leu Gly Lys Val Ser Ser Ile His Ser Asp Gln Ser Asp
            180                 185                 190

Val Leu Met Val Asp Val Ala Thr Ser Met Pro Val Val Ile Lys Glu
        195                 200                 205

Val Pro Ser Ser Glu Ala Ala Glu Asp Val Met Val Ala Ala Pro Leu
    210                 215                 220

Val Cys Ser Gly Lys Val Leu Glu Val Gln Val Val Asn Gln Thr Ser
225                 230                 235                 240
```

```
Val His Val Asp Leu Gly Ser Gln Pro Lys Glu Asn Glu Ala Glu Pro
                245                 250                 255

Ser Thr Ala Ser Ser Val Pro Leu Gln Asp Glu Gln Glu Pro Pro Ala
            260                 265                 270

Tyr Asp Gln Ala Pro Glu Val Thr Leu Gln Ala Asp Ile Glu Val Met
        275                 280                 285

Ser Thr Val His Ile Ser Ser Val Tyr Asn Asp Val Pro Val Thr Glu
    290                 295                 300

Gly Val Val Tyr Ile Glu Gln Leu Pro Glu Gln Ile Val Ile Pro Phe
305                 310                 315                 320

Thr Asp Gln Val Ala Cys Leu Lys Glu Asn Glu Gln Ser Lys Glu Asn
                325                 330                 335

Glu Gln Ser Pro Arg Val Ser Pro Lys Ser Val Val Glu Lys Thr Thr
            340                 345                 350

Ser Gly Met Ser Lys Lys Ser Val Glu Ser Val Lys Leu Ala Gln Leu
        355                 360                 365

Glu Glu Asn Ala Lys Tyr Ser Ser Val Tyr Met Glu Ala Glu Ala Thr
    370                 375                 380

Ala Leu Leu Ser Asp Thr Ser Leu Lys Gly Gln Pro Glu Val Pro Ala
385                 390                 395                 400

Gln Leu Leu Asp Ala Glu Gly Ala Ile Lys Ile Gly Ser Glu Lys Ser
                405                 410                 415

Leu His Leu Glu Val Glu Ile Thr Ser Ile Val Ser Asp Asn Thr Gly
            420                 425                 430

Gln Glu Glu Ser Gly Glu Asn Ser Val Pro Gln Glu Met Glu Gly Lys
        435                 440                 445

Pro Val Leu Ser Gly Glu Ala Ala Glu Ala Val His Ser Gly Thr Ser
    450                 455                 460
```

```
Val Lys Ser Ser Ser Gly Pro Phe Pro Pro Ala Pro Glu Gly Leu Thr
465                 470                 475                 480


Ala Pro Glu Ile Glu Pro Glu Gly Glu Ser Thr Ala Glu
                485                 490


<210> 10607
<211> 493
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
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<220>
<221> source
<223> /note="Uniprot ID:  O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432870"

<400> 10607
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1               5                   10                  15


Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30


Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45


Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60


Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu
65                  70                  75                  80


Glu Cys Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro
```

```
                85                  90                  95

Thr Gln Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg
            100                 105                 110

Thr Glu Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val
        115                 120                 125

Pro Gly Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro
    130                 135                 140

Ala Thr Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala
145                 150                 155                 160

Val Ser Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala
                165                 170                 175

Ala Gln Met Leu Gly Lys Val Ser Ser Ile His Ser Asp Gln Ser Asp
            180                 185                 190

Val Leu Met Val Asp Val Ala Thr Ser Met Pro Val Val Ile Lys Glu
        195                 200                 205

Val Pro Ser Ser Glu Ala Ala Glu Asp Val Met Val Ala Ala Pro Leu
    210                 215                 220

Val Cys Ser Gly Lys Val Leu Glu Val Gln Val Val Asn Gln Thr Ser
225                 230                 235                 240

Val His Val Asp Leu Gly Ser Gln Pro Lys Glu Asn Glu Ala Glu Pro
                245                 250                 255

Ser Thr Ala Ser Ser Val Pro Leu Gln Asp Glu Gln Glu Pro Pro Ala
            260                 265                 270

Tyr Asp Gln Ala Pro Glu Val Thr Leu Gln Ala Asp Ile Glu Val Met
        275                 280                 285

Ser Thr Val His Ile Ser Ser Val Tyr Asn Asp Val Pro Val Thr Glu
    290                 295                 300

Gly Val Val Tyr Ile Glu Gln Leu Pro Glu Gln Ile Val Ile Pro Phe
305                 310                 315                 320
```

```
Thr Asp Gln Val Ala Cys Leu Lys Glu Asn Glu Gln Ser Lys Glu Asn
                325                 330                 335

Glu Gln Ser Pro Arg Val Ser Pro Lys Ser Val Val Glu Lys Thr Thr
            340                 345                 350

Ser Gly Met Ser Lys Lys Ser Val Glu Ser Val Lys Leu Ala Gln Leu
        355                 360                 365

Glu Glu Asn Ala Lys Tyr Ser Ser Val Tyr Met Glu Ala Glu Ala Thr
    370                 375                 380

Ala Leu Leu Ser Asp Thr Ser Leu Lys Gly Gln Pro Glu Val Pro Ala
385                 390                 395                 400

Gln Leu Leu Asp Ala Glu Gly Ala Ile Lys Ile Gly Ser Glu Lys Ser
                405                 410                 415

Leu His Leu Glu Val Glu Ile Thr Ser Ile Val Ser Asp Asn Thr Gly
            420                 425                 430

Gln Glu Glu Ser Gly Glu Asn Ser Val Pro Gln Glu Met Glu Gly Lys
        435                 440                 445

Pro Val Leu Ser Gly Glu Ala Ala Glu Ala Val His Ser Gly Thr Ser
    450                 455                 460

Val Lys Ser Ser Ser Gly Pro Phe Pro Pro Ala Pro Glu Gly Leu Thr
465                 470                 475                 480

Ala Pro Glu Ile Glu Pro Glu Gly Glu Ser Thr Ala Glu
                485                 490


<210> 10608
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
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<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462009"

<400> 10608
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1 5 10 15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
20 25 30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
35 40 45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
50 55 60

Ile Lys Asp Gly Ala Thr Asn Val Cys
65 70

<210> 10609
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462474"

<400> 10609
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1 5 10 15

```
Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60

Ile Lys Asp Gly Ala Thr Asn Val Cys
65                  70


<210> 10610
<211> 84
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
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<223> /note="Gene Symbol: CABYR; "

<220>
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<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
      regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462748"

<400> 10610
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1               5                   10                  15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60
```

```
Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu
65                  70                  75                  80


Glu Cys Leu Lys



<210> 10611
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
      regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000462811"

<400> 10611
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1               5                  10                  15


Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30


Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45


Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu Glu Cys
    50                  55                  60


Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro Thr Gln
65                  70                  75                  80


Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg Thr Glu
                85                  90                  95


Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val Pro Gly
            100                 105                 110
```

```
Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro Ala Thr
        115                 120                 125

Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala Val Ser
    130                 135                 140

Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala Ala Gln
145                 150                 155                 160

Met Leu Ala Met Ala Thr Ser Glu Arg Gly Gln Pro Pro Pro Cys Ser
                165                 170                 175

Asn Met Trp Thr Leu Tyr Cys Leu Thr Asp Lys Asn Gln Gln Gly His
            180                 185                 190

Pro Ser Pro Pro
        195


<210> 10612
<211> 293
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
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<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000462947"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10612
Xaa Met Pro Val Val Ile Lys Glu Val Pro Ser Ser Glu Ala Ala Glu
1               5                   10                  15
```

```
Asp Val Met Val Ala Ala Pro Leu Val Cys Ser Gly Lys Val Leu Glu
            20                  25                  30

Val Gln Val Val Asn Gln Thr Ser Val His Val Asp Leu Gly Ser Gln
        35                  40                  45

Pro Lys Glu Asn Glu Ala Glu Pro Ser Thr Ala Ser Ser Val Pro Leu
    50                  55                  60

Gln Asp Glu Gln Glu Pro Pro Ala Tyr Asp Gln Ala Pro Glu Val Thr
65                  70                  75                  80

Leu Gln Ala Asp Ile Glu Val Met Ser Thr Val His Ile Ser Ser Val
                85                  90                  95

Tyr Asn Asp Val Pro Val Thr Glu Gly Val Val Tyr Ile Glu Gln Leu
            100                 105                 110

Pro Glu Gln Ile Val Ile Pro Phe Thr Asp Gln Val Ala Cys Leu Lys
        115                 120                 125

Glu Asn Glu Gln Ser Lys Glu Asn Glu Gln Ser Pro Arg Val Ser Pro
    130                 135                 140

Lys Ser Val Val Glu Lys Thr Thr Ser Gly Met Ser Lys Lys Ser Val
145                 150                 155                 160

Glu Ser Val Lys Leu Ala Gln Leu Glu Glu Asn Ala Lys Tyr Ser Ser
                165                 170                 175

Val Tyr Met Glu Ala Glu Ala Thr Ala Leu Leu Ser Asp Thr Ser Leu
            180                 185                 190

Lys Gly Gln Pro Glu Val Pro Ala Gln Leu Leu Asp Ala Glu Gly Ala
        195                 200                 205

Ile Lys Ile Gly Ser Glu Lys Ser Leu His Leu Glu Val Glu Ile Thr
    210                 215                 220

Ser Ile Val Ser Asp Asn Thr Gly Gln Glu Glu Ser Gly Glu Asn Ser
225                 230                 235                 240
```

Val Pro Gln Glu Met Glu Gly Lys Pro Val Leu Ser Gly Glu Ala Ala
245 250 255

Glu Ala Val His Ser Gly Thr Ser Val Lys Ser Ser Ser Gly Pro Phe
260 265 270

Pro Pro Ala Pro Glu Gly Leu Thr Ala Pro Glu Ile Glu Pro Glu Gly
275 280 285

Glu Ser Thr Ala Glu
290

<210> 10613
<211> 46
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463737"

<400> 10613
Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg Thr Glu
1 5 10 15

Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val Pro Gly
20 25 30

Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro
35 40 45

<210> 10614
<211> 36
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000463781"

<400> 10614
Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg Thr Glu
1 5 10 15

Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val Pro Gly
20 25 30

Thr Glu Gln Thr
35

<210> 10615
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000464595"

<400> 10615
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1 5 10 15

```
Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60

Ile Lys Asp Gly Ala Thr Asn Val Cys
65                  70


<210> 10616
<211> 493
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
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<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
      regulated; "

<220>
<221> source
<223> /note="Uniprot ID:  O75952; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483621"

<400> 10616
Met Ile Ser Ser Lys Pro Arg Leu Val Val Pro Tyr Gly Leu Lys Thr
1               5                   10                  15

Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn
            20                  25                  30

Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg
        35                  40                  45

Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln
    50                  55                  60
```

```
Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu
65                  70                  75                  80

Glu Cys Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro
                85                  90                  95

Thr Gln Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg
            100                 105                 110

Thr Glu Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val
        115                 120                 125

Pro Gly Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro
    130                 135                 140

Ala Thr Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala
145                 150                 155                 160

Val Ser Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala
                165                 170                 175

Ala Gln Met Leu Gly Lys Val Ser Ser Ile His Ser Asp Gln Ser Asp
            180                 185                 190

Val Leu Met Val Asp Val Ala Thr Ser Met Pro Val Val Ile Lys Glu
        195                 200                 205

Val Pro Ser Ser Glu Ala Ala Glu Asp Val Met Val Ala Ala Pro Leu
    210                 215                 220

Val Cys Ser Gly Lys Val Leu Glu Val Gln Val Val Asn Gln Thr Ser
225                 230                 235                 240

Val His Val Asp Leu Gly Ser Gln Pro Lys Glu Asn Glu Ala Glu Pro
                245                 250                 255

Ser Thr Ala Ser Ser Val Pro Leu Gln Asp Glu Gln Glu Pro Pro Ala
            260                 265                 270

Tyr Asp Gln Ala Pro Glu Val Thr Leu Gln Ala Asp Ile Glu Val Met
        275                 280                 285
```

```
Ser Thr Val His Ile Ser Ser Val Tyr Asn Asp Val Pro Val Thr Glu
    290                 295                 300

Gly Val Val Tyr Ile Glu Gln Leu Pro Glu Gln Ile Val Ile Pro Phe
305                 310                 315                 320

Thr Asp Gln Val Ala Cys Leu Lys Glu Asn Glu Gln Ser Lys Glu Asn
                325                 330                 335

Glu Gln Ser Pro Arg Val Ser Pro Lys Ser Val Val Glu Lys Thr Thr
            340                 345                 350

Ser Gly Met Ser Lys Lys Ser Val Glu Ser Val Lys Leu Ala Gln Leu
        355                 360                 365

Glu Glu Asn Ala Lys Tyr Ser Ser Val Tyr Met Glu Ala Glu Ala Thr
    370                 375                 380

Ala Leu Leu Ser Asp Thr Ser Leu Lys Gly Gln Pro Glu Val Pro Ala
385                 390                 395                 400

Gln Leu Leu Asp Ala Glu Gly Ala Ile Lys Ile Gly Ser Glu Lys Ser
                405                 410                 415

Leu His Leu Glu Val Glu Ile Thr Ser Ile Val Ser Asp Asn Thr Gly
            420                 425                 430

Gln Glu Glu Ser Gly Glu Asn Ser Val Pro Gln Glu Met Glu Gly Lys
        435                 440                 445

Pro Val Leu Ser Gly Glu Ala Ala Glu Ala Val His Ser Gly Thr Ser
    450                 455                 460

Val Lys Ser Ser Ser Gly Pro Phe Pro Pro Ala Pro Glu Gly Leu Thr
465                 470                 475                 480

Ala Pro Glu Ile Glu Pro Glu Gly Glu Ser Thr Ala Glu
                485                 490
```

<210> 10617
<211> 395
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2119; "

<220>
<221> source
<223> /note="Gene Symbol: CABYR; "

<220>
<221> source
<223> /note="Gene Name: calcium binding tyr-(Y)-phosphorylation
regulated; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486801"

<400> 10617
Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg Thr Glu
1 5 10 15

Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val Pro Gly
20 25 30

Thr Glu Gln Thr Glu Ala Val Gly Gly Leu Ser Ser Lys Pro Ala Thr
35 40 45

Pro Lys Thr Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala Val Ser
50 55 60

Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala Ala Gln
65 70 75 80

Met Leu Gly Lys Val Ser Ser Ile His Ser Asp Gln Ser Asp Val Leu
85 90 95

Met Val Asp Val Ala Thr Ser Met Pro Val Val Ile Lys Glu Val Pro
100 105 110

Ser Ser Glu Ala Ala Glu Asp Val Met Val Ala Ala Pro Leu Val Cys
115 120 125

Ser Gly Lys Val Leu Glu Val Gln Val Val Asn Gln Thr Ser Val His
130 135 140

Val Asp Leu Gly Ser Gln Pro Lys Glu Asn Glu Ala Glu Pro Ser Thr
145 150 155 160

```
Ala Ser Ser Val Pro Leu Gln Asp Glu Gln Glu Pro Pro Ala Tyr Asp
                165                 170                 175

Gln Ala Pro Glu Val Thr Leu Gln Ala Asp Ile Glu Val Met Ser Thr
            180                 185                 190

Val His Ile Ser Ser Val Tyr Asn Asp Val Pro Val Thr Glu Gly Val
        195                 200                 205

Val Tyr Ile Glu Gln Leu Pro Glu Gln Ile Val Ile Pro Phe Thr Asp
    210                 215                 220

Gln Val Ala Cys Leu Lys Glu Asn Glu Gln Ser Lys Glu Asn Glu Gln
225                 230                 235                 240

Ser Pro Arg Val Ser Pro Lys Ser Val Val Glu Lys Thr Thr Ser Gly
                245                 250                 255

Met Ser Lys Lys Ser Val Glu Ser Val Lys Leu Ala Gln Leu Glu Glu
            260                 265                 270

Asn Ala Lys Tyr Ser Ser Val Tyr Met Glu Ala Glu Ala Thr Ala Leu
        275                 280                 285

Leu Ser Asp Thr Ser Leu Lys Gly Gln Pro Glu Val Pro Ala Gln Leu
    290                 295                 300

Leu Asp Ala Glu Gly Ala Ile Lys Ile Gly Ser Glu Lys Ser Leu His
305                 310                 315                 320

Leu Glu Val Glu Ile Thr Ser Ile Val Ser Asp Asn Thr Gly Gln Glu
                325                 330                 335

Glu Ser Gly Glu Asn Ser Val Pro Gln Glu Met Glu Gly Lys Pro Val
            340                 345                 350

Leu Ser Gly Glu Ala Ala Glu Ala Val His Ser Gly Thr Ser Val Lys
        355                 360                 365

Ser Ser Ser Gly Pro Phe Pro Pro Ala Pro Glu Gly Leu Thr Ala Pro
    370                 375                 380
```

Glu Ile Glu Pro Glu Gly Glu Ser Thr Ala Glu
385 390 395

<210> 10618
<211> 130
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel flower
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UGQ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000291722"

<400> 10618
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1 5 10 15

Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
20 25 30

Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
35 40 45

Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
50 55 60

Met Met Ala Val Val Pro Ile Val Ile Ser Leu Thr Leu Thr Thr Leu
65 70 75 80

Leu Gly Asn Ala Ile Ala Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser
85 90 95

Ala Leu Gly Lys Lys Gly Asp Ala Ile Ser Tyr Ala Arg Ile Gln Gln

100 105 110

Gln Arg Gln Gln Ala Asp Glu Glu Lys Leu Ala Glu Thr Leu Glu Gly
115 120 125

Glu Leu
130

<210> 10619
<211> 172
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel flower
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UGQ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000317121"

<400> 10619
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1 5 10 15

Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
20 25 30

Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
35 40 45

Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
50 55 60

Ile Met Asn Ala Phe Ile Leu Leu Leu Cys Glu Ala Pro Phe Cys Cys
65 70 75 80

```
Gln Phe Ile Glu Phe Ala Asn Thr Val Ala Glu Lys Val Asp Arg Leu
                85                  90                  95

Arg Ser Trp Gln Lys Ala Val Phe Tyr Cys Gly Met Ala Val Val Pro
            100                 105                 110

Ile Val Ile Ser Leu Thr Leu Thr Thr Leu Leu Gly Asn Ala Ile Ala
        115                 120                 125

Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser Ala Leu Gly Lys Lys Gly
    130                 135                 140

Asp Ala Ile Ser Tyr Ala Arg Ile Gln Gln Gln Arg Gln Gln Ala Asp
145                 150                 155                 160

Glu Glu Lys Leu Ala Glu Thr Leu Glu Gly Glu Leu
                165                 170


<210> 10620
<211> 114
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel flower
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000414495"

<400> 10620
Met Leu Thr Ala Ala Gly Ser Thr Ala Glu Leu Ser Ala Cys Ala Ile
1               5                   10                  15

Ser Gly Leu Phe Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala
            20                  25                  30

Gly Val Trp Met Ile Met Asn Ala Phe Ile Leu Leu Leu Cys Glu Ala
```

35 40 45

Pro Phe Cys Cys Gln Phe Ile Glu Phe Ala Asn Thr Val Ala Glu Lys
50 55 60

Val Asp Arg Leu Arg Ser Trp Gln Lys Ala Val Phe Tyr Cys Gly Met
65 70 75 80

Ala Val Val Pro Ile Val Ile Ser Leu Thr Leu Thr Thr Leu Leu Gly
85 90 95

Asn Ala Ile Ala Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser Ala Leu
100 105 110

Gly Lys

<210> 10621
<211> 233
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel flower
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UGQ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440832"

<400> 10621
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1 5 10 15

Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
20 25 30

```
Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
        35                  40                  45

Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
    50                  55                  60

Ile Met Asn Ala Phe Ile Leu Leu Leu Cys Glu Ala Pro Phe Cys Cys
65                  70                  75                  80

Gln Phe Ile Glu Phe Ala Asn Thr Val Ala Glu Lys Val Asp Arg Leu
                85                  90                  95

Arg Ser Trp Gln Lys Ala Val Phe Tyr Cys Gly Met Ala Val Val Pro
            100                 105                 110

Ile Val Ile Ser Leu Thr Leu Thr Thr Leu Leu Gly Asn Ala Ile Ala
        115                 120                 125

Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser Ala Leu Gly Lys Lys Ala
    130                 135                 140

Gln Thr Glu Ala Gly Ser Phe Ala Ala Gln His Pro Arg Glu Pro Gly
145                 150                 155                 160

Pro Phe Ser Glu Gly Thr Arg Gln Ala Phe Ala Thr Pro Ala Val Val
                165                 170                 175

Ser Gly Glu Ile Arg Met Pro Ala Gly Ala Met Arg Ser Pro Met Pro
            180                 185                 190

Gly Ser Ser Ser Arg Gly Ser Arg Arg Met Arg Arg Ser Ser Arg Arg
        195                 200                 205

Pro Trp Arg Gly Ser Cys Glu Gly Leu Gly Ala Pro Pro Ser Leu Ser
    210                 215                 220

Pro Leu Leu Ala Leu Cys Gly Ser Lys
225                 230
```

<210> 10622
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel flower
domain containing 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UGQ2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000444328"

<400> 10622
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1   5   10   15

Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
            20   25   30

Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
        35   40   45

Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
    50   55   60

Met Met Ala Val Val Pro Ile Val Ile Ser Leu Thr Leu Thr Thr Leu
65   70   75   80

Leu Gly Asn Ala Ile Ala Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser
                85   90   95

Ala Leu Gly Lys Lys Ala Gln Thr Glu Ala Gly Ser Phe Ala Ala Gln
            100   105   110

His Pro Arg Glu Pro Gly Pro Phe Ser Glu Gly Thr Arg Gln Ala Phe
        115   120   125

Ala Thr Pro Ala Val Val Ser Gly Glu Ile Arg Met Pro Ala Gly Ala
    130   135   140

```
Met Arg Ser Pro Met Pro Gly Ser Ser Ser Arg Gly Ser Arg Arg Met
145                 150                 155                 160


Arg Arg Ser Ser Arg Arg Pro Trp Arg Gly Ser Cys Glu Gly Leu Gly
                165                 170                 175


Ala Pro Pro Ser Leu Ser Pro Leu Leu Ala Leu Cys Gly Ser Lys
            180                 185                 190


<210> 10623
<211> 233
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: Calcium channel flower
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000485922"

<400> 10623
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1               5                   10                  15


Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
            20                  25                  30


Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
        35                  40                  45


Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
    50                  55                  60


Ile Met Asn Ala Phe Ile Leu Leu Leu Cys Glu Ala Pro Phe Cys Cys
65                  70                  75                  80
```

```
Gln Phe Ile Glu Phe Ala Asn Thr Val Ala Glu Lys Val Asp Arg Leu
                85                  90                  95

Arg Ser Trp Gln Lys Ala Val Phe Tyr Cys Gly Met Ala Val Val Pro
            100                 105                 110

Ile Val Ile Ser Leu Thr Leu Thr Thr Leu Leu Gly Asn Ala Ile Ala
        115                 120                 125

Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser Ala Leu Gly Lys Lys Ala
    130                 135                 140

Gln Thr Glu Ala Gly Ser Phe Ala Ala Gln His Pro Arg Glu Pro Gly
145                 150                 155                 160

Pro Phe Ser Glu Gly Thr Arg Gln Ala Phe Ala Thr Pro Ala Val Val
                165                 170                 175

Ser Gly Glu Ile Arg Met Pro Ala Gly Ala Met Arg Ser Pro Met Pro
            180                 185                 190

Gly Ser Ser Ser Arg Gly Ser Arg Arg Met Arg Arg Ser Ser Arg Arg
        195                 200                 205

Pro Trp Arg Gly Ser Cys Glu Gly Leu Gly Ala Pro Pro Ser Leu Ser
    210                 215                 220

Pro Leu Leu Ala Leu Cys Gly Ser Lys
225                 230


<210> 10624
<211> 130
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: Calcium channel flower
      domain containing 1; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000486098"

<400> 10624
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1   5   10   15

Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
            20   25   30

Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
        35   40   45

Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
    50   55   60

Met Met Ala Val Val Pro Ile Val Ile Ser Leu Thr Leu Thr Thr Leu
65   70   75   80

Leu Gly Asn Ala Ile Ala Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser
                85   90   95

Ala Leu Gly Lys Lys Gly Asp Ala Ile Ser Tyr Ala Arg Ile Gln Gln
            100   105   110

Gln Arg Gln Gln Ala Asp Glu Glu Lys Leu Ala Glu Thr Leu Glu Gly
        115   120   125

Glu Leu
    130

<210> 10625
<211> 172
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source

<223> /note="Gene Name: Calcium channel flower
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486696"

<400> 10625
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1 5 10 15

Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
20 25 30

Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
35 40 45

Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
50 55 60

Ile Met Asn Ala Phe Ile Leu Leu Leu Cys Glu Ala Pro Phe Cys Cys
65 70 75 80

Gln Phe Ile Glu Phe Ala Asn Thr Val Ala Glu Lys Val Asp Arg Leu
85 90 95

Arg Ser Trp Gln Lys Ala Val Phe Tyr Cys Gly Met Ala Val Val Pro
100 105 110

Ile Val Ile Ser Leu Thr Leu Thr Thr Leu Leu Gly Asn Ala Ile Ala
115 120 125

Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser Ala Leu Gly Lys Lys Gly
130 135 140

Asp Ala Ile Ser Tyr Ala Arg Ile Gln Gln Gln Arg Gln Gln Ala Asp
145 150 155 160

Glu Glu Lys Leu Ala Glu Thr Leu Glu Gly Glu Leu
165 170

<210> 10626
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: Calcium channel flower
domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486812"

<400> 10626
Met Ser Ser Ser Gly Gly Ala Pro Gly Ala Ser Ala Ser Ser Ala Pro
1 5 10 15

Pro Ala Gln Glu Glu Gly Met Thr Trp Trp Tyr Arg Trp Leu Cys Arg
20 25 30

Leu Ser Gly Val Leu Gly Ala Val Ser Cys Ala Ile Ser Gly Leu Phe
35 40 45

Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala Gly Val Trp Met
50 55 60

Met Met Ala Val Val Pro Ile Val Ile Ser Leu Thr Leu Thr Thr Leu
65 70 75 80

Leu Gly Asn Ala Ile Ala Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser
85 90 95

Ala Leu Gly Lys Lys Ala Gln Thr Glu Ala Gly Ser Phe Ala Ala Gln
100 105 110

His Pro Arg Glu Pro Gly Pro Phe Ser Glu Gly Thr Arg Gln Ala Phe
115 120 125

Ala Thr Pro Ala Val Val Ser Gly Glu Ile Arg Met Pro Ala Gly Ala
130 135 140

Met Arg Ser Pro Met Pro Gly Ser Ser Ser Arg Gly Ser Arg Arg Met
145 150 155 160

```
Arg Arg Ser Ser Arg Arg Pro Trp Arg Gly Ser Cys Glu Gly Leu Gly
                165                 170                 175

Ala Pro Pro Ser Leu Ser Pro Leu Leu Ala Leu Cys Gly Ser Lys
            180                 185                 190


<210> 10627
<211> 114
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2120; "

<220>
<221> source
<223> /note="Gene Symbol: CACFD1; "

<220>
<221> source
<223> /note="Gene Name: Calcium channel flower
      domain containing 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000486907"

<400> 10627
Met Leu Thr Ala Ala Gly Ser Thr Ala Glu Leu Ser Ala Cys Ala Ile
1               5                   10                  15

Ser Gly Leu Phe Asn Cys Ile Thr Ile His Pro Leu Asn Ile Ala Ala
            20                  25                  30

Gly Val Trp Met Ile Met Asn Ala Phe Ile Leu Leu Leu Cys Glu Ala
        35                  40                  45

Pro Phe Cys Cys Gln Phe Ile Glu Phe Ala Asn Thr Val Ala Glu Lys
    50                  55                  60

Val Asp Arg Leu Arg Ser Trp Gln Lys Ala Val Phe Tyr Cys Gly Met
65                  70                  75                  80

Ala Val Val Pro Ile Val Ile Ser Leu Thr Leu Thr Thr Leu Leu Gly
                85                  90                  95

Asn Ala Ile Ala Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser Ala Leu
```

100 105 110

Gly Lys

<210> 10628
<211> 1103
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2121; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 1; "

<220>
<221> source
<223> /note="Uniprot ID: P54289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000348589"

<400> 10628
Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Leu Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Ala Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Asn Gln Leu Val Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

```
Leu Val Arg Leu Ala Leu Glu Ala Glu Lys Val Gln Ala Ala His Gln
            100                 105                 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
        115                 120                 125

Asp Asp Leu Asp Pro Glu Lys Asn Asp Ser Glu Pro Gly Ser Gln Arg
    130                 135                 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145                 150                 155                 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
                165                 170                 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
            180                 185                 190

Phe Lys Lys Asn Arg Glu Glu Asp Pro Ser Leu Leu Trp Gln Val Phe
        195                 200                 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
    210                 215                 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225                 230                 235                 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
                245                 250                 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
            260                 265                 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
        275                 280                 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe
    290                 295                 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp
305                 310                 315                 320
```

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly
325 330 335

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg
355 360 365

Ala Gln Glu Ile Phe Asn Lys Tyr Asn Lys Asp Lys Lys Val Arg Val
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu
450 455 460

Pro Val Phe Asn Ile Thr Gly Gln Phe Glu Asn Lys Thr Asn Leu Lys
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
515 520 525

Pro Lys Pro Ile Gly Val Gly Ile Pro Thr Ile Asn Leu Arg Lys Arg
530 535 540

```
Arg Pro Asn Ile Gln Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp
545                 550                 555                 560

Phe Leu Asp Ala Glu Leu Glu Asn Asp Ile Lys Val Glu Ile Arg Asn
                565                 570                 575

Lys Met Ile Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val
            580                 585                 590

Lys Ser Gln Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr
        595                 600                 605

Trp Thr Pro Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro
    610                 615                 620

Thr Tyr Ser Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr
625                 630                 635                 640

Gln Ala Arg Tyr Ser Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser
                645                 650                 655

Gly Tyr Thr Phe Ile Ala Pro Arg Asp Tyr Cys Asn Asp Leu Lys Ile
            660                 665                 670

Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp
        675                 680                 685

Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Ala Asp Leu Ile Asn Arg
    690                 695                 700

Val Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp
705                 710                 715                 720

Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr
                725                 730                 735

Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp
            740                 745                 750

Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu
        755                 760                 765

Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe Asn Lys Ser Gly
```

770 775 780

Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys Ala Val Glu Ile
785 790 795 800

Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val Gly Ile Lys Ile
805 810 815

Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr Ser Ile Arg Asp
820 825 830

Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn Ser Asp Val Met
835 840 845

Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu Met Ala Asn His
850 855 860

Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly Glu Ile Asp Pro
865 870 875 880

Ser Leu Met Arg His Leu Val Asn Ile Ser Val Tyr Ala Phe Asn Lys
885 890 895

Ser Tyr Asp Tyr Gln Ser Val Cys Glu Pro Gly Ala Ala Pro Lys Gln
900 905 910

Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Val Ala Asp Ile Leu
915 920 925

Gln Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser Ile Leu Gln Gln
930 935 940

Phe Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu Ala Val Glu Met
945 950 955 960

Glu Asp Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln Ser Cys Ile Thr
965 970 975

Glu Gln Thr Gln Tyr Phe Phe Asp Asn Asp Ser Lys Ser Phe Ser Gly
980 985 990

Val Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His Gly Glu Lys
Leu

995 1000 1005

Met Asn Thr Asn Leu Ile Phe Ile Met Val Glu Ser Lys Gly Thr
1010 1015 1020

Cys Pro Cys Asp Thr Arg Leu Leu Ile Gln Ala Glu Gln Thr Ser
1025 1030 1035

Asp Gly Pro Asn Pro Cys Asp Met Val Lys Gln Pro Arg Tyr Arg
1040 1045 1050

Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Val Leu Glu Asp Tyr
1055 1060 1065

Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser Leu Trp Tyr
1070 1075 1080

Ile Ile Gly Ile Gln Phe Leu Leu Leu Trp Leu Val Ser Gly Ser
1085 1090 1095

Thr His Arg Leu Leu
1100

<210> 10629
<211> 1091
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2121; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D1; "

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alpha 2/delta
subunit 1; "

<220>
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<223> /note="Uniprot ID: P54289; "

<220>
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<400> 10629
Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Leu Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Ala Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Asn Gln Leu Val Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

Leu Val Arg Leu Ala Leu Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Lys Asn Asp Ser Glu Pro Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
180 185 190

Phe Lys Lys Asn Arg Glu Glu Asp Pro Ser Leu Leu Trp Gln Val Phe
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
210 215 220

```
Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225                 230                 235                 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
                245                 250                 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
            260                 265                 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
        275                 280                 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe
    290                 295                 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp
305                 310                 315                 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly
                325                 330                 335

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala
            340                 345                 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg
        355                 360                 365

Ala Gln Glu Ile Phe Asn Lys Tyr Asn Lys Asp Lys Lys Val Arg Val
    370                 375                 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln
385                 390                 395                 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile
                405                 410                 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg
            420                 425                 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn
        435                 440                 445
```

```
Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu
    450                 455                 460

Pro Val Phe Asn Ile Thr Gly Gln Phe Glu Asn Lys Thr Asn Leu Lys
465                 470                 475                 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
                485                 490                 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
            500                 505                 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
        515                 520                 525

Pro Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp
    530                 535                 540

Ala Glu Leu Glu Asn Asp Ile Lys Val Glu Ile Arg Asn Lys Met Ile
545                 550                 555                 560

Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln
                565                 570                 575

Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro
            580                 585                 590

Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser
        595                 600                 605

Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg
    610                 615                 620

Ser Lys Lys Gly Lys Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn
625                 630                 635                 640

Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg Asp Tyr Cys Asn
                645                 650                 655

Asp Leu Lys Ile Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn
            660                 665                 670

Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Ala Asp
```

675 680 685

Leu Ile Asn Arg Val Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val
690 695 700

Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg
705 710 715 720

Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala
725 730 735

Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr
740 745 750

Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe
755 760 765

Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys
770 775 780

Ala Val Glu Ile Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val
785 790 795 800

Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr
805 810 815

Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn
820 825 830

Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu
835 840 845

Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly
850 855 860

Glu Ile Asp Pro Ser Leu Met Arg His Leu Val Asn Ile Ser Val Tyr
865 870 875 880

Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys Glu Pro Gly Ala
885 890 895

Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Val
900 905 910

Ala Asp Ile Leu Gln Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser
915 920 925

Ile Leu Gln Gln Phe Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu
930 935 940

Ala Val Glu Met Glu Asp Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln
945 950 955 960

Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Asp Asn Asp Ser Lys
965 970 975

Ser Phe Ser Gly Val Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His
980 985 990

Gly Glu Lys Leu Met Asn Thr Asn Leu Ile Phe Ile Met Val Glu
Ser
995 1000 1005

Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Ile Gln Ala Glu
1010 1015 1020

Gln Thr Ser Asp Gly Pro Asn Pro Cys Asp Met Val Lys Gln Pro
1025 1030 1035

Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Val Leu
1040 1045 1050

Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser
1055 1060 1065

Leu Trp Tyr Ile Ile Gly Ile Gln Phe Leu Leu Leu Trp Leu Val
1070 1075 1080

Ser Gly Ser Thr His Arg Leu Leu
1085 1090

<210> 10630
<211> 309
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2121; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 1; "

<220>
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<223> /note="ENSP ID: ENSP00000405395"

<400> 10630
Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Leu Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Ala Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Asn Gln Leu Val Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

Leu Val Arg Leu Ala Leu Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Lys Asn Asp Ser Glu Pro Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

```
Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
                165                 170                 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
            180                 185                 190

Phe Lys Lys Asn Arg Glu Glu Asp Pro Ser Leu Leu Trp Gln Val Phe
        195                 200                 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
    210                 215                 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225                 230                 235                 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
                245                 250                 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
            260                 265                 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
        275                 280                 285

Val Asn Val Ala Ser Asp Ser Lys Glu Ile Ser Pro Ser Pro Glu Glu
    290                 295                 300

Ile Phe Asn Ala Glu
305


<210> 10631
<211> 280
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2121; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
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alpha 2/delta
subunit 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409374"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10631

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Xaa Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
1               5                  10                  15

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
            20                  25                  30

Pro Lys Pro Ile Gly Val Gly Ile Pro Thr Ile Asn Leu Arg Lys Arg
        35                  40                  45

Arg Pro Asn Ile Gln Glu Pro Val Thr Leu Asp Phe Leu Asp Ala Glu
    50                  55                  60

Leu Glu Asn Asp Ile Lys Val Glu Ile Arg Asn Lys Met Ile Asp Gly
65                  70                  75                  80

Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln Asp Glu
                85                  90                  95

Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro Val Asn
            100                 105                 110

Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser Phe Tyr
        115                 120                 125

Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg Tyr Ser
    130                 135                 140

Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser Gly Tyr Thr Phe Ile
145                 150                 155                 160

Ala Pro Arg Asp Tyr Cys Asn Asp Leu Lys Ile Ser Asp Asn Asn Thr
                165                 170                 175
```

```
Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp Arg Lys Thr Pro Asn
            180                 185                 190

Asn Pro Ser Cys Asn Ala Asp Leu Ile Asn Arg Val Leu Leu Asp Ala
        195                 200                 205

Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp Ser Lys Gln Lys Asn
    210                 215                 220

Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr Asp Gly Gly Ile Thr
225                 230                 235                 240

Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp Gln Glu Asn Pro Glu
                245                 250                 255

Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu Asp Asn Asp Asn Tyr
            260                 265                 270

Val Phe Thr Ala Pro Tyr Phe Asn
        275                 280


<210> 10632
<211> 1145
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2122; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D2; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      alpha 2/delta
      subunit 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9NY47; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000266039"

<400> 10632
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Met Ala Val Pro Ala Arg Thr Cys Gly Ala Ser Arg Pro Gly Pro Ala
1               5                  10                  15

Arg Thr Ala Arg Pro Trp Pro Gly Cys Gly Pro His Pro Gly Pro Gly
            20                  25                  30

Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu
        35                  40                  45

Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe
    50                  55                  60

Pro Gln Gln His Thr Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu
65                  70                  75                  80

Val Asp Gly Val Met Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu
                85                  90                  95

Ile Tyr Lys Asp Asn Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro
            100                 105                 110

Gln Lys Leu Val Glu Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp
        115                 120                 125

Arg Lys Val Gln Ala Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe
    130                 135                 140

Gln Lys Ala His Arg Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val
145                 150                 155                 160

Tyr Tyr Asp Ala Lys Ala Asp Ala Glu Leu Asp Asp Pro Glu Ser Glu
                165                 170                 175

Asp Val Glu Arg Gly Ser Lys Ala Ser Thr Leu Arg Leu Asp Phe Ile
            180                 185                 190

Glu Asp Pro Asn Phe Lys Asn Lys Val Asn Tyr Ser Tyr Ala Ala Val
        195                 200                 205

Gln Ile Pro Thr Asp Ile Tyr Lys Gly Ser Thr Val Ile Leu Asn Glu
    210                 215                 220

Leu Asn Trp Thr Glu Ala Leu Glu Asn Val Phe Met Glu Asn Arg Arg
```

225 230 235 240

Gln Asp Pro Thr Leu Leu Trp Gln Val Phe Gly Ser Ala Thr Gly Val
245 250 255

Thr Arg Tyr Tyr Pro Ala Thr Pro Trp Arg Ala Pro Lys Lys Ile Asp
260 265 270

Leu Tyr Asp Val Arg Arg Arg Pro Trp Tyr Ile Gln Gly Ala Ser Ser
275 280 285

Pro Lys Asp Met Val Ile Ile Val Asp Val Ser Gly Ser Val Ser Gly
290 295 300

Leu Thr Leu Lys Leu Met Lys Thr Ser Val Cys Glu Met Leu Asp Thr
305 310 315 320

Leu Ser Asp Asp Asp Tyr Val Asn Val Ala Ser Phe Asn Glu Lys Ala
325 330 335

Gln Pro Val Ser Cys Phe Thr His Leu Val Gln Ala Asn Val Arg Asn
340 345 350

Lys Lys Val Phe Lys Glu Ala Val Gln Gly Met Val Ala Lys Gly Thr
355 360 365

Thr Gly Tyr Lys Ala Gly Phe Glu Tyr Ala Phe Asp Gln Leu Gln Asn
370 375 380

Ser Asn Ile Thr Arg Ala Asn Cys Asn Lys Met Ile Met Met Phe Thr
385 390 395 400

Asp Gly Gly Glu Asp Arg Val Gln Asp Val Phe Glu Lys Tyr Asn Trp
405 410 415

Pro Asn Arg Thr Val Arg Val Phe Thr Phe Ser Val Gly Gln His Asn
420 425 430

Tyr Asp Val Thr Pro Leu Gln Trp Met Ala Cys Ala Asn Lys Gly Tyr
435 440 445

Tyr Phe Glu Ile Pro Ser Ile Gly Ala Ile Arg Ile Asn Thr Gln Glu
450 455 460

```
Tyr Leu Asp Val Leu Gly Arg Pro Met Val Leu Ala Gly Lys Glu Ala
465                 470                 475                 480

Lys Gln Val Gln Trp Thr Asn Val Tyr Glu Asp Ala Leu Gly Leu Gly
                485                 490                 495

Leu Val Val Thr Gly Thr Leu Pro Val Phe Asn Leu Thr Gln Asp Gly
            500                 505                 510

Pro Gly Glu Lys Lys Asn Gln Leu Ile Leu Gly Val Met Gly Ile Asp
        515                 520                 525

Val Ala Leu Asn Asp Ile Lys Arg Leu Thr Pro Asn Tyr Thr Leu Gly
    530                 535                 540

Ala Asn Gly Tyr Val Phe Ala Ile Asp Leu Asn Gly Tyr Val Leu Leu
545                 550                 555                 560

His Pro Asn Leu Lys Pro Gln Thr Thr Asn Phe Arg Glu Pro Val Thr
                565                 570                 575

Leu Asp Phe Leu Asp Ala Glu Leu Glu Asp Glu Asn Lys Glu Glu Ile
            580                 585                 590

Arg Arg Ser Met Ile Asp Gly Asn Lys Gly His Lys Gln Ile Arg Thr
        595                 600                 605

Leu Val Lys Ser Leu Asp Glu Arg Tyr Ile Asp Glu Val Thr Arg Asn
    610                 615                 620

Tyr Thr Trp Val Pro Ile Arg Ser Thr Asn Tyr Ser Leu Gly Leu Val
625                 630                 635                 640

Leu Pro Pro Tyr Ser Thr Phe Tyr Leu Gln Ala Asn Leu Ser Asp Gln
                645                 650                 655

Ile Leu Gln Val Lys Tyr Phe Glu Phe Leu Leu Pro Ser Ser Phe Glu
            660                 665                 670

Ser Glu Gly His Val Phe Ile Ala Pro Arg Glu Tyr Cys Lys Asp Leu
        675                 680                 685
```

```
Asn Ala Ser Asp Asn Asn Thr Glu Phe Leu Lys Asn Phe Ile Glu Leu
    690                 695                 700

Met Glu Lys Val Thr Pro Asp Ser Lys Gln Cys Asn Asn Phe Leu Leu
705                 710                 715                 720

His Asn Leu Ile Leu Asp Thr Gly Ile Thr Gln Gln Leu Val Glu Arg
                725                 730                 735

Val Trp Arg Asp Gln Asp Leu Asn Thr Tyr Ser Leu Leu Ala Val Phe
            740                 745                 750

Ala Ala Thr Asp Gly Gly Ile Thr Arg Val Phe Pro Asn Lys Ala Ala
        755                 760                 765

Glu Asp Trp Thr Glu Asn Pro Glu Pro Phe Asn Ala Ser Phe Tyr Arg
    770                 775                 780

Arg Ser Leu Asp Asn His Gly Tyr Val Phe Lys Pro Pro His Gln Asp
785                 790                 795                 800

Ala Leu Leu Arg Pro Leu Glu Leu Glu Asn Asp Thr Val Gly Ile Leu
                805                 810                 815

Val Ser Thr Ala Val Glu Leu Ser Leu Gly Arg Arg Thr Leu Arg Pro
            820                 825                 830

Ala Val Val Gly Val Lys Leu Asp Leu Glu Ala Trp Ala Glu Lys Phe
        835                 840                 845

Lys Val Leu Ala Ser Asn Arg Thr His Gln Asp Gln Pro Gln Lys Cys
    850                 855                 860

Gly Pro Asn Ser His Cys Glu Met Asp Cys Glu Val Asn Asn Glu Asp
865                 870                 875                 880

Leu Leu Cys Val Leu Ile Asp Asp Gly Gly Phe Leu Val Leu Ser Asn
                885                 890                 895

Gln Asn His Gln Trp Asp Gln Val Gly Arg Phe Phe Ser Glu Val Asp
            900                 905                 910
```

```
Ala Asn Leu Met Leu Ala Leu Tyr Asn Asn Ser Phe Tyr Thr Arg Lys
        915                 920                 925

Glu Ser Tyr Asp Tyr Gln Ala Ala Cys Ala Pro Gln Pro Pro Gly Asn
    930                 935                 940

Leu Gly Ala Ala Pro Arg Gly Val Phe Val Pro Thr Val Ala Asp Phe
945                 950                 955                 960

Leu Asn Leu Ala Trp Trp Thr Ser Ala Ala Ala Trp Ser Leu Phe Gln
                965                 970                 975

Gln Leu Leu Tyr Gly Leu Ile Tyr His Ser Trp Phe Gln Ala Asp Pro
            980                 985                 990

Ala Glu Ala Glu Gly Ser Pro Glu  Thr Arg Glu Ser Ser  Cys Val
Met
        995                 1000                1005

Lys Gln  Thr Gln Tyr Tyr Phe  Gly Ser Val Asn Ala  Ser Tyr Asn
    1010                1015                1020

Ala Ile  Ile Asp Cys Gly Asn  Cys Ser Arg Leu Phe  His Ala Gln
    1025                1030                1035

Arg Leu  Thr Asn Thr Asn Leu  Leu Phe Val Val Ala  Glu Lys Pro
    1040                1045                1050

Leu Cys  Ser Gln Cys Glu Ala  Gly Arg Leu Leu Gln  Lys Glu Thr
    1055                1060                1065

His Cys  Pro Ala Asp Gly Pro  Glu Gln Cys Glu Leu  Val Gln Arg
    1070                1075                1080

Pro Arg  Tyr Arg Arg Gly Pro  His Ile Cys Phe Asp  Tyr Asn Ala
    1085                1090                1095

Thr Glu  Asp Thr Ser Asp Cys  Gly Arg Gly Ala Ser  Phe Pro Pro
    1100                1105                1110

Ser Leu  Gly Val Leu Val Ser  Leu Gln Leu Leu Leu  Leu Leu Gly
    1115                1120                1125
```

Leu Pro Pro Arg Pro Gln Pro Gln Val Leu Val His Ala Ser Arg
    1130   1135   1140

Arg Leu
    1145

<210> 10633
<211> 1076
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2122; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D2; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      alpha 2/delta
      subunit 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NY47; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354228"

<400> 10633
Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu Val Asp Gly Val Met
1   5   10   15

Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu Ile Tyr Lys Asp Asn
            20   25   30

Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro Gln Lys Leu Val Glu
        35   40   45

Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp Arg Lys Val Gln Ala
    50   55   60

Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe Gln Lys Ala His Arg
65   70   75   80

Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val Tyr Tyr Asp Ala Lys

```
                85                  90                  95

Ala Asp Ala Glu Leu Asp Asp Pro Glu Ser Glu Asp Val Glu Arg Gly
            100                 105                 110

Ser Lys Ala Ser Thr Leu Arg Leu Asp Phe Ile Glu Asp Pro Asn Phe
        115                 120                 125

Lys Asn Lys Val Asn Tyr Ser Tyr Ala Ala Val Gln Ile Pro Thr Asp
    130                 135                 140

Ile Tyr Lys Gly Ser Thr Val Ile Leu Asn Glu Leu Asn Trp Thr Glu
145                 150                 155                 160

Ala Leu Glu Asn Val Phe Met Glu Asn Arg Arg Gln Asp Pro Thr Leu
                165                 170                 175

Leu Trp Gln Val Phe Gly Ser Ala Thr Gly Val Thr Arg Tyr Tyr Pro
            180                 185                 190

Ala Thr Pro Trp Arg Ala Pro Lys Lys Ile Asp Leu Tyr Asp Val Arg
        195                 200                 205

Arg Arg Pro Trp Tyr Ile Gln Gly Ala Ser Ser Pro Lys Asp Met Val
    210                 215                 220

Ile Ile Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu
225                 230                 235                 240

Met Lys Thr Ser Val Cys Glu Met Leu Asp Thr Leu Ser Asp Asp Asp
                245                 250                 255

Tyr Val Asn Val Ala Ser Phe Asn Glu Lys Ala Gln Pro Val Ser Cys
            260                 265                 270

Phe Thr His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Phe Lys
        275                 280                 285

Glu Ala Val Gln Gly Met Val Ala Lys Gly Thr Thr Gly Tyr Lys Ala
    290                 295                 300

Gly Phe Glu Tyr Ala Phe Asp Gln Leu Gln Asn Ser Asn Ile Thr Arg
305                 310                 315                 320
```

```
Ala Asn Cys Asn Lys Met Ile Met Met Phe Thr Asp Gly Gly Glu Asp
                325                 330                 335

Arg Val Gln Asp Val Phe Glu Lys Tyr Asn Trp Pro Asn Arg Thr Val
            340                 345                 350

Arg Val Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Val Thr Pro
        355                 360                 365

Leu Gln Trp Met Ala Cys Ala Asn Lys Gly Tyr Tyr Phe Glu Ile Pro
    370                 375                 380

Ser Ile Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu
385                 390                 395                 400

Gly Arg Pro Met Val Leu Ala Gly Lys Glu Ala Lys Gln Val Gln Trp
                405                 410                 415

Thr Asn Val Tyr Glu Asp Ala Leu Gly Leu Gly Leu Val Val Thr Gly
            420                 425                 430

Thr Leu Pro Val Phe Asn Leu Thr Gln Asp Gly Pro Gly Glu Lys Lys
        435                 440                 445

Asn Gln Leu Ile Leu Gly Val Met Gly Ile Asp Val Ala Leu Asn Asp
    450                 455                 460

Ile Lys Arg Leu Thr Pro Asn Tyr Thr Leu Gly Ala Asn Gly Tyr Val
465                 470                 475                 480

Phe Ala Ile Asp Leu Asn Gly Tyr Val Leu Leu His Pro Asn Leu Lys
                485                 490                 495

Pro Gln Thr Thr Asn Phe Arg Glu Pro Val Thr Leu Asp Phe Leu Asp
            500                 505                 510

Ala Glu Leu Glu Asp Glu Asn Lys Glu Glu Ile Arg Arg Ser Met Ile
        515                 520                 525

Asp Gly Asn Lys Gly His Lys Gln Ile Arg Thr Leu Val Lys Ser Leu
    530                 535                 540
```

```
Asp Glu Arg Tyr Ile Asp Glu Val Thr Arg Asn Tyr Thr Trp Val Pro
545                 550                 555                 560

Ile Arg Ser Thr Asn Tyr Ser Leu Gly Leu Val Leu Pro Pro Tyr Ser
                565                 570                 575

Thr Phe Tyr Leu Gln Ala Asn Leu Ser Asp Gln Ile Leu Gln Val Lys
            580                 585                 590

Tyr Phe Glu Phe Leu Leu Pro Ser Ser Phe Glu Ser Glu Gly His Val
        595                 600                 605

Phe Ile Ala Pro Arg Glu Tyr Cys Lys Asp Leu Asn Ala Ser Asp Asn
    610                 615                 620

Asn Thr Glu Phe Leu Lys Asn Phe Ile Glu Leu Met Glu Lys Val Thr
625                 630                 635                 640

Pro Asp Ser Lys Gln Cys Asn Asn Phe Leu Leu His Asn Leu Ile Leu
                645                 650                 655

Asp Thr Gly Ile Thr Gln Gln Leu Val Glu Arg Val Trp Arg Asp Gln
            660                 665                 670

Asp Leu Asn Thr Tyr Ser Leu Leu Ala Val Phe Ala Ala Thr Asp Gly
        675                 680                 685

Gly Ile Thr Arg Val Phe Pro Asn Lys Ala Ala Glu Asp Trp Thr Glu
    690                 695                 700

Asn Pro Glu Pro Phe Asn Ala Ser Phe Tyr Arg Arg Ser Leu Asp Asn
705                 710                 715                 720

His Gly Tyr Val Phe Lys Pro Pro His Gln Asp Ala Leu Leu Arg Pro
                725                 730                 735

Leu Glu Leu Glu Asn Asp Thr Val Gly Ile Leu Val Ser Thr Ala Val
            740                 745                 750

Glu Leu Ser Leu Gly Arg Arg Thr Leu Arg Pro Ala Val Val Gly Val
        755                 760                 765
```

```
Lys Leu Asp Leu Glu Ala Trp Ala Glu Lys Phe Lys Val Leu Ala Ser
    770                 775                 780

Asn Arg Thr His Gln Asp Gln Pro Gln Lys Cys Gly Pro Asn Ser His
785                 790                 795                 800

Cys Glu Met Asp Cys Glu Val Asn Asn Glu Asp Leu Leu Cys Val Leu
                805                 810                 815

Ile Asp Asp Gly Gly Phe Leu Val Leu Ser Asn Gln Asn His Gln Trp
            820                 825                 830

Asp Gln Val Gly Arg Phe Phe Ser Glu Val Asp Ala Asn Leu Met Leu
        835                 840                 845

Ala Leu Tyr Asn Asn Ser Phe Tyr Thr Arg Lys Glu Ser Tyr Asp Tyr
    850                 855                 860

Gln Ala Ala Cys Ala Pro Gln Pro Pro Gly Asn Leu Gly Ala Ala Pro
865                 870                 875                 880

Arg Gly Val Phe Val Pro Thr Val Ala Asp Phe Leu Asn Leu Ala Trp
                885                 890                 895

Trp Thr Ser Ala Ala Ala Trp Ser Leu Phe Gln Gln Leu Leu Tyr Gly
            900                 905                 910

Leu Ile Tyr His Ser Trp Phe Gln Ala Asp Pro Ala Glu Ala Glu Gly
        915                 920                 925

Ser Pro Glu Thr Arg Glu Ser Ser Cys Val Met Lys Gln Thr Gln Tyr
    930                 935                 940

Tyr Phe Gly Ser Val Asn Ala Ser Tyr Asn Ala Ile Ile Asp Cys Gly
945                 950                 955                 960

Asn Cys Ser Arg Leu Phe His Ala Gln Arg Leu Thr Asn Thr Asn Leu
                965                 970                 975

Leu Phe Val Val Ala Glu Lys Pro Leu Cys Ser Gln Cys Glu Ala Gly
            980                 985                 990

Arg Leu Leu Gln Lys Glu Thr His  Cys Pro Ala Asp Gly  Pro Glu
```

Gln
995 1000 1005

Cys Glu Leu Val Gln Arg Pro Arg Tyr Arg Arg Gly Pro His Ile
1010 1015 1020

Cys Phe Asp Tyr Asn Ala Thr Glu Asp Thr Ser Asp Cys Gly Arg
1025 1030 1035

Gly Ala Ser Phe Pro Pro Ser Leu Gly Val Leu Val Ser Leu Gln
1040 1045 1050

Leu Leu Leu Leu Leu Gly Leu Pro Pro Arg Pro Gln Pro Gln Val
1055 1060 1065

Leu Val His Ala Ser Arg Arg Leu
1070 1075

<210> 10634
<211> 1143
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CACNA2D2; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NY47; "

<220>
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<223> /note="ENSP ID: ENSP00000390329"

<400> 10634
Met Ala Val Pro Ala Arg Thr Cys Gly Ala Ser Arg Pro Gly Pro Ala
1 5 10 15

Arg Thr Ala Arg Pro Trp Pro Gly Cys Gly Pro His Pro Gly Pro Gly

```
            20                  25                  30

Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu
        35                  40                  45

Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe
    50                  55                  60

Pro Gln Gln His Thr Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu
65                  70                  75                  80

Val Asp Gly Val Met Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu
                85                  90                  95

Ile Tyr Lys Asp Asn Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro
            100                 105                 110

Gln Lys Leu Val Glu Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp
        115                 120                 125

Arg Lys Val Gln Ala Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe
    130                 135                 140

Gln Lys Ala His Arg Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val
145                 150                 155                 160

Tyr Tyr Asp Ala Lys Ala Asp Ala Glu Leu Asp Asp Pro Glu Ser Glu
                165                 170                 175

Asp Val Glu Arg Gly Ser Lys Ala Ser Thr Leu Arg Leu Asp Phe Ile
            180                 185                 190

Glu Asp Pro Asn Phe Lys Asn Lys Val Asn Tyr Ser Tyr Ala Ala Val
        195                 200                 205

Gln Ile Pro Thr Asp Ile Tyr Lys Gly Ser Thr Val Ile Leu Asn Glu
    210                 215                 220

Leu Asn Trp Thr Glu Ala Leu Glu Asn Val Phe Met Glu Asn Arg Arg
225                 230                 235                 240

Gln Asp Pro Thr Leu Leu Trp Gln Val Phe Gly Ser Ala Thr Gly Val
                245                 250                 255
```

```
Thr Arg Tyr Tyr Pro Ala Thr Pro Trp Arg Ala Pro Lys Lys Ile Asp
            260                 265                 270

Leu Tyr Asp Val Arg Arg Arg Pro Trp Tyr Ile Gln Gly Ala Ser Ser
        275                 280                 285

Pro Lys Asp Met Val Ile Ile Val Asp Val Ser Gly Ser Val Ser Gly
    290                 295                 300

Leu Thr Leu Lys Leu Met Lys Thr Ser Val Cys Glu Met Leu Asp Thr
305                 310                 315                 320

Leu Ser Asp Asp Asp Tyr Val Asn Val Ala Ser Phe Asn Glu Lys Ala
                325                 330                 335

Gln Pro Val Ser Cys Phe Thr His Leu Val Gln Ala Asn Val Arg Asn
            340                 345                 350

Lys Lys Val Phe Lys Glu Ala Val Gln Gly Met Val Ala Lys Gly Thr
        355                 360                 365

Thr Gly Tyr Lys Ala Gly Phe Glu Tyr Ala Phe Asp Gln Leu Gln Asn
    370                 375                 380

Ser Asn Ile Thr Arg Ala Asn Cys Asn Lys Met Ile Met Met Phe Thr
385                 390                 395                 400

Asp Gly Gly Glu Asp Arg Val Gln Asp Val Phe Glu Lys Tyr Asn Trp
                405                 410                 415

Pro Asn Arg Thr Val Arg Val Phe Thr Phe Ser Val Gly Gln His Asn
            420                 425                 430

Tyr Asp Val Thr Pro Leu Gln Trp Met Ala Cys Ala Asn Lys Gly Tyr
        435                 440                 445

Tyr Phe Glu Ile Pro Ser Ile Gly Ala Ile Arg Ile Asn Thr Gln Glu
    450                 455                 460

Tyr Leu Asp Val Leu Gly Arg Pro Met Val Leu Ala Gly Lys Glu Ala
465                 470                 475                 480
```

Lys Gln Val Gln Trp Thr Asn Val Tyr Glu Asp Ala Leu Gly Leu Gly
485 490 495

Leu Val Val Thr Gly Thr Leu Pro Val Phe Asn Leu Thr Gln Asp Gly
500 505 510

Pro Gly Glu Lys Lys Asn Gln Leu Ile Leu Gly Val Met Gly Ile Asp
515 520 525

Val Ala Leu Asn Asp Ile Lys Arg Leu Thr Pro Asn Tyr Thr Leu Gly
530 535 540

Ala Asn Gly Tyr Val Phe Ala Ile Asp Leu Asn Gly Tyr Val Leu Leu
545 550 555 560

His Pro Asn Leu Lys Pro Gln Thr Thr Asn Phe Arg Glu Pro Val Thr
565 570 575

Leu Asp Phe Leu Asp Ala Glu Leu Glu Asp Glu Asn Lys Glu Glu Ile
580 585 590

Arg Arg Ser Met Ile Asp Gly Asn Lys Gly His Lys Gln Ile Arg Thr
595 600 605

Leu Val Lys Ser Leu Asp Glu Arg Tyr Ile Asp Glu Val Thr Arg Asn
610 615 620

Tyr Thr Trp Val Pro Ile Arg Ser Thr Asn Tyr Ser Leu Gly Leu Val
625 630 635 640

Leu Pro Pro Tyr Ser Thr Phe Tyr Leu Gln Ala Asn Leu Ser Asp Gln
645 650 655

Ile Leu Gln Val Lys Tyr Phe Glu Phe Leu Leu Pro Ser Ser Phe Glu
660 665 670

Ser Glu Gly His Val Phe Ile Ala Pro Arg Glu Tyr Cys Lys Asp Leu
675 680 685

Asn Ala Ser Asp Asn Asn Thr Glu Phe Leu Lys Asn Phe Ile Glu Leu
690 695 700

```
Met Glu Lys Val Thr Pro Asp Ser Lys Gln Cys Asn Asn Phe Leu Leu
705                 710                 715                 720

His Asn Leu Ile Leu Asp Thr Gly Ile Thr Gln Gln Leu Val Glu Arg
                725                 730                 735

Val Trp Arg Asp Gln Asp Leu Asn Thr Tyr Ser Leu Leu Ala Val Phe
            740                 745                 750

Ala Ala Thr Asp Gly Gly Ile Thr Arg Val Phe Pro Asn Lys Ala Ala
        755                 760                 765

Glu Asp Trp Thr Glu Asn Pro Glu Pro Phe Asn Ala Ser Phe Tyr Arg
    770                 775                 780

Arg Ser Leu Asp Asn His Gly Tyr Val Phe Lys Pro Pro His Gln Asp
785                 790                 795                 800

Ala Leu Leu Arg Pro Leu Glu Leu Glu Asn Asp Thr Val Gly Ile Leu
                805                 810                 815

Val Ser Thr Ala Val Glu Leu Ser Leu Gly Arg Arg Thr Leu Arg Pro
            820                 825                 830

Ala Val Val Gly Val Lys Leu Asp Leu Glu Ala Trp Ala Glu Lys Phe
        835                 840                 845

Lys Val Leu Ala Ser Asn Arg Thr His Gln Asp Gln Pro Gln Lys Cys
    850                 855                 860

Gly Pro Asn Ser His Cys Glu Met Asp Cys Glu Val Asn Asn Glu Asp
865                 870                 875                 880

Leu Leu Cys Val Leu Ile Asp Asp Gly Gly Phe Leu Val Leu Ser Asn
                885                 890                 895

Gln Asn His Gln Trp Asp Gln Val Gly Arg Phe Phe Ser Glu Val Asp
            900                 905                 910

Ala Asn Leu Met Leu Ala Leu Tyr Asn Asn Ser Phe Tyr Thr Arg Lys
        915                 920                 925

Glu Ser Tyr Asp Tyr Gln Ala Ala Cys Ala Pro Gln Pro Pro Gly Asn
```

930 935 940

Leu Gly Ala Ala Pro Arg Gly Val Phe Val Pro Thr Val Ala Asp Phe
945 950 955 960

Leu Asn Leu Ala Trp Trp Thr Ser Ala Ala Ala Trp Ser Leu Phe Gln
965 970 975

Gln Leu Leu Tyr Gly Leu Ile Tyr His Ser Trp Phe Gln Ala Asp Pro
980 985 990

Ala Glu Ala Glu Gly Ser Pro Glu Thr Arg Glu Ser Ser Cys Val
Met
995 1000 1005

Lys Gln Thr Gln Tyr Tyr Phe Gly Ser Val Asn Ala Ser Tyr Asn
1010 1015 1020

Ala Ile Ile Asp Cys Gly Asn Cys Ser Arg Leu Phe His Ala Gln
1025 1030 1035

Arg Leu Thr Asn Thr Asn Leu Leu Phe Val Val Ala Glu Lys Pro
1040 1045 1050

Leu Cys Ser Gln Cys Glu Ala Gly Arg Leu Leu Gln Lys Glu Thr
1055 1060 1065

His Ser Asp Gly Pro Glu Gln Cys Glu Leu Val Gln Arg Pro Arg
1070 1075 1080

Tyr Arg Arg Gly Pro His Ile Cys Phe Asp Tyr Asn Ala Thr Glu
1085 1090 1095

Asp Thr Ser Asp Cys Gly Arg Gly Ala Ser Phe Pro Pro Ser Leu
1100 1105 1110

Gly Val Leu Val Ser Leu Gln Leu Leu Leu Leu Leu Gly Leu Pro
1115 1120 1125

Pro Arg Pro Gln Pro Gln Val Leu Val His Ala Ser Arg Arg Leu
1130 1135 1140

<210> 10635

<211> 1144
<212> PRT
<213> Homo sapiens

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<220>
<221> source
<223> /note="Gene Symbol: CACNA2D2; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 2; "

<220>
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<223> /note="ENSP ID: ENSP00000404631"

<400> 10635
Met Ala Val Pro Ala Arg Thr Cys Gly Ala Ser Arg Pro Gly Pro Ala
1 5 10 15

Arg Thr Ala Arg Pro Trp Pro Gly Cys Gly Pro His Pro Gly Pro Gly
20 25 30

Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu
35 40 45

Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe
50 55 60

Pro Gln Gln His Thr Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu
65 70 75 80

Val Asp Gly Val Met Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu
85 90 95

Ile Tyr Lys Asp Asn Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro
100 105 110

Gln Lys Leu Val Glu Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp
115 120 125

Arg Lys Val Gln Ala Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe
130 135 140

```
Gln Lys Ala His Arg Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val
145                 150                 155                 160

Tyr Tyr Asp Ala Lys Ala Asp Ala Glu Leu Asp Asp Pro Glu Ser Glu
                165                 170                 175

Asp Val Glu Arg Gly Ser Lys Ala Ser Thr Leu Arg Leu Asp Phe Ile
            180                 185                 190

Glu Asp Pro Asn Phe Lys Asn Lys Val Asn Tyr Ser Tyr Ala Ala Val
        195                 200                 205

Gln Ile Pro Thr Asp Ile Tyr Lys Gly Ser Thr Val Ile Leu Asn Glu
    210                 215                 220

Leu Asn Trp Thr Glu Ala Leu Glu Asn Val Phe Met Glu Asn Arg Arg
225                 230                 235                 240

Gln Asp Pro Thr Leu Leu Trp Gln Val Phe Gly Ser Ala Thr Gly Val
                245                 250                 255

Thr Arg Tyr Tyr Pro Ala Thr Pro Trp Arg Ala Pro Lys Lys Ile Asp
            260                 265                 270

Leu Tyr Asp Val Arg Arg Arg Pro Trp Tyr Ile Gln Gly Ala Ser Ser
        275                 280                 285

Pro Lys Asp Met Val Ile Ile Val Asp Val Ser Gly Ser Val Ser Gly
    290                 295                 300

Leu Thr Leu Lys Leu Met Lys Thr Ser Val Cys Glu Met Leu Asp Thr
305                 310                 315                 320

Leu Ser Asp Asp Asp Tyr Val Asn Val Ala Ser Phe Asn Glu Lys Ala
                325                 330                 335

Gln Pro Val Ser Cys Phe Thr His Leu Val Gln Ala Asn Val Arg Asn
            340                 345                 350

Lys Lys Val Phe Lys Glu Ala Val Gln Gly Met Val Ala Lys Gly Thr
        355                 360                 365
```

```
Thr Gly Tyr Lys Ala Gly Phe Glu Tyr Ala Phe Asp Gln Leu Gln Asn
    370                 375                 380

Ser Asn Ile Thr Arg Ala Asn Cys Asn Lys Met Ile Met Met Phe Thr
385                 390                 395                 400

Asp Gly Gly Glu Asp Arg Val Gln Asp Val Phe Glu Lys Tyr Asn Trp
                405                 410                 415

Pro Asn Arg Thr Val Arg Val Phe Thr Phe Ser Val Gly Gln His Asn
            420                 425                 430

Tyr Asp Val Thr Pro Leu Gln Trp Met Ala Cys Ala Asn Lys Gly Tyr
        435                 440                 445

Tyr Phe Glu Ile Pro Ser Ile Gly Ala Ile Arg Ile Asn Thr Gln Glu
    450                 455                 460

Tyr Leu Asp Val Leu Gly Arg Pro Met Val Leu Ala Gly Lys Glu Ala
465                 470                 475                 480

Lys Gln Val Gln Trp Thr Asn Val Tyr Glu Asp Ala Leu Gly Leu Gly
                485                 490                 495

Leu Val Val Thr Gly Thr Leu Pro Val Phe Asn Leu Thr Gln Asp Gly
            500                 505                 510

Pro Gly Glu Lys Lys Asn Gln Leu Ile Leu Gly Val Met Gly Ile Asp
        515                 520                 525

Val Ala Leu Asn Asp Ile Lys Arg Leu Thr Pro Asn Tyr Thr Leu Gly
    530                 535                 540

Ala Asn Gly Tyr Val Phe Ala Ile Asp Leu Asn Gly Tyr Val Leu Leu
545                 550                 555                 560

His Pro Asn Leu Lys Pro Gln Thr Thr Asn Phe Arg Glu Pro Val Thr
                565                 570                 575

Leu Asp Phe Leu Asp Ala Glu Leu Glu Asp Glu Asn Lys Glu Glu Ile
            580                 585                 590
```

```
Arg Arg Ser Met Ile Asp Gly Asn Lys Gly His Lys Gln Ile Arg Thr
        595                 600                 605

Leu Val Lys Ser Leu Asp Glu Arg Tyr Ile Asp Glu Val Thr Arg Asn
    610                 615                 620

Tyr Thr Trp Val Pro Ile Arg Ser Thr Asn Tyr Ser Leu Gly Leu Val
625                 630                 635                 640

Leu Pro Pro Tyr Ser Thr Phe Tyr Leu Gln Ala Asn Leu Ser Asp Gln
                645                 650                 655

Ile Leu Gln Val Lys Tyr Phe Glu Phe Leu Leu Pro Ser Ser Phe Glu
            660                 665                 670

Ser Glu Gly His Val Phe Ile Ala Pro Arg Glu Tyr Cys Lys Asp Leu
        675                 680                 685

Asn Ala Ser Asp Asn Asn Thr Glu Phe Leu Lys Asn Phe Ile Glu Leu
    690                 695                 700

Met Glu Lys Val Thr Pro Asp Ser Lys Gln Cys Asn Asn Phe Leu Leu
705                 710                 715                 720

His Asn Leu Ile Leu Asp Thr Gly Ile Thr Gln Gln Leu Val Glu Arg
                725                 730                 735

Val Trp Arg Asp Gln Asp Leu Asn Thr Tyr Ser Leu Leu Ala Val Phe
            740                 745                 750

Ala Ala Thr Asp Gly Gly Ile Thr Arg Val Phe Pro Asn Lys Ala Ala
        755                 760                 765

Glu Asp Trp Thr Glu Asn Pro Glu Pro Phe Asn Ala Ser Phe Tyr Arg
    770                 775                 780

Arg Ser Leu Asp Asn His Gly Tyr Val Phe Lys Pro Pro His Gln Asp
785                 790                 795                 800

Ala Leu Leu Arg Pro Leu Glu Leu Glu Asn Asp Thr Val Gly Ile Leu
                805                 810                 815

Val Ser Thr Ala Val Glu Leu Ser Leu Gly Arg Arg Thr Leu Arg Pro
```

```
            820                 825                 830

Ala Val Val Gly Val Lys Leu Asp Leu Glu Ala Trp Ala Glu Lys Phe
        835                 840                 845

Lys Val Leu Ala Ser Asn Arg Thr His Gln Asp Gln Pro Gln Lys Gln
    850                 855                 860

Cys Gly Pro Asn Ser His Cys Glu Met Asp Cys Glu Val Asn Asn Glu
865                 870                 875                 880

Asp Leu Leu Cys Val Leu Ile Asp Asp Gly Gly Phe Leu Val Leu Ser
                885                 890                 895

Asn Gln Asn His Gln Trp Asp Gln Val Gly Arg Phe Phe Ser Glu Val
            900                 905                 910

Asp Ala Asn Leu Met Leu Ala Leu Tyr Asn Asn Ser Phe Tyr Thr Arg
        915                 920                 925

Lys Glu Ser Tyr Asp Tyr Gln Ala Ala Cys Ala Pro Gln Pro Pro Gly
    930                 935                 940

Asn Leu Gly Ala Ala Pro Arg Gly Val Phe Val Pro Thr Val Ala Asp
945                 950                 955                 960

Phe Leu Asn Leu Ala Trp Trp Thr Ser Ala Ala Ala Trp Ser Leu Phe
                965                 970                 975

Gln Gln Leu Leu Tyr Gly Leu Ile Tyr His Ser Trp Phe Gln Ala Asp
            980                 985                 990

Pro Ala Glu Ala Glu Gly Ser Pro  Glu Thr Arg Glu Ser  Ser Cys
Val
        995                 1000                1005

Met Lys  Gln Thr Gln Tyr Tyr  Phe Gly Ser Val Asn  Ala Ser Tyr
    1010                1015                1020

Asn Ala  Ile Ile Asp Cys Gly  Asn Cys Ser Arg Leu  Phe His Ala
    1025                1030                1035

Gln Arg  Leu Thr Asn Thr Asn  Leu Leu Phe Val Val  Ala Glu Lys
```

```
    1040                1045                1050

Pro Leu  Cys Ser Gln Cys Glu  Ala Gly Arg Leu Leu  Gln Lys Glu
    1055                1060                1065

Thr His  Ser Asp Gly Pro Glu  Gln Cys Glu Leu Val  Gln Arg Pro
    1070                1075                1080

Arg Tyr  Arg Arg Gly Pro His  Ile Cys Phe Asp Tyr  Asn Ala Thr
    1085                1090                1095

Glu Asp  Thr Ser Asp Cys Gly  Arg Gly Ala Ser Phe  Pro Pro Ser
    1100                1105                1110

Leu Gly  Val Leu Val Ser Leu  Gln Leu Leu Leu Leu  Leu Gly Leu
    1115                1120                1125

Pro Pro  Arg Pro Gln Pro Gln  Val Leu Val His Ala  Ser Arg Arg
    1130                1135                1140

Leu
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<210> 10636
<211> 1153
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CACNA2D2; "

<220>
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alpha 2/delta
subunit 2; "

<220>
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<223> /note="ENSP ID: ENSP00000407393"

<400> 10636

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Met Ala Val Pro Ala Arg Thr Cys Gly Ala Ser Arg Pro Gly Pro Ala
1               5                  10                  15
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Arg Thr Ala Arg Pro Trp Pro Gly Cys Gly Pro His Pro Gly Pro Gly
            20                  25                  30

Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu
        35                  40                  45

Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe
    50                  55                  60

Pro Gln Gln His Thr Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu
65                  70                  75                  80

Val Asp Gly Val Met Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu
                85                  90                  95

Ile Tyr Lys Asp Asn Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro
            100                 105                 110

Gln Lys Leu Val Glu Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp
        115                 120                 125

Arg Lys Val Gln Ala Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe
    130                 135                 140

Gln Lys Ala His Arg Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val
145                 150                 155                 160

Tyr Tyr Asp Ala Lys Ala Asp Ala Glu Leu Asp Asp Pro Glu Ser Glu
                165                 170                 175

Asp Val Glu Arg Gly Ser Lys Ala Ser Thr Leu Arg Leu Asp Phe Ile
            180                 185                 190

Glu Asp Pro Asn Phe Lys Asn Lys Val Asn Tyr Ser Tyr Ala Ala Val
        195                 200                 205

Gln Ile Pro Thr Asp Ile Tyr Lys Gly Ser Thr Val Ile Leu Asn Glu
    210                 215                 220

Leu Asn Trp Thr Glu Ala Leu Glu Asn Val Phe Met Glu Asn Arg Arg
225                 230                 235                 240
```

```
Gln Asp Pro Thr Leu Leu Trp Gln Val Phe Gly Ser Ala Thr Gly Val
                245                 250                 255

Thr Arg Tyr Tyr Pro Ala Thr Pro Trp Arg Ala Pro Lys Lys Ile Asp
            260                 265                 270

Leu Tyr Asp Val Arg Arg Arg Pro Trp Tyr Ile Gln Gly Ala Ser Ser
        275                 280                 285

Pro Lys Asp Met Val Ile Ile Val Asp Val Ser Gly Ser Val Ser Gly
    290                 295                 300

Leu Thr Leu Lys Leu Met Lys Thr Ser Val Cys Glu Met Leu Asp Thr
305                 310                 315                 320

Leu Ser Asp Asp Asp Tyr Val Asn Val Ala Ser Phe Asn Glu Lys Ala
                325                 330                 335

Gln Pro Val Ser Cys Phe Thr His Leu Val Gln Ala Asn Val Arg Asn
            340                 345                 350

Lys Lys Val Phe Lys Glu Ala Val Gln Gly Met Val Ala Lys Gly Thr
        355                 360                 365

Thr Gly Tyr Lys Ala Gly Phe Glu Tyr Ala Phe Asp Gln Leu Gln Asn
    370                 375                 380

Ser Asn Ile Thr Arg Ala Asn Cys Asn Lys Met Ile Met Met Phe Thr
385                 390                 395                 400

Asp Gly Gly Glu Asp Arg Val Gln Asp Val Phe Glu Lys Tyr Asn Trp
                405                 410                 415

Pro Asn Arg Thr Val Arg Val Phe Thr Phe Ser Val Gly Gln His Asn
            420                 425                 430

Tyr Asp Val Thr Pro Leu Gln Trp Met Ala Cys Ala Asn Lys Gly Tyr
        435                 440                 445

Tyr Phe Glu Ile Pro Ser Ile Gly Ala Ile Arg Ile Asn Thr Gln Glu
    450                 455                 460
```

```
Tyr Leu Asp Val Leu Gly Arg Pro Met Val Leu Ala Gly Lys Glu Ala
465                 470                 475                 480

Lys Gln Val Gln Trp Thr Asn Val Tyr Glu Asp Ala Leu Gly Leu Gly
                485                 490                 495

Leu Val Val Thr Gly Thr Leu Pro Val Phe Asn Leu Thr Gln Asp Gly
            500                 505                 510

Pro Gly Glu Lys Lys Asn Gln Leu Ile Leu Gly Val Met Gly Ile Asp
        515                 520                 525

Val Ala Leu Asn Asp Ile Lys Arg Leu Thr Pro Asn Tyr Thr Leu Gly
    530                 535                 540

Ala Asn Gly Tyr Val Phe Ala Ile Asp Leu Asn Gly Tyr Val Leu Leu
545                 550                 555                 560

His Pro Asn Leu Lys Pro Gln Thr Thr Asn Phe Arg Glu Pro Val Thr
                565                 570                 575

Leu Asp Phe Leu Asp Ala Glu Leu Glu Asp Glu Asn Lys Glu Glu Ile
            580                 585                 590

Arg Arg Ser Met Ile Asp Gly Asn Lys Gly His Lys Gln Ile Arg Thr
        595                 600                 605

Leu Val Lys Ser Leu Asp Glu Arg Tyr Ile Asp Glu Val Thr Arg Asn
    610                 615                 620

Tyr Thr Trp Val Pro Ile Arg Ser Thr Asn Tyr Ser Leu Gly Leu Val
625                 630                 635                 640

Leu Pro Pro Tyr Ser Thr Phe Tyr Leu Gln Ala Asn Leu Ser Asp Gln
                645                 650                 655

Ile Leu Gln Val Lys Leu Pro Ile Ser Lys Leu Lys Asp Phe Glu Phe
            660                 665                 670

Leu Leu Pro Ser Ser Phe Glu Ser Glu Gly His Val Phe Ile Ala Pro
        675                 680                 685

Arg Glu Tyr Cys Lys Asp Leu Asn Ala Ser Asp Asn Asn Thr Glu Phe
```

690 695 700

Leu Lys Asn Phe Ile Glu Leu Met Glu Lys Val Thr Pro Asp Ser Lys
705 710 715 720

Gln Cys Asn Asn Phe Leu Leu His Asn Leu Ile Leu Asp Thr Gly Ile
725 730 735

Thr Gln Gln Leu Val Glu Arg Val Trp Arg Asp Gln Asp Leu Asn Thr
740 745 750

Tyr Ser Leu Leu Ala Val Phe Ala Ala Thr Asp Gly Gly Ile Thr Arg
755 760 765

Val Phe Pro Asn Lys Ala Ala Glu Asp Trp Thr Glu Asn Pro Glu Pro
770 775 780

Phe Asn Ala Ser Phe Tyr Arg Arg Ser Leu Asp Asn His Gly Tyr Val
785 790 795 800

Phe Lys Pro Pro His Gln Asp Ala Leu Leu Arg Pro Leu Glu Leu Glu
805 810 815

Asn Asp Thr Val Gly Ile Leu Val Ser Thr Ala Val Glu Leu Ser Leu
820 825 830

Gly Arg Arg Thr Leu Arg Pro Ala Val Val Gly Val Lys Leu Asp Leu
835 840 845

Glu Ala Trp Ala Glu Lys Phe Lys Val Leu Ala Ser Asn Arg Thr His
850 855 860

Gln Asp Gln Pro Gln Lys Gln Cys Gly Pro Asn Ser His Cys Glu Met
865 870 875 880

Asp Cys Glu Val Asn Asn Glu Asp Leu Leu Cys Val Leu Ile Asp Asp
885 890 895

Gly Gly Phe Leu Val Leu Ser Asn Gln Asn His Gln Trp Asp Gln Val
900 905 910

Gly Arg Phe Phe Ser Glu Val Asp Ala Asn Leu Met Leu Ala Leu Tyr
915 920 925

```
Asn Asn Ser Phe Tyr Thr Arg Lys Glu Ser Tyr Asp Tyr Gln Ala Ala
    930                 935                 940

Cys Ala Pro Gln Pro Pro Gly Asn Leu Gly Ala Ala Pro Arg Gly Val
945                 950                 955                 960

Phe Val Pro Thr Val Ala Asp Phe Leu Asn Leu Ala Trp Trp Thr Ser
                965                 970                 975

Ala Ala Ala Trp Ser Leu Phe Gln Gln Leu Leu Tyr Gly Leu Ile Tyr
            980                 985                 990

His Ser Trp Phe Gln Ala Asp Pro  Ala Glu Ala Glu Gly  Ser Pro
Glu
        995                 1000                1005

Thr Arg  Glu Ser Ser Cys Val  Met Lys Gln Thr Gln  Tyr Tyr Phe
    1010                1015                1020

Gly Ser  Val Asn Ala Ser Tyr  Asn Ala Ile Ile Asp  Cys Gly Asn
    1025                1030                1035

Cys Ser  Arg Leu Phe His Ala  Gln Arg Leu Thr Asn  Thr Asn Leu
    1040                1045                1050

Leu Phe  Val Val Ala Glu Lys  Pro Leu Cys Ser Gln  Cys Glu Ala
    1055                1060                1065

Gly Arg  Leu Leu Gln Lys Glu  Thr His Cys Pro Ala  Asp Gly Pro
    1070                1075                1080

Glu Gln  Cys Glu Leu Val Gln  Arg Pro Arg Tyr Arg  Arg Gly Pro
    1085                1090                1095

His Ile  Cys Phe Asp Tyr Asn  Ala Thr Glu Asp Thr  Ser Asp Cys
    1100                1105                1110

Gly Arg  Gly Ala Ser Phe Pro  Pro Ser Leu Gly Val  Leu Val Ser
    1115                1120                1125

Leu Gln  Leu Leu Leu Leu Leu  Gly Leu Pro Pro Arg  Pro Gln Pro
    1130                1135                1140
```

```
Gln Val  Leu Val His Ala Ser  Arg Arg Leu
    1145                1150


<210> 10637
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<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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      alpha 2/delta
      subunit 2; "

<220>
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<220>
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<400> 10637
Met Ala Val Pro Ala Arg Thr Cys Gly Ala Ser Arg Pro Gly Pro Ala
1               5                  10                  15


Arg Thr Ala Arg Pro Trp Pro Gly Cys Gly Pro His Pro Gly Pro Gly
            20                  25                  30


Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu
        35                  40                  45


Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe
    50                  55                  60


Pro Gln Gln His Thr Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu
65                  70                  75                  80


Val Asp Gly Val Met Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu
                85                  90                  95
```

```
Ile Tyr Lys Asp Asn Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro
            100                 105                 110

Gln Lys Leu Val Glu Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp
        115                 120                 125

Arg Lys Val Gln Ala Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe
    130                 135                 140

Gln Lys Ala His Arg Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val
145                 150                 155                 160

Tyr Tyr Asp Ala Lys Ala Asp Ala Glu Leu Asp Asp Pro Glu Ser Glu
                165                 170                 175

Asp Val Glu Arg Gly Ser Lys Ala Ser Thr Leu Arg Leu Asp Phe Ile
            180                 185                 190

Glu Asp Pro Asn Phe Lys Asn Lys Val Asn Tyr Ser Tyr Ala Ala Val
        195                 200                 205

Gln Ile Pro Thr Asp Ile Tyr Lys Gly Ser Thr Val Ile Leu Asn Glu
    210                 215                 220

Leu Asn Trp Thr Glu Ala Leu Glu Asn Val Phe Met Glu Asn Arg Arg
225                 230                 235                 240

Gln Asp Pro Thr Leu Leu Trp Gln Val Phe Gly Ser Ala Thr Gly Val
                245                 250                 255

Thr Arg Tyr Tyr Pro Ala Thr Pro Trp Arg Ala Pro Lys Lys Ile Asp
            260                 265                 270

Leu Tyr Asp Val Arg Arg Arg Pro Trp Tyr Ile Gln Gly Ala Ser Ser
        275                 280                 285

Pro Lys Asp Met Val Ile Ile Val Asp Val Ser Gly Ser Val Ser Gly
    290                 295                 300

Leu Thr Leu Lys Leu Met Lys Thr Ser Val Cys Glu Met Leu Asp Thr
305                 310                 315                 320
```

```
Leu Ser Asp Asp Asp Tyr Val Asn Val Ala Ser Phe Asn Glu Lys Ala
                325                 330                 335

Gln Pro Val Ser Cys Phe Thr His Leu Val Gln Ala Asn Val Arg Asn
            340                 345                 350

Lys Lys Val Phe Lys Glu Ala Val Gln Gly Met Val Ala Lys Gly Thr
        355                 360                 365

Thr Gly Tyr Lys Ala Gly Phe Glu Tyr Ala Phe Asp Gln Leu Gln Asn
    370                 375                 380

Ser Asn Ile Thr Arg Ala Asn Cys Asn Lys Met Ile Met Met Phe Thr
385                 390                 395                 400

Asp Gly Gly Glu Asp Arg Val Gln Asp Val Phe Glu Lys Tyr Asn Trp
                405                 410                 415

Pro Asn Arg Thr Val Arg Val Phe Thr Phe Ser Val Gly Gln His Asn
            420                 425                 430

Tyr Asp Val Thr Pro Leu Gln Trp Met Ala Cys Ala Asn Lys Gly Tyr
        435                 440                 445

Tyr Phe Glu Ile Pro Ser Ile Gly Ala Ile Arg Ile Asn Thr Gln Glu
    450                 455                 460

Tyr Leu Asp Val Leu Gly Arg Pro Met Val Leu Ala Gly Lys Glu Ala
465                 470                 475                 480

Lys Gln Val Gln Trp Thr Asn Val Tyr Glu Asp Ala Leu Gly Leu Gly
                485                 490                 495

Leu Val Val Thr Gly Thr Leu Pro Val Phe Asn Leu Thr Gln Asp Gly
            500                 505                 510

Pro Gly Glu Lys Lys Asn Gln Leu Ile Leu Gly Val Met Gly Ile Asp
        515                 520                 525

Val Ala Leu Asn Asp Ile Lys Arg Leu Thr Pro Asn Tyr Thr Leu Gly
    530                 535                 540

Ala Asn Gly Tyr Val Phe Ala Ile Asp Leu Asn Gly Tyr Val Leu Leu
```

545 550 555 560

His Pro Asn Leu Lys Pro Gln Thr Thr Asn Phe Arg Glu Pro Val Thr
565 570 575

Leu Asp Phe Leu Asp Ala Glu Leu Glu Asp Glu Asn Lys Glu Glu Ile
580 585 590

Arg Arg Ser Met Ile Asp Gly Asn Lys Gly His Lys Gln Ile Arg Thr
595 600 605

Leu Val Lys Ser Leu Asp Glu Arg Tyr Ile Asp Glu Val Thr Arg Asn
610 615 620

Tyr Thr Trp Val Pro Ile Arg Ser Thr Asn Tyr Ser Leu Gly Leu Val
625 630 635 640

Leu Pro Pro Tyr Ser Thr Phe Tyr Leu Gln Ala Asn Leu Ser Asp Gln
645 650 655

Ile Leu Gln Val Lys Leu Pro Ile Ser Lys Leu Lys Asp Phe Glu Phe
660 665 670

Leu Leu Pro Ser Ser Phe Glu Ser Glu Gly His Val Phe Ile Ala Pro
675 680 685

Arg Glu Tyr Cys Lys Asp Leu Asn Ala Ser Asp Asn Asn Thr Glu Phe
690 695 700

Leu Lys Asn Phe Ile Glu Leu Met Glu Lys Val Thr Pro Asp Ser Lys
705 710 715 720

Gln Cys Asn Asn Phe Leu Leu His Asn Leu Ile Leu Asp Thr Gly Ile
725 730 735

Thr Gln Gln Leu Val Glu Arg Val Trp Arg Asp Gln Asp Leu Asn Thr
740 745 750

Tyr Ser Leu Leu Ala Val Phe Ala Ala Thr Asp Gly Gly Ile Thr Arg
755 760 765

Val Phe Pro Asn Lys Ala Ala Glu Asp Trp Thr Glu Asn Pro Glu Pro
770 775 780

```
Phe Asn Ala Ser Phe Tyr Arg Arg Ser Leu Asp Asn His Gly Tyr Val
785                 790                 795                 800

Phe Lys Pro Pro His Gln Asp Ala Leu Leu Arg Pro Leu Glu Leu Glu
                805                 810                 815

Asn Asp Thr Val Gly Ile Leu Val Ser Thr Ala Val Glu Leu Ser Leu
            820                 825                 830

Gly Arg Arg Thr Leu Arg Pro Ala Val Val Gly Val Lys Leu Asp Leu
        835                 840                 845

Glu Ala Trp Ala Glu Lys Phe Lys Val Leu Ala Ser Asn Arg Thr His
    850                 855                 860

Gln Asp Gln Pro Gln Lys Cys Gly Pro Asn Ser His Cys Glu Met Asp
865                 870                 875                 880

Cys Glu Val Asn Asn Glu Asp Leu Leu Cys Val Leu Ile Asp Asp Gly
                885                 890                 895

Gly Phe Leu Val Leu Ser Asn Gln Asn His Gln Trp Asp Gln Val Gly
            900                 905                 910

Arg Phe Phe Ser Glu Val Asp Ala Asn Leu Met Leu Ala Leu Tyr Asn
        915                 920                 925

Asn Ser Phe Tyr Thr Arg Lys Glu Ser Tyr Asp Tyr Gln Ala Ala Cys
    930                 935                 940

Ala Pro Gln Pro Pro Gly Asn Leu Gly Ala Ala Pro Arg Gly Val Phe
945                 950                 955                 960

Val Pro Thr Val Ala Asp Phe Leu Asn Leu Ala Trp Trp Thr Ser Ala
                965                 970                 975

Ala Ala Trp Ser Leu Phe Gln Gln Leu Leu Tyr Gly Leu Ile Tyr His
            980                 985                 990

Ser Trp Phe Gln Ala Asp Pro Ala  Glu Ala Glu Gly Ser  Pro Glu
Thr
        995                 1000                1005
```

```
Arg Glu  Ser Ser Cys Val Met  Lys Gln Thr Gln Tyr  Tyr Phe Gly
    1010                1015                1020

Ser Val  Asn Ala Ser Tyr Asn  Ala Ile Ile Asp Cys  Gly Asn Cys
    1025                1030                1035

Ser Arg  Leu Phe His Ala Gln  Arg Leu Thr Asn Thr  Asn Leu Leu
    1040                1045                1050

Phe Val  Val Ala Glu Lys Pro  Leu Cys Ser Gln Cys  Glu Ala Gly
    1055                1060                1065

Arg Leu  Leu Gln Lys Glu Thr  His Ser Asp Gly Pro  Glu Gln Cys
    1070                1075                1080

Glu Leu  Val Gln Arg Pro Arg  Tyr Arg Arg Gly Pro  His Ile Cys
    1085                1090                1095

Phe Asp  Tyr Asn Ala Thr Glu  Asp Thr Ser Asp Cys  Gly Arg Gly
    1100                1105                1110

Ala Ser  Phe Pro Pro Ser Leu  Gly Val Leu Val Ser  Leu Gln Leu
    1115                1120                1125

Leu Leu  Leu Leu Gly Leu Pro  Pro Arg Pro Gln Pro  Gln Val Leu
    1130                1135                1140

Val His  Ala Ser Arg Arg Leu
    1145                1150


<210> 10638
<211> 1091
<212> PRT
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<220>
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<223> /note="Gene Symbol: CACNA2D3; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 3; "

<220>
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<223> /note="Uniprot ID: Q8IZS8; "

<220>
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<223> /note="ENSP ID: ENSP00000288197"

<400> 10638

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Met Ala Gly Pro Gly Ser Pro Arg Arg Ala Ser Arg Gly Ala Ser Ala
1               5                  10                  15

Leu Leu Ala Ala Ala Leu Leu Tyr Ala Ala Leu Gly Asp Val Val Arg
            20                  25                  30

Ser Glu Gln Gln Ile Pro Leu Ser Val Val Lys Leu Trp Ala Ser Ala
        35                  40                  45

Phe Gly Gly Glu Ile Lys Ser Ile Ala Ala Lys Tyr Ser Gly Ser Gln
    50                  55                  60

Leu Leu Gln Lys Lys Tyr Lys Glu Tyr Glu Lys Asp Val Ala Ile Glu
65                  70                  75                  80

Glu Ile Asp Gly Leu Gln Leu Val Lys Lys Leu Ala Lys Asn Met Glu
                85                  90                  95

Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val Glu Ala
            100                 105                 110

Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu Gln Tyr
        115                 120                 125

Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp Gly Asn
    130                 135                 140

Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp His Phe
145                 150                 155                 160

Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val Pro Thr
                165                 170                 175
```

```
Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr Trp Ser
            180                 185                 190

Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp Pro Ser
        195                 200                 205

Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe Phe Arg Gln Tyr
    210                 215                 220

Pro Gly Ile Lys Trp Glu Pro Asp Glu Asn Gly Val Ile Ala Phe Asp
225                 230                 235                 240

Cys Arg Asn Arg Lys Trp Tyr Ile Gln Ala Ala Thr Ser Pro Lys Asp
                245                 250                 255

Val Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly Leu Arg Leu
            260                 265                 270

Thr Ile Ala Lys Gln Thr Val Ser Ser Ile Leu Asp Thr Leu Gly Asp
        275                 280                 285

Asp Asp Phe Phe Asn Ile Ile Ala Tyr Asn Glu Glu Leu His Tyr Val
    290                 295                 300

Glu Pro Cys Leu Asn Gly Thr Leu Val Gln Ala Asp Arg Thr Asn Lys
305                 310                 315                 320

Glu His Phe Arg Glu His Leu Asp Lys Leu Phe Ala Lys Gly Ile Gly
                325                 330                 335

Met Leu Asp Ile Ala Leu Asn Glu Ala Phe Asn Ile Leu Ser Asp Phe
            340                 345                 350

Asn His Thr Gly Gln Gly Ser Ile Cys Ser Gln Ala Ile Met Leu Ile
        355                 360                 365

Thr Asp Gly Ala Val Asp Thr Tyr Asp Thr Ile Phe Ala Lys Tyr Asn
    370                 375                 380

Trp Pro Asp Arg Lys Val Arg Ile Phe Thr Tyr Leu Ile Gly Arg Glu
385                 390                 395                 400

Ala Ala Phe Ala Asp Asn Leu Lys Trp Met Ala Cys Ala Asn Lys Gly
```

```
                405                 410                 415

Phe Phe Thr Gln Ile Ser Thr Leu Ala Asp Val Gln Glu Asn Val Met
            420                 425                 430

Glu Tyr Leu His Val Leu Ser Arg Pro Lys Val Ile Asp Gln Glu His
        435                 440                 445

Asp Val Val Trp Thr Glu Ala Tyr Ile Asp Ser Thr Leu Pro Gln Ala
    450                 455                 460

Gln Lys Leu Thr Asp Asp Gln Gly Pro Val Leu Met Thr Thr Val Ala
465                 470                 475                 480

Met Pro Val Phe Ser Lys Gln Asn Glu Thr Arg Ser Lys Gly Ile Leu
                485                 490                 495

Leu Gly Val Val Gly Thr Asp Val Pro Val Lys Glu Leu Leu Lys Thr
            500                 505                 510

Ile Pro Lys Tyr Lys Leu Gly Ile His Gly Tyr Ala Phe Ala Ile Thr
        515                 520                 525

Asn Asn Gly Tyr Ile Leu Thr His Pro Glu Leu Arg Leu Leu Tyr Glu
    530                 535                 540

Glu Gly Lys Lys Arg Arg Lys Pro Asn Tyr Ser Ser Val Asp Leu Ser
545                 550                 555                 560

Glu Val Glu Trp Glu Asp Arg Asp Asp Val Leu Arg Asn Ala Met Val
                565                 570                 575

Asn Arg Lys Thr Gly Lys Phe Ser Met Glu Val Lys Lys Thr Val Asp
            580                 585                 590

Lys Gly Lys Arg Val Leu Val Met Thr Asn Asp Tyr Tyr Tyr Thr Asp
        595                 600                 605

Ile Lys Gly Thr Pro Phe Ser Leu Gly Val Ala Leu Ser Arg Gly His
    610                 615                 620

Gly Lys Tyr Phe Phe Arg Gly Asn Val Thr Ile Glu Glu Gly Leu His
625                 630                 635                 640
```

```
Asp Leu Glu His Pro Asp Val Ser Leu Ala Asp Glu Trp Ser Tyr Cys
                645                 650                 655

Asn Thr Asp Leu His Pro Glu His Arg His Leu Ser Gln Leu Glu Ala
            660                 665                 670

Ile Lys Leu Tyr Leu Lys Gly Lys Glu Pro Leu Leu Gln Cys Asp Lys
        675                 680                 685

Glu Leu Ile Gln Glu Val Leu Phe Asp Ala Val Val Ser Ala Pro Ile
    690                 695                 700

Glu Ala Tyr Trp Thr Ser Leu Ala Leu Asn Lys Ser Glu Asn Ser Asp
705                 710                 715                 720

Lys Gly Val Glu Val Ala Phe Leu Gly Thr Arg Thr Gly Leu Ser Arg
                725                 730                 735

Ile Asn Leu Phe Val Gly Ala Glu Gln Leu Thr Asn Gln Asp Phe Leu
            740                 745                 750

Lys Ala Gly Asp Lys Glu Asn Ile Phe Asn Ala Asp His Phe Pro Leu
        755                 760                 765

Trp Tyr Arg Arg Ala Ala Glu Gln Ile Pro Gly Ser Phe Val Tyr Ser
    770                 775                 780

Ile Pro Phe Ser Thr Gly Pro Val Asn Lys Ser Asn Val Val Thr Ala
785                 790                 795                 800

Ser Thr Ser Ile Gln Leu Leu Asp Glu Arg Lys Ser Pro Val Val Ala
                805                 810                 815

Ala Val Gly Ile Gln Met Lys Leu Glu Phe Phe Gln Arg Lys Phe Trp
            820                 825                 830

Thr Ala Ser Arg Gln Cys Ala Ser Leu Asp Gly Lys Cys Ser Ile Ser
        835                 840                 845

Cys Asp Asp Glu Thr Val Asn Cys Tyr Leu Ile Asp Asn Asn Gly Phe
    850                 855                 860
```

```
Ile Leu Val Ser Glu Asp Tyr Thr Gln Thr Gly Asp Phe Phe Gly Glu
865                 870                 875                 880

Ile Glu Gly Ala Val Met Asn Lys Leu Leu Thr Met Gly Ser Phe Lys
                885                 890                 895

Arg Ile Thr Leu Tyr Asp Tyr Gln Ala Met Cys Arg Ala Asn Lys Glu
            900                 905                 910

Ser Ser Asp Gly Ala His Gly Leu Leu Asp Pro Tyr Asn Ala Phe Leu
        915                 920                 925

Ser Ala Val Lys Trp Ile Met Thr Glu Leu Val Leu Phe Leu Val Glu
    930                 935                 940

Phe Asn Leu Cys Ser Trp Trp His Ser Asp Met Thr Ala Lys Ala Gln
945                 950                 955                 960

Lys Leu Lys Gln Thr Leu Glu Pro Cys Asp Thr Glu Tyr Pro Ala Phe
                965                 970                 975

Val Ser Glu Arg Thr Ile Lys Glu Thr Thr Gly Asn Ile Ala Cys Glu
            980                 985                 990

Asp Cys Ser Lys Ser Phe Val Ile  Gln Gln Ile Pro Ser  Ser Asn
Leu
        995                 1000                1005

Phe Met  Val Val Val Asp Ser  Ser Cys Leu Cys Glu  Ser Val Ala
    1010                1015                1020

Pro Ile  Thr Met Ala Pro Ile  Glu Ile Arg Tyr Asn  Glu Ser Leu
    1025                1030                1035

Lys Cys  Glu Arg Leu Lys Ala  Gln Lys Ile Arg Arg  Arg Pro Glu
    1040                1045                1050

Ser Cys  His Gly Phe His Pro  Glu Glu Asn Ala Arg  Glu Cys Gly
    1055                1060                1065

Gly Ala  Pro Ser Leu Gln Ala  Gln Thr Val Leu Leu  Leu Leu Pro
    1070                1075                1080
```

```
Leu Leu  Leu Met Leu Phe Ser  Arg
    1085                1090


<210> 10639
<211> 1091
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2123; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D3; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
      alpha 2/delta
      subunit 3; "

<220>
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<223> /note="Uniprot ID:  Q8IZS8; "

<220>
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Met Ala Gly Pro Gly Ser Pro Arg Arg Ala Ser Arg Gly Ala Ser Ala
1               5                   10                  15


Leu Leu Ala Ala Ala Leu Leu Tyr Ala Ala Leu Gly Asp Val Val Arg
            20                  25                  30


Ser Glu Gln Gln Ile Pro Leu Ser Val Val Lys Leu Trp Ala Ser Ala
        35                  40                  45


Phe Gly Gly Glu Ile Lys Ser Ile Ala Ala Lys Tyr Ser Gly Ser Gln
    50                  55                  60


Leu Leu Gln Lys Lys Tyr Lys Glu Tyr Glu Lys Asp Val Ala Ile Glu
65                  70                  75                  80


Glu Ile Asp Gly Leu Gln Leu Val Lys Lys Leu Ala Lys Asn Met Glu
                85                  90                  95
```

```
Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val Glu Ala
            100                 105                 110

Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu Gln Tyr
        115                 120                 125

Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp Gly Asn
    130                 135                 140

Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp His Phe
145                 150                 155                 160

Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val Pro Thr
                165                 170                 175

Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr Trp Ser
            180                 185                 190

Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp Pro Ser
        195                 200                 205

Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe Phe Arg Gln Tyr
    210                 215                 220

Pro Gly Ile Lys Trp Glu Pro Asp Glu Asn Gly Val Ile Ala Phe Asp
225                 230                 235                 240

Cys Arg Asn Arg Lys Trp Tyr Ile Gln Ala Ala Thr Ser Pro Lys Asp
                245                 250                 255

Val Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly Leu Arg Leu
            260                 265                 270

Thr Ile Ala Lys Gln Thr Val Ser Ser Ile Leu Asp Thr Leu Gly Asp
        275                 280                 285

Asp Asp Phe Phe Asn Ile Ile Ala Tyr Asn Glu Glu Leu His Tyr Val
    290                 295                 300

Glu Pro Cys Leu Asn Gly Thr Leu Val Gln Ala Asp Arg Thr Asn Lys
305                 310                 315                 320

Glu His Phe Arg Glu His Leu Asp Lys Leu Phe Ala Lys Gly Ile Gly
```

```
                325                 330                 335

Met Leu Asp Ile Ala Leu Asn Glu Ala Phe Asn Ile Leu Ser Asp Phe
            340                 345                 350

Asn His Thr Gly Gln Gly Ser Ile Cys Ser Gln Ala Ile Met Leu Ile
        355                 360                 365

Thr Asp Gly Ala Val Asp Thr Tyr Asp Thr Ile Phe Ala Lys Tyr Asn
    370                 375                 380

Trp Pro Asp Arg Lys Val Arg Ile Phe Thr Tyr Leu Ile Gly Arg Glu
385                 390                 395                 400

Ala Ala Phe Ala Asp Asn Leu Lys Trp Met Ala Cys Ala Asn Lys Gly
                405                 410                 415

Phe Phe Thr Gln Ile Ser Thr Leu Ala Asp Val Gln Glu Asn Val Met
            420                 425                 430

Glu Tyr Leu His Val Leu Ser Arg Pro Lys Val Ile Asp Gln Glu His
        435                 440                 445

Asp Val Val Trp Thr Glu Ala Tyr Ile Asp Ser Thr Leu Pro Gln Ala
    450                 455                 460

Gln Lys Leu Thr Asp Asp Gln Gly Pro Val Leu Met Thr Thr Val Ala
465                 470                 475                 480

Met Pro Val Phe Ser Lys Gln Asn Glu Thr Arg Ser Lys Gly Ile Leu
                485                 490                 495

Leu Gly Val Val Gly Thr Asp Val Pro Val Lys Glu Leu Leu Lys Thr
            500                 505                 510

Ile Pro Lys Tyr Lys Leu Gly Ile His Gly Tyr Ala Phe Ala Ile Thr
        515                 520                 525

Asn Asn Gly Tyr Ile Leu Thr His Pro Glu Leu Arg Leu Leu Tyr Glu
    530                 535                 540

Glu Gly Lys Lys Arg Arg Lys Pro Asn Tyr Ser Ser Val Asp Leu Ser
545                 550                 555                 560
```

Glu Val Glu Trp Glu Asp Arg Asp Asp Val Leu Arg Asn Ala Met Val
565 570 575

Asn Arg Lys Thr Gly Lys Phe Ser Met Glu Val Lys Lys Thr Val Asp
580 585 590

Lys Gly Lys Arg Val Leu Val Met Thr Asn Asp Tyr Tyr Tyr Thr Asp
595 600 605

Ile Lys Gly Thr Pro Phe Ser Leu Gly Val Ala Leu Ser Arg Gly His
610 615 620

Gly Lys Tyr Phe Phe Arg Gly Asn Val Thr Ile Glu Glu Gly Leu His
625 630 635 640

Asp Leu Glu His Pro Asp Val Ser Leu Ala Asp Glu Trp Ser Tyr Cys
645 650 655

Asn Thr Asp Leu His Pro Glu His Arg His Leu Ser Gln Leu Glu Ala
660 665 670

Ile Lys Leu Tyr Leu Lys Gly Lys Glu Pro Leu Leu Gln Cys Asp Lys
675 680 685

Glu Leu Ile Gln Glu Val Leu Phe Asp Ala Val Val Ser Ala Pro Ile
690 695 700

Glu Ala Tyr Trp Thr Ser Leu Ala Leu Asn Lys Ser Glu Asn Ser Asp
705 710 715 720

Lys Gly Val Glu Val Ala Phe Leu Gly Thr Arg Thr Gly Leu Ser Arg
725 730 735

Ile Asn Leu Phe Val Gly Ala Glu Gln Leu Thr Asn Gln Asp Phe Leu
740 745 750

Lys Ala Gly Asp Lys Glu Asn Ile Phe Asn Ala Asp His Phe Pro Leu
755 760 765

Trp Tyr Arg Arg Ala Ala Glu Gln Ile Pro Gly Ser Phe Val Tyr Ser
770 775 780

```
Ile Pro Phe Ser Thr Gly Pro Val Asn Lys Ser Asn Val Val Thr Ala
785                 790                 795                 800

Ser Thr Ser Ile Gln Leu Leu Asp Glu Arg Lys Ser Pro Val Val Ala
                805                 810                 815

Ala Val Gly Ile Gln Met Lys Leu Glu Phe Phe Gln Arg Lys Phe Trp
            820                 825                 830

Thr Ala Ser Arg Gln Cys Ala Ser Leu Asp Gly Lys Cys Ser Ile Ser
        835                 840                 845

Cys Asp Asp Glu Thr Val Asn Cys Tyr Leu Ile Asp Asn Asn Gly Phe
    850                 855                 860

Ile Leu Val Ser Glu Asp Tyr Thr Gln Thr Gly Asp Phe Phe Gly Glu
865                 870                 875                 880

Ile Glu Gly Ala Val Met Asn Lys Leu Leu Thr Met Gly Ser Phe Lys
                885                 890                 895

Arg Ile Thr Leu Tyr Asp Tyr Gln Ala Met Cys Arg Ala Asn Lys Glu
            900                 905                 910

Ser Ser Asp Gly Ala His Gly Leu Leu Asp Pro Tyr Asn Ala Phe Leu
        915                 920                 925

Ser Ala Val Lys Trp Ile Met Thr Glu Leu Val Leu Phe Leu Val Glu
    930                 935                 940

Phe Asn Leu Cys Ser Trp Trp His Ser Asp Met Thr Ala Lys Ala Gln
945                 950                 955                 960

Lys Leu Lys Gln Thr Leu Glu Pro Cys Asp Thr Glu Tyr Pro Ala Phe
                965                 970                 975

Val Ser Glu Arg Thr Ile Lys Glu Thr Thr Gly Asn Ile Ala Cys Glu
            980                 985                 990

Asp Cys Ser Lys Ser Phe Val Ile  Gln Gln Ile Pro Ser  Ser Asn
Leu
        995                 1000                1005
```

```
Phe Met  Val Val Val Asp Ser  Ser Cys Leu Cys Glu  Ser Val Ala
    1010                1015                1020

Pro Ile  Thr Met Ala Pro Ile  Glu Ile Arg Tyr Asn  Glu Ser Leu
    1025                1030                1035

Lys Cys  Glu Arg Leu Lys Ala  Gln Lys Ile Arg Arg  Arg Pro Glu
    1040                1045                1050

Ser Cys  His Gly Phe His Pro  Glu Glu Asn Ala Arg  Glu Cys Gly
    1055                1060                1065

Gly Ala  Pro Ser Leu Gln Ala  Gln Thr Val Leu Leu  Leu Leu Pro
    1070                1075                1080

Leu Leu  Leu Met Leu Phe Ser  Arg
    1085                1090
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<210> 10640
<211> 997
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Symbol: CACNA2D3; "

<220>
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alpha 2/delta
subunit 3; "

<220>
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<223> /note="Uniprot ID: Q8IZS8; "

<220>
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<400> 10640

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Met Glu Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val
1               5                  10                  15
```

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Glu Ala Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu
            20                  25                  30

Gln Tyr Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp
        35                  40                  45

Gly Asn Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp
    50                  55                  60

His Phe Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val
65                  70                  75                  80

Pro Thr Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr
                85                  90                  95

Trp Ser Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp
            100                 105                 110

Pro Ser Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe Phe Arg
        115                 120                 125

Gln Tyr Pro Gly Ile Lys Trp Glu Pro Asp Glu Asn Gly Val Ile Ala
    130                 135                 140

Phe Asp Cys Arg Asn Arg Lys Trp Tyr Ile Gln Ala Ala Thr Ser Pro
145                 150                 155                 160

Lys Asp Val Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly Leu
                165                 170                 175

Arg Leu Thr Ile Ala Lys Gln Thr Val Ser Ser Ile Leu Asp Thr Leu
            180                 185                 190

Gly Asp Asp Asp Phe Phe Asn Ile Ile Ala Tyr Asn Glu Glu Leu His
        195                 200                 205

Tyr Val Glu Pro Cys Leu Asn Gly Thr Leu Val Gln Ala Asp Arg Thr
    210                 215                 220

Asn Lys Glu His Phe Arg Glu His Leu Asp Lys Leu Phe Ala Lys Gly
225                 230                 235                 240

Ile Gly Met Leu Asp Ile Ala Leu Asn Glu Ala Phe Asn Ile Leu Ser
```

```
                245                 250                 255

Asp Phe Asn His Thr Gly Gln Gly Ser Ile Cys Ser Gln Ala Ile Met
            260                 265                 270

Leu Ile Thr Asp Gly Ala Val Asp Thr Tyr Asp Thr Ile Phe Ala Lys
        275                 280                 285

Tyr Asn Trp Pro Asp Arg Lys Val Arg Ile Phe Thr Tyr Leu Ile Gly
    290                 295                 300

Arg Glu Ala Ala Phe Ala Asp Asn Leu Lys Trp Met Ala Cys Ala Asn
305                 310                 315                 320

Lys Gly Phe Phe Thr Gln Ile Ser Thr Leu Ala Asp Val Gln Glu Asn
                325                 330                 335

Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Lys Val Ile Asp Gln
            340                 345                 350

Glu His Asp Val Val Trp Thr Glu Ala Tyr Ile Asp Ser Thr Leu Pro
        355                 360                 365

Gln Ala Gln Lys Leu Thr Asp Asp Gln Gly Pro Val Leu Met Thr Thr
    370                 375                 380

Val Ala Met Pro Val Phe Ser Lys Gln Asn Glu Thr Arg Ser Lys Gly
385                 390                 395                 400

Ile Leu Leu Gly Val Val Gly Thr Asp Val Pro Val Lys Glu Leu Leu
                405                 410                 415

Lys Thr Ile Pro Lys Tyr Lys Leu Gly Ile His Gly Tyr Ala Phe Ala
            420                 425                 430

Ile Thr Asn Asn Gly Tyr Ile Leu Thr His Pro Glu Leu Arg Leu Leu
        435                 440                 445

Tyr Glu Glu Gly Lys Lys Arg Arg Lys Pro Asn Tyr Ser Ser Val Asp
    450                 455                 460

Leu Ser Glu Val Glu Trp Glu Asp Arg Asp Asp Val Leu Arg Asn Ala
465                 470                 475                 480
```

Met Val Asn Arg Lys Thr Gly Lys Phe Ser Met Glu Val Lys Lys Thr
485 490 495

Val Asp Lys Gly Lys Arg Val Leu Val Met Thr Asn Asp Tyr Tyr Tyr
500 505 510

Thr Asp Ile Lys Gly Thr Pro Phe Ser Leu Gly Val Ala Leu Ser Arg
515 520 525

Gly His Gly Lys Tyr Phe Phe Arg Gly Asn Val Thr Ile Glu Glu Gly
530 535 540

Leu His Asp Leu Glu His Pro Asp Val Ser Leu Ala Asp Glu Trp Ser
545 550 555 560

Tyr Cys Asn Thr Asp Leu His Pro Glu His Arg His Leu Ser Gln Leu
565 570 575

Glu Ala Ile Lys Leu Tyr Leu Lys Gly Lys Glu Pro Leu Leu Gln Cys
580 585 590

Asp Lys Glu Leu Ile Gln Glu Val Leu Phe Asp Ala Val Val Ser Ala
595 600 605

Pro Ile Glu Ala Tyr Trp Thr Ser Leu Ala Leu Asn Lys Ser Glu Asn
610 615 620

Ser Asp Lys Gly Val Glu Val Ala Phe Leu Gly Thr Arg Thr Gly Leu
625 630 635 640

Ser Arg Ile Asn Leu Phe Val Gly Ala Glu Gln Leu Thr Asn Gln Asp
645 650 655

Phe Leu Lys Ala Gly Asp Lys Glu Asn Ile Phe Asn Ala Asp His Phe
660 665 670

Pro Leu Trp Tyr Arg Arg Ala Ala Glu Gln Ile Pro Gly Ser Phe Val
675 680 685

Tyr Ser Ile Pro Phe Ser Thr Gly Pro Val Asn Lys Ser Asn Val Val
690 695 700

Thr Ala Ser Thr Ser Ile Gln Leu Leu Asp Glu Arg Lys Ser Pro Val
705 710 715 720

Val Ala Ala Val Gly Ile Gln Met Lys Leu Glu Phe Phe Gln Arg Lys
725 730 735

Phe Trp Thr Ala Ser Arg Gln Cys Ala Ser Leu Asp Gly Lys Cys Ser
740 745 750

Ile Ser Cys Asp Asp Glu Thr Val Asn Cys Tyr Leu Ile Asp Asn Asn
755 760 765

Gly Phe Ile Leu Val Ser Glu Asp Tyr Thr Gln Thr Gly Asp Phe Phe
770 775 780

Gly Glu Ile Glu Gly Ala Val Met Asn Lys Leu Leu Thr Met Gly Ser
785 790 795 800

Phe Lys Arg Ile Thr Leu Tyr Asp Tyr Gln Ala Met Cys Arg Ala Asn
805 810 815

Lys Glu Ser Ser Asp Gly Ala His Gly Leu Leu Asp Pro Tyr Asn Ala
820 825 830

Phe Leu Ser Ala Val Lys Trp Ile Met Thr Glu Leu Val Leu Phe Leu
835 840 845

Val Glu Phe Asn Leu Cys Ser Trp Trp His Ser Asp Met Thr Ala Lys
850 855 860

Ala Gln Lys Leu Lys Gln Thr Leu Glu Pro Cys Asp Thr Glu Tyr Pro
865 870 875 880

Ala Phe Val Ser Glu Arg Thr Ile Lys Glu Thr Thr Gly Asn Ile Ala
885 890 895

Cys Glu Asp Cys Ser Lys Ser Phe Val Ile Gln Gln Ile Pro Ser Ser
900 905 910

Asn Leu Phe Met Val Val Val Asp Ser Ser Cys Leu Cys Glu Ser Val
915 920 925

```
Ala Pro Ile Thr Met Ala Pro Ile Glu Ile Arg Tyr Asn Glu Ser Leu
    930                 935                 940

Lys Cys Glu Arg Leu Lys Ala Gln Lys Ile Arg Arg Arg Pro Glu Ser
945                 950                 955                 960

Cys His Gly Phe His Pro Glu Glu Asn Ala Arg Glu Cys Gly Gly Ala
                965                 970                 975

Pro Ser Leu Gln Ala Gln Thr Val Leu Leu Leu Leu Pro Leu Leu Leu
            980                 985                 990

Met Leu Phe Ser Arg
        995


<210> 10641
<211> 525
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2123; "

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<223> /note="Gene Symbol: CACNA2D3; "

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      alpha 2/delta
      subunit 3; "

<220>
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<223> /note="ENSP ID: ENSP00000417318"

<400> 10641
Met Glu Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val
1               5                   10                  15

Glu Ala Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu
            20                  25                  30

Gln Tyr Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp
        35                  40                  45

Gly Asn Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp
```

50 55 60

His Phe Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val
65 70 75 80

Pro Thr Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr
85 90 95

Trp Ser Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp
100 105 110

Pro Ser Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe Phe Arg
115 120 125

Gln Tyr Pro Gly Ile Lys Trp Glu Pro Asp Glu Asn Gly Val Ile Ala
130 135 140

Phe Asp Cys Arg Asn Arg Lys Trp Tyr Ile Gln Ala Ala Thr Ser Pro
145 150 155 160

Lys Asp Val Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly Leu
165 170 175

Arg Leu Thr Ile Ala Lys Gln Thr Val Ser Ser Ile Leu Asp Thr Leu
180 185 190

Gly Asp Asp Asp Phe Phe Asn Ile Ile Ala Tyr Asn Glu Glu Leu His
195 200 205

Tyr Val Glu Pro Cys Leu Asn Gly Thr Leu Val Gln Ala Asp Arg Thr
210 215 220

Asn Lys Glu His Phe Arg Glu His Leu Asp Lys Leu Phe Ala Lys Gly
225 230 235 240

Ile Gly Met Leu Asp Ile Ala Leu Asn Glu Ala Phe Asn Ile Leu Ser
245 250 255

Asp Phe Asn His Thr Gly Gln Gly Ser Ile Cys Ser Gln Ala Ile Met
260 265 270

Leu Ile Thr Asp Gly Ala Val Asp Thr Tyr Asp Thr Ile Phe Ala Lys
275 280 285

```
Tyr Asn Trp Pro Asp Arg Lys Val Arg Ile Phe Thr Tyr Leu Ile Gly
    290                 295                 300

Arg Glu Ala Ala Phe Ala Asp Asn Leu Lys Trp Met Ala Cys Ala Asn
305                 310                 315                 320

Lys Gly Phe Phe Thr Gln Ile Ser Thr Leu Ala Asp Val Gln Glu Asn
                325                 330                 335

Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Lys Val Ile Asp Gln
            340                 345                 350

Glu His Asp Val Val Trp Thr Glu Ala Tyr Ile Asp Ser Thr Leu Pro
        355                 360                 365

Gln Ala Gln Lys Leu Thr Asp Asp Gln Gly Pro Val Leu Met Thr Thr
    370                 375                 380

Val Ala Met Pro Val Phe Ser Lys Gln Asn Glu Thr Arg Ser Lys Gly
385                 390                 395                 400

Ile Leu Leu Gly Val Val Gly Thr Asp Val Pro Val Lys Glu Leu Leu
                405                 410                 415

Lys Thr Ile Pro Lys Tyr Lys Leu Gly Ile His Gly Tyr Ala Phe Ala
            420                 425                 430

Ile Thr Asn Asn Gly Tyr Ile Leu Thr His Pro Glu Leu Arg Leu Leu
        435                 440                 445

Tyr Glu Glu Gly Lys Lys Arg Arg Lys Pro Asn Tyr Ser Ser Val Asp
    450                 455                 460

Leu Ser Glu Val Glu Trp Glu Asp Arg Asp Asp Val Leu Arg Asn Ala
465                 470                 475                 480

Met Val Asn Arg Lys Thr Gly Lys Phe Ser Met Glu Val Lys Lys Thr
                485                 490                 495

Val Asp Lys Gly Phe Arg Cys Gly Ala Phe Gln Arg Ser Trp Glu Ile
            500                 505                 510
```

Phe Leu Pro Arg Glu Cys Asn His Arg Arg Arg Pro Ala
515 520 525

<210> 10642
<211> 46
<212> PRT
<213> Homo sapiens

<220>
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alpha 2/delta
subunit 3; "

<220>
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<400> 10642
Met Glu Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val
1 5 10 15

Glu Ala Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu
20 25 30

Gln Thr Leu Gln Leu Ser Met Gly Phe Ile Gly Leu Asn Leu
35 40 45

<210> 10643
<211> 126
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CACNA2D3; "

<220>
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alpha 2/delta
subunit 3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000418028"

<400> 10643
Met Glu Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val
1 5 10 15

Glu Ala Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu
20 25 30

Gln Tyr Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp
35 40 45

Gly Asn Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp
50 55 60

His Phe Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val
65 70 75 80

Pro Thr Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr
85 90 95

Trp Ser Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp
100 105 110

Pro Ser Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe
115 120 125

<210> 10644
<211> 519
<212> PRT
<213> Homo sapiens

<220>
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alpha 2/delta

subunit 3; "

<220>
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<223> /note="Uniprot ID: Q8IZS8; "

<220>
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<223> /note="ENSP ID: ENSP00000418228"

<400> 10644

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Met Glu Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val
1               5                  10                  15

Glu Ala Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu
            20                  25                  30

Gln Tyr Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp
        35                  40                  45

Gly Asn Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp
    50                  55                  60

His Phe Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val
65                  70                  75                  80

Pro Thr Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr
                85                  90                  95

Trp Ser Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp
            100                 105                 110

Pro Ser Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe Phe Arg
        115                 120                 125

Gln Tyr Pro Gly Ile Lys Trp Glu Pro Asp Glu Asn Gly Val Ile Ala
    130                 135                 140

Phe Asp Cys Arg Asn Arg Lys Trp Tyr Ile Gln Ala Ala Thr Ser Pro
145                 150                 155                 160

Lys Asp Val Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly Leu
                165                 170                 175

Arg Leu Thr Ile Ala Lys Gln Thr Val Ser Ser Ile Leu Asp Thr Leu
            180                 185                 190
```

```
Gly Asp Asp Asp Phe Phe Asn Ile Ile Ala Tyr Asn Glu Glu Leu His
        195                 200                 205

Tyr Val Glu Pro Cys Leu Asn Gly Thr Leu Val Gln Ala Asp Arg Thr
    210                 215                 220

Asn Lys Glu His Phe Arg Glu His Leu Asp Lys Leu Phe Ala Lys Gly
225                 230                 235                 240

Ile Gly Met Leu Asp Ile Ala Leu Asn Glu Ala Phe Asn Ile Leu Ser
                245                 250                 255

Asp Phe Asn His Thr Gly Gln Gly Ser Ile Cys Ser Gln Ala Ile Met
            260                 265                 270

Leu Ile Thr Asp Gly Ala Val Asp Thr Tyr Asp Thr Ile Phe Ala Lys
        275                 280                 285

Tyr Asn Trp Pro Asp Arg Lys Val Arg Ile Phe Thr Tyr Leu Ile Gly
    290                 295                 300

Arg Glu Ala Ala Phe Ala Asp Asn Leu Lys Trp Met Ala Cys Ala Asn
305                 310                 315                 320

Lys Gly Phe Phe Thr Gln Ile Ser Thr Leu Ala Asp Val Gln Glu Asn
                325                 330                 335

Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Lys Val Ile Asp Gln
            340                 345                 350

Glu His Asp Val Val Trp Thr Glu Ala Tyr Ile Asp Ser Thr Leu Thr
        355                 360                 365

Asp Asp Gln Gly Pro Val Leu Met Thr Thr Val Ala Met Pro Val Phe
    370                 375                 380

Ser Lys Gln Asn Glu Thr Arg Ser Lys Gly Ile Leu Leu Gly Val Val
385                 390                 395                 400

Gly Thr Asp Val Pro Val Lys Glu Leu Leu Lys Thr Ile Pro Lys Tyr
                405                 410                 415
```

```
Lys Leu Gly Ile His Gly Tyr Ala Phe Ala Ile Thr Asn Asn Gly Tyr
            420                 425                 430

Ile Leu Thr His Pro Glu Leu Arg Leu Leu Tyr Glu Glu Gly Lys Lys
        435                 440                 445

Arg Arg Lys Pro Asn Tyr Ser Ser Val Asp Leu Ser Glu Val Glu Trp
    450                 455                 460

Glu Asp Arg Asp Asp Val Leu Arg Asn Ala Met Val Asn Arg Lys Thr
465                 470                 475                 480

Gly Lys Phe Ser Met Glu Val Lys Lys Thr Val Asp Lys Gly Phe Arg
                485                 490                 495

Cys Gly Ala Phe Gln Arg Ser Trp Glu Ile Phe Leu Pro Arg Glu Cys
            500                 505                 510

Asn His Arg Arg Arg Pro Ala
        515
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<210> 10645
<211> 1091
<212> PRT
<213> Homo sapiens

<220>
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alpha 2/delta
subunit 3; "

<220>
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<223> /note="Uniprot ID: Q8IZS8; "

<220>
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<223> /note="ENSP ID: ENSP00000419101"

<400> 10645

```
Met Ala Gly Pro Gly Ser Pro Arg Arg Ala Ser Arg Gly Ala Ser Ala
1               5                  10                  15

Leu Leu Ala Ala Ala Leu Leu Tyr Ala Ala Leu Gly Asp Val Val Arg
            20                  25                  30

Ser Glu Gln Gln Ile Pro Leu Ser Val Val Lys Leu Trp Ala Ser Ala
        35                  40                  45

Phe Gly Gly Glu Ile Lys Ser Ile Ala Ala Lys Tyr Ser Gly Ser Gln
    50                  55                  60

Leu Leu Gln Lys Lys Tyr Lys Glu Tyr Glu Lys Asp Val Ala Ile Glu
65                  70                  75                  80

Glu Ile Asp Gly Leu Gln Leu Val Lys Lys Leu Ala Lys Asn Met Glu
                85                  90                  95

Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val Glu Ala
            100                 105                 110

Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu Gln Tyr
        115                 120                 125

Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp Gly Asn
    130                 135                 140

Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp His Phe
145                 150                 155                 160

Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val Pro Thr
                165                 170                 175

Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr Trp Ser
            180                 185                 190

Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp Pro Ser
        195                 200                 205

Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe Phe Arg Gln Tyr
    210                 215                 220

Pro Gly Ile Lys Trp Glu Pro Asp Glu Asn Gly Val Ile Ala Phe Asp
```

225 230 235 240

Cys Arg Asn Arg Lys Trp Tyr Ile Gln Ala Ala Thr Ser Pro Lys Asp
245 250 255

Val Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly Leu Arg Leu
260 265 270

Thr Ile Ala Lys Gln Thr Val Ser Ser Ile Leu Asp Thr Leu Gly Asp
275 280 285

Asp Asp Phe Phe Asn Ile Ile Ala Tyr Asn Glu Glu Leu His Tyr Val
290 295 300

Glu Pro Cys Leu Asn Gly Thr Leu Val Gln Ala Asp Arg Thr Asn Lys
305 310 315 320

Glu His Phe Arg Glu His Leu Asp Lys Leu Phe Ala Lys Gly Ile Gly
325 330 335

Met Leu Asp Ile Ala Leu Asn Glu Ala Phe Asn Ile Leu Ser Asp Phe
340 345 350

Asn His Thr Gly Gln Gly Ser Ile Cys Ser Gln Ala Ile Met Leu Ile
355 360 365

Thr Asp Gly Ala Val Asp Thr Tyr Asp Thr Ile Phe Ala Lys Tyr Asn
370 375 380

Trp Pro Asp Arg Lys Val Arg Ile Phe Thr Tyr Leu Ile Gly Arg Glu
385 390 395 400

Ala Ala Phe Ala Asp Asn Leu Lys Trp Met Ala Cys Ala Asn Lys Gly
405 410 415

Phe Phe Thr Gln Ile Ser Thr Leu Ala Asp Val Gln Glu Asn Val Met
420 425 430

Glu Tyr Leu His Val Leu Ser Arg Pro Lys Val Ile Asp Gln Glu His
435 440 445

Asp Val Val Trp Thr Glu Ala Tyr Ile Asp Ser Thr Leu Pro Gln Ala
450 455 460

```
Gln Lys Leu Thr Asp Asp Gln Gly Pro Val Leu Met Thr Thr Val Ala
465                 470                 475                 480

Met Pro Val Phe Ser Lys Gln Asn Glu Thr Arg Ser Lys Gly Ile Leu
                485                 490                 495

Leu Gly Val Val Gly Thr Asp Val Pro Val Lys Glu Leu Leu Lys Thr
            500                 505                 510

Ile Pro Lys Tyr Lys Leu Gly Ile His Gly Tyr Ala Phe Ala Ile Thr
        515                 520                 525

Asn Asn Gly Tyr Ile Leu Thr His Pro Glu Leu Arg Leu Leu Tyr Glu
    530                 535                 540

Glu Gly Lys Lys Arg Arg Lys Pro Asn Tyr Ser Ser Val Asp Leu Ser
545                 550                 555                 560

Glu Val Glu Trp Glu Asp Arg Asp Asp Val Leu Arg Asn Ala Met Val
                565                 570                 575

Asn Arg Lys Thr Gly Lys Phe Ser Met Glu Val Lys Lys Thr Val Asp
            580                 585                 590

Lys Gly Lys Arg Val Leu Val Met Thr Asn Asp Tyr Tyr Tyr Thr Asp
        595                 600                 605

Ile Lys Gly Thr Pro Phe Ser Leu Gly Val Ala Leu Ser Arg Gly His
    610                 615                 620

Gly Lys Tyr Phe Phe Arg Gly Asn Val Thr Ile Glu Glu Gly Leu His
625                 630                 635                 640

Asp Leu Glu His Pro Asp Val Ser Leu Ala Asp Glu Trp Ser Tyr Cys
                645                 650                 655

Asn Thr Asp Leu His Pro Glu His Arg His Leu Ser Gln Leu Glu Ala
            660                 665                 670

Ile Lys Leu Tyr Leu Lys Gly Lys Glu Pro Leu Leu Gln Cys Asp Lys
        675                 680                 685
```

```
Glu Leu Ile Gln Glu Val Leu Phe Asp Ala Val Val Ser Ala Pro Ile
    690                 695                 700

Glu Ala Tyr Trp Thr Ser Leu Ala Leu Asn Lys Ser Glu Asn Ser Asp
705                 710                 715                 720

Lys Gly Val Glu Val Ala Phe Leu Gly Thr Arg Thr Gly Leu Ser Arg
                725                 730                 735

Ile Asn Leu Phe Val Gly Ala Glu Gln Leu Thr Asn Gln Asp Phe Leu
            740                 745                 750

Lys Ala Gly Asp Lys Glu Asn Ile Phe Asn Ala Asp His Phe Pro Leu
        755                 760                 765

Trp Tyr Arg Arg Ala Ala Glu Gln Ile Pro Gly Ser Phe Val Tyr Ser
    770                 775                 780

Ile Pro Phe Ser Thr Gly Pro Val Asn Lys Ser Asn Val Val Thr Ala
785                 790                 795                 800

Ser Thr Ser Ile Gln Leu Leu Asp Glu Arg Lys Ser Pro Val Val Ala
                805                 810                 815

Ala Val Gly Ile Gln Met Lys Leu Glu Phe Phe Gln Arg Lys Phe Trp
            820                 825                 830

Thr Ala Ser Arg Gln Cys Ala Ser Leu Asp Gly Lys Cys Ser Ile Ser
        835                 840                 845

Cys Asp Asp Glu Thr Val Asn Cys Tyr Leu Ile Asp Asn Asn Gly Phe
    850                 855                 860

Ile Leu Val Ser Glu Asp Tyr Thr Gln Thr Gly Asp Phe Phe Gly Glu
865                 870                 875                 880

Ile Glu Gly Ala Val Met Asn Lys Leu Leu Thr Met Gly Ser Phe Lys
                885                 890                 895

Arg Ile Thr Leu Tyr Asp Tyr Gln Ala Met Cys Arg Ala Asn Lys Glu
            900                 905                 910
```

```
Ser Ser Asp Gly Ala His Gly Leu Leu Asp Pro Tyr Asn Ala Phe Leu
        915                 920                 925

Ser Ala Val Lys Trp Ile Met Thr Glu Leu Val Leu Phe Leu Val Glu
    930                 935                 940

Phe Asn Leu Cys Ser Trp Trp His Ser Asp Met Thr Ala Lys Ala Gln
945                 950                 955                 960

Lys Leu Lys Gln Thr Leu Glu Pro Cys Asp Thr Glu Tyr Pro Ala Phe
                965                 970                 975

Val Ser Glu Arg Thr Ile Lys Glu Thr Thr Gly Asn Ile Ala Cys Glu
            980                 985                 990

Asp Cys Ser Lys Ser Phe Val Ile  Gln Gln Ile Pro Ser  Ser Asn
Leu
        995                 1000                1005

Phe Met  Val Val Val Asp Ser  Ser Cys Leu Cys Glu  Ser Val Ala
    1010                1015                1020

Pro Ile  Thr Met Ala Pro Ile  Glu Ile Arg Tyr Asn  Glu Ser Leu
    1025                1030                1035

Lys Cys  Glu Arg Leu Lys Ala  Gln Lys Ile Arg Arg  Arg Pro Glu
    1040                1045                1050

Ser Cys  His Gly Phe His Pro  Glu Glu Asn Ala Arg  Glu Cys Gly
    1055                1060                1065

Gly Ala  Pro Ser Leu Gln Ala  Gln Thr Val Leu Leu  Leu Leu Pro
    1070                1075                1080

Leu Leu  Leu Met Leu Phe Ser  Arg
    1085                1090
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<210> 10646
<211> 519
<212> PRT
<213> Homo sapiens

<220>
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<220>
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alpha 2/delta
subunit 3; "

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<220>
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<400> 10646
Met Glu Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val
1   5   10   15

Glu Ala Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu
            20   25   30

Gln Tyr Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp
        35   40   45

Gly Asn Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp
    50   55   60

His Phe Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val
65   70   75   80

Pro Thr Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr
                85   90   95

Trp Ser Glu Ser Leu Asn Lys Val Phe Val Asp Asn Phe Asp Arg Asp
            100   105   110

Pro Ser Leu Ile Trp Gln Tyr Phe Gly Ser Ala Lys Gly Phe Phe Arg
        115   120   125

Gln Tyr Pro Gly Ile Lys Trp Glu Pro Asp Glu Asn Gly Val Ile Ala
    130   135   140

Phe Asp Cys Arg Asn Arg Lys Trp Tyr Ile Gln Ala Ala Thr Ser Pro

145 150 155 160

Lys Asp Val Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly Leu
165 170 175

Arg Leu Thr Ile Ala Lys Gln Thr Val Ser Ser Ile Leu Asp Thr Leu
180 185 190

Gly Asp Asp Asp Phe Phe Asn Ile Ile Ala Tyr Asn Glu Glu Leu His
195 200 205

Tyr Val Glu Pro Cys Leu Asn Gly Thr Leu Val Gln Ala Asp Arg Thr
210 215 220

Asn Lys Glu His Phe Arg Glu His Leu Asp Lys Leu Phe Ala Lys Gly
225 230 235 240

Ile Gly Met Leu Asp Ile Ala Leu Asn Glu Ala Phe Asn Ile Leu Ser
245 250 255

Asp Phe Asn His Thr Gly Gln Gly Ser Ile Cys Ser Gln Ala Ile Met
260 265 270

Leu Ile Thr Asp Gly Ala Val Asp Thr Tyr Asp Thr Ile Phe Ala Lys
275 280 285

Tyr Asn Trp Pro Asp Arg Lys Val Arg Ile Phe Thr Tyr Leu Ile Gly
290 295 300

Arg Glu Ala Ala Phe Ala Asp Asn Leu Lys Trp Met Ala Cys Ala Asn
305 310 315 320

Lys Gly Phe Phe Thr Gln Ile Ser Thr Leu Ala Asp Val Gln Glu Asn
325 330 335

Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Lys Val Ile Asp Gln
340 345 350

Glu His Asp Val Val Trp Thr Glu Ala Tyr Ile Asp Ser Thr Leu Thr
355 360 365

Asp Asp Gln Gly Pro Val Leu Met Thr Thr Val Ala Met Pro Val Phe
370 375 380

```
Ser Lys Gln Asn Glu Thr Arg Ser Lys Gly Ile Leu Leu Gly Val Val
385                 390                 395                 400

Gly Thr Asp Val Pro Val Lys Glu Leu Leu Lys Thr Ile Pro Lys Tyr
                405                 410                 415

Lys Leu Gly Ile His Gly Tyr Ala Phe Ala Ile Thr Asn Asn Gly Tyr
            420                 425                 430

Ile Leu Thr His Pro Glu Leu Arg Leu Leu Tyr Glu Glu Gly Lys Lys
        435                 440                 445

Arg Arg Lys Pro Asn Tyr Ser Ser Val Asp Leu Ser Glu Val Glu Trp
    450                 455                 460

Glu Asp Arg Asp Asp Val Leu Arg Asn Ala Met Val Asn Arg Lys Thr
465                 470                 475                 480

Gly Lys Phe Ser Met Glu Val Lys Lys Thr Val Asp Lys Gly Phe Arg
                485                 490                 495

Cys Gly Ala Phe Gln Arg Ser Trp Glu Ile Phe Leu Pro Arg Glu Cys
            500                 505                 510

Asn His Arg Arg Arg Pro Ala
        515


<210> 10647
<211> 1137
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
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<223> /note="Gene Symbol: CACNA2D4; "

<220>
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      subunit 4; "
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<220>
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<223> /note="Uniprot ID: Q7Z3S7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000372169"

<400> 10647
Met Val Cys Gly Cys Ser Ala Leu Leu Pro Leu Pro Asn Pro Arg Pro
1   5   10   15

Thr Met Pro Ala Thr Pro Asn Phe Leu Ala Asn Pro Ser Ser Ser Ser
            20   25   30

Arg Trp Ile Pro Leu Gln Pro Met Pro Val Ala Trp Ala Phe Val Gln
        35   40   45

Lys Thr Ser Ala Leu Leu Trp Leu Leu Leu Leu Gly Thr Ser Leu Ser
    50   55   60

Pro Ala Trp Gly Gln Ala Lys Ile Pro Leu Glu Thr Val Lys Leu Trp
65   70   75   80

Ala Asp Thr Phe Gly Gly Asp Leu Tyr Asn Thr Val Thr Lys Tyr Ser
                85   90   95

Gly Ser Leu Leu Leu Gln Lys Lys Tyr Lys Asp Val Glu Ser Ser Leu
            100   105   110

Lys Ile Glu Glu Val Asp Gly Leu Glu Leu Val Arg Lys Phe Ser Glu
        115   120   125

Asp Met Glu Asn Met Leu Arg Arg Lys Val Glu Ala Val Gln Asn Leu
    130   135   140

Val Glu Ala Ala Glu Glu Ala Asp Leu Asn His Glu Phe Asn Glu Ser
145   150   155   160

Leu Val Phe Asp Tyr Tyr Asn Ser Val Leu Ile Asn Glu Arg Asp Glu
                165   170   175

Lys Gly Asn Phe Val Glu Leu Gly Ala Glu Phe Leu Leu Glu Ser Asn
            180   185   190

```
Ala His Phe Ser Asn Leu Pro Val Asn Thr Ser Ile Ser Ser Val Gln
        195                 200                 205

Leu Pro Thr Asn Val Tyr Asn Lys Asp Pro Asp Ile Leu Asn Gly Val
    210                 215                 220

Tyr Met Ser Glu Ala Leu Asn Ala Val Phe Val Glu Asn Phe Gln Arg
225                 230                 235                 240

Asp Pro Thr Leu Thr Trp Gln Tyr Phe Gly Ser Ala Thr Gly Phe Phe
                245                 250                 255

Arg Ile Tyr Pro Gly Ile Lys Trp Thr Pro Asp Glu Asn Gly Val Ile
            260                 265                 270

Thr Phe Asp Cys Arg Asn Arg Gly Trp Tyr Ile Gln Ala Ala Thr Ser
        275                 280                 285

Pro Lys Asp Ile Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly
    290                 295                 300

Leu Arg Met Thr Ile Ala Lys His Thr Ile Thr Thr Ile Leu Asp Thr
305                 310                 315                 320

Leu Gly Glu Asn Asp Phe Ile Asn Ile Ile Ala Tyr Asn Asp Tyr Val
                325                 330                 335

His Tyr Ile Glu Pro Cys Phe Lys Gly Ile Leu Val Gln Ala Asp Arg
            340                 345                 350

Asp Asn Arg Glu His Phe Lys Leu Leu Val Glu Glu Leu Met Val Lys
        355                 360                 365

Gly Val Gly Val Val Asp Gln Ala Leu Arg Glu Ala Phe Gln Ile Leu
    370                 375                 380

Lys Gln Phe Gln Glu Ala Lys Gln Gly Ser Leu Cys Asn Gln Ala Ile
385                 390                 395                 400

Met Leu Ile Ser Asp Gly Ala Val Glu Asp Tyr Glu Pro Val Phe Glu
                405                 410                 415

Lys Tyr Asn Trp Pro Asp Cys Lys Val Arg Val Phe Thr Tyr Leu Ile
```

```
            420                 425                 430

Gly Arg Glu Val Ser Phe Ala Asp Arg Met Lys Trp Ile Ala Cys Asn
        435                 440                 445

Asn Lys Gly Tyr Tyr Thr Gln Ile Ser Thr Leu Ala Asp Thr Gln Glu
    450                 455                 460

Asn Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Met Val Ile Asn
465                 470                 475                 480

His Asp His Asp Ile Ile Trp Thr Glu Ala Tyr Met Asp Ser Lys Leu
                485                 490                 495

Leu Ser Ser Gln Ala Gln Ser Leu Thr Leu Leu Thr Thr Val Ala Met
            500                 505                 510

Pro Val Phe Ser Lys Lys Asn Glu Thr Arg Ser His Gly Ile Leu Leu
        515                 520                 525

Gly Val Val Gly Ser Asp Val Ala Leu Arg Glu Leu Met Lys Leu Ala
    530                 535                 540

Pro Arg Tyr Lys Leu Gly Val His Gly Tyr Ala Phe Leu Asn Thr Asn
545                 550                 555                 560

Asn Gly Tyr Ile Leu Ser His Pro Asp Leu Arg Pro Leu Tyr Arg Glu
                565                 570                 575

Gly Lys Lys Leu Lys Pro Lys Pro Asn Tyr Asn Ser Val Asp Leu Ser
            580                 585                 590

Glu Val Glu Trp Glu Asp Gln Ala Glu Ser Leu Arg Thr Ala Met Ile
        595                 600                 605

Asn Arg Glu Thr Gly Thr Leu Ser Met Asp Val Lys Val Pro Met Asp
    610                 615                 620

Lys Gly Lys Arg Val Leu Phe Leu Thr Asn Asp Tyr Phe Phe Thr Asp
625                 630                 635                 640

Ile Ser Asp Thr Pro Phe Ser Leu Gly Val Val Leu Ser Arg Gly His
                645                 650                 655
```

```
Gly Glu Tyr Ile Leu Leu Gly Asn Thr Ser Val Glu Glu Gly Leu His
            660                 665                 670

Asp Leu Leu His Pro Asp Leu Ala Leu Ala Gly Asp Trp Ile Tyr Cys
        675                 680                 685

Ile Thr Asp Ile Asp Pro Asp His Arg Lys Leu Ser Gln Leu Glu Ala
    690                 695                 700

Met Ile Arg Phe Leu Thr Arg Lys Asp Pro Asp Leu Glu Cys Asp Glu
705                 710                 715                 720

Glu Leu Val Arg Glu Val Leu Phe Asp Ala Val Val Thr Ala Pro Met
                725                 730                 735

Glu Ala Tyr Trp Thr Ala Leu Ala Leu Asn Met Ser Glu Glu Ser Glu
            740                 745                 750

His Val Val Asp Met Ala Phe Leu Gly Thr Arg Ala Gly Leu Leu Arg
        755                 760                 765

Ser Ser Leu Phe Val Gly Ser Glu Lys Val Ser Asp Arg Lys Phe Leu
    770                 775                 780

Thr Pro Glu Asp Glu Ala Ser Val Phe Thr Leu Asp Arg Phe Pro Leu
785                 790                 795                 800

Trp Tyr Arg Gln Ala Ser Glu His Pro Ala Gly Ser Phe Val Phe Asn
                805                 810                 815

Leu Arg Trp Ala Glu Gly Pro Glu Ser Ala Gly Glu Pro Met Val Val
            820                 825                 830

Thr Ala Ser Thr Ala Val Ala Val Thr Val Asp Lys Arg Thr Ala Ile
        835                 840                 845

Ala Ala Ala Ala Gly Val Gln Met Lys Leu Glu Phe Leu Gln Arg Lys
    850                 855                 860

Phe Trp Ala Ala Thr Arg Gln Cys Ser Thr Val Asp Gly Pro Cys Thr
865                 870                 875                 880
```

```
Gln Ser Cys Glu Asp Ser Asp Leu Asp Cys Phe Val Ile Asp Asn Asn
                885                 890                 895

Gly Phe Ile Leu Ile Ser Lys Arg Ser Arg Glu Thr Gly Arg Phe Leu
            900                 905                 910

Gly Glu Val Asp Gly Ala Val Leu Thr Gln Leu Leu Ser Met Gly Val
        915                 920                 925

Phe Ser Gln Val Thr Met Tyr Asp Tyr Gln Ala Met Cys Lys Pro Ser
    930                 935                 940

Ser His His His Ser Ala Ala Gln Pro Leu Val Ser Pro Ile Ser Ala
945                 950                 955                 960

Phe Leu Thr Ala Thr Arg Trp Leu Leu Gln Glu Leu Val Leu Phe Leu
                965                 970                 975

Leu Glu Trp Ser Val Trp Gly Ser Trp Tyr Asp Arg Gly Ala Glu Ala
            980                 985                 990

Lys Ser Val Phe His His Ser His  Lys His Lys Lys Gln  Asp Pro
Leu
        995                 1000                1005

Gln Pro  Cys Asp Thr Glu Tyr  Pro Val Phe Val Tyr  Gln Pro Ala
    1010                1015                1020

Ile Arg  Glu Ala Asn Gly Ile  Val Glu Cys Gly Pro  Cys Gln Lys
    1025                1030                1035

Val Phe  Val Val Gln Gln Ile  Pro Asn Ser Asn Leu  Leu Leu Leu
    1040                1045                1050

Val Thr  Asp Pro Thr Cys Asp  Cys Ser Ile Phe Pro  Pro Val Leu
    1055                1060                1065

Gln Glu  Ala Thr Glu Val Lys  Tyr Asn Ala Ser Val  Lys Cys Asp
    1070                1075                1080

Arg Met  Arg Ser Gln Lys Leu  Arg Arg Arg Pro Asp  Ser Cys His
    1085                1090                1095
```

```
Ala Phe  His Pro Glu Glu Asn  Ala Gln Asp Cys Gly  Gly Ala Ser
    1100                1105                1110


Asp Thr  Ser Ala Ser Pro Pro  Leu Leu Leu Leu Pro  Val Cys Ala
    1115                1120                1125


Trp Gly  Leu Leu Pro Gln Leu  Leu Arg
    1130                1135


<210> 10648
<211> 601
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      alpha 2/delta
      subunit 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403371"

<400> 10648
Met Val Cys Gly Cys Ser Ala Leu Leu Pro Leu Pro Asn Pro Arg Pro
1               5                  10                  15


Thr Met Pro Ala Thr Pro Asn Phe Leu Ala Asn Pro Ser Ser Ser Ser
            20                  25                  30


Arg Trp Ile Pro Leu Gln Pro Met Pro Val Ala Trp Ala Phe Val Gln
        35                  40                  45


Lys Thr Ser Ala Leu Leu Trp Leu Leu Leu Leu Gly Thr Ser Leu Ser
    50                  55                  60


Pro Ala Trp Gly Gln Ala Lys Ile Pro Leu Glu Thr Val Lys Leu Trp
65                  70                  75                  80
```

```
Ala Asp Thr Phe Gly Gly Asp Leu Tyr Asn Thr Val Thr Lys Tyr Ser
                85                  90                  95

Gly Ser Leu Leu Leu Gln Lys Lys Tyr Lys Asp Val Glu Ser Ser Leu
            100                 105                 110

Lys Ile Glu Glu Val Asp Gly Leu Glu Leu Val Arg Lys Phe Ser Glu
        115                 120                 125

Asp Met Glu Asn Met Leu Arg Arg Lys Val Glu Ala Val Gln Asn Leu
    130                 135                 140

Val Glu Ala Ala Glu Glu Ala Asp Leu Asn His Glu Phe Asn Glu Ser
145                 150                 155                 160

Leu Val Phe Asp Tyr Tyr Asn Ser Val Leu Ile Asn Glu Arg Asp Glu
                165                 170                 175

Lys Gly Asn Phe Val Glu Leu Gly Ala Glu Phe Leu Leu Glu Ser Asn
            180                 185                 190

Ala His Phe Ser Asn Leu Pro Val Asn Thr Ser Ile Ser Ser Val Gln
        195                 200                 205

Leu Pro Thr Asn Val Tyr Asn Lys Asp Pro Asp Ile Leu Asn Gly Val
    210                 215                 220

Tyr Met Ser Glu Ala Leu Asn Ala Val Phe Val Glu Asn Phe Gln Arg
225                 230                 235                 240

Asp Pro Thr Leu Thr Trp Gln Tyr Phe Gly Ser Ala Thr Gly Phe Phe
                245                 250                 255

Arg Ile Tyr Pro Gly Ile Lys Trp Thr Pro Asp Glu Asn Gly Val Ile
            260                 265                 270

Thr Phe Asp Cys Arg Asn Arg Gly Trp Tyr Ile Gln Ala Ala Thr Ser
        275                 280                 285

Pro Lys Asp Ile Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly
    290                 295                 300

Leu Arg Met Thr Ile Ala Lys His Thr Ile Thr Thr Ile Leu Asp Thr
```

305 310 315 320

Leu Gly Glu Asn Asp Phe Ile Asn Ile Ile Ala Tyr Asn Asp Tyr Val
325 330 335

His Tyr Ile Glu Pro Cys Phe Lys Gly Ile Leu Val Gln Ala Asp Arg
340 345 350

Asp Asn Arg Glu His Phe Lys Leu Leu Val Glu Glu Leu Met Val Lys
355 360 365

Gly Val Gly Val Val Asp Gln Ala Leu Arg Glu Ala Phe Gln Ile Leu
370 375 380

Lys Gln Phe Gln Glu Ala Lys Gln Gly Ser Leu Cys Asn Gln Ala Ile
385 390 395 400

Met Leu Ile Ser Asp Gly Ala Val Glu Asp Tyr Glu Pro Val Phe Glu
405 410 415

Lys Tyr Asn Trp Pro Asp Cys Lys Val Arg Val Phe Thr Tyr Leu Ile
420 425 430

Gly Arg Glu Val Ser Phe Ala Asp Arg Met Lys Trp Ile Ala Cys Asn
435 440 445

Asn Lys Gly Tyr Tyr Thr Gln Ile Ser Thr Leu Ala Asp Thr Gln Glu
450 455 460

Asn Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Met Val Ile Asn
465 470 475 480

His Asp His Asp Ile Ile Trp Thr Glu Ala Tyr Met Asp Ser Lys Leu
485 490 495

Leu Ser Ser Gln Ala Gln Ser Leu Thr Leu Leu Thr Thr Val Ala Met
500 505 510

Pro Val Phe Ser Lys Lys Asn Glu Thr Arg Ser His Gly Ile Leu Leu
515 520 525

Gly Val Val Gly Ser Asp Val Ala Leu Arg Glu Leu Met Lys Leu Ala
530 535 540

```
Pro Arg Tyr Lys Met Pro Ser Thr Asn Ser Arg Pro Asn Ala Pro Pro
545                 550                 555                 560

Pro Trp Thr Leu Ala Ala Trp Ser Ala Arg Ile Arg Leu Ser Glu His
                565                 570                 575

Gln Gln Trp Leu His Pro Leu Pro Ser Arg Pro Pro Ala Pro Val Gln
            580                 585                 590

Arg Gly Glu Glu Thr Lys Thr Gln Thr
        595                 600


<210> 10649
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
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      subunit 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000440231"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10649
Xaa Glu Leu Val Arg Glu Val Leu Phe Asp Ala Val Val Thr Ala Pro
1               5                   10                  15

Met Glu Ala Tyr Trp Thr Ala Leu Ala Leu Asn Met Ser Glu Glu Ser
            20                  25                  30

Glu His Val Val Asp Met Ala Phe Leu Gly Thr Arg Ala Gly Leu Leu
```

```
        35                  40                  45

Arg Ser Ser Leu Phe Val Gly Ser Glu Lys Val Ser Asp Arg Lys Phe
    50                  55                  60

Leu Thr Pro Glu Asp Glu Ala Ser Val Phe Thr Leu Asp Arg Phe Pro
65                  70                  75                  80

Leu Trp Tyr Arg Gln Ala Ser Glu His Pro Ala Gly Ser Phe Val Phe
                85                  90                  95

Asn Leu Arg Trp Ala Glu Gly Pro Glu Ser Ala Gly Glu Pro Met Val
            100                 105                 110

Val Thr Ala Ser Thr Ala Val Ala Val Thr Val Asp Lys Arg Thr Ala
        115                 120                 125

Ile Ala Ala Ala Ala Gly Val Gln Met Lys Leu Glu Phe Leu Gln Arg
    130                 135                 140

Lys Phe Trp Ala Ala Thr Arg Gln Cys Ser Thr Val Asp Gly Pro Cys
145                 150                 155                 160

Thr Gln Ser Cys Glu Asp Ser Asp Leu Asp Cys Phe Val Ile Asp Asn
                165                 170                 175

Asn Gly Phe Ile Leu Ile Ser Lys Arg Ser Arg Glu Ser Asp Tyr Val
            180                 185                 190


<210> 10650
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

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<223> /note="Gene Symbol: CACNA2D4; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
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      subunit 4; "
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<223> /note="Uniprot ID: Q7Z3S7; "

<220>
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<223> /note="ENSP ID: ENSP00000442329"

<400> 10650
Met Lys Leu Glu Phe Leu Gln Arg Lys Phe Trp Ala Ala Thr Arg Gln
1   5   10   15

Asp Leu Asp Cys Phe Val Ile Asp Asn Asn Gly Phe Ile Leu Ile Ser
            20   25   30

Lys Arg Ser Arg Glu Ser Asp Tyr Val
        35   40

<210> 10651
<211> 282
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
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<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
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      alpha 2/delta
      subunit 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443038"

<400> 10651
Met Lys Leu Glu Phe Leu Gln Arg Lys Phe Trp Ala Ala Thr Arg Gln
1   5   10   15

Cys Ser Thr Val Asp Gly Pro Cys Thr Gln Ser Cys Glu Asp Ser Asp
            20   25   30

Leu Asp Cys Phe Val Ile Asp Asn Asn Gly Phe Ile Leu Ile Ser Lys
        35   40   45

```
Arg Ser Arg Glu Thr Gly Arg Phe Leu Gly Glu Val Asp Gly Ala Val
    50                  55                  60

Leu Thr Gln Leu Leu Ser Met Gly Val Phe Ser Gln Val Thr Met Tyr
65                  70                  75                  80

Asp Tyr Gln Ala Met Cys Lys Pro Ser Ser His His His Ser Ala Ala
                85                  90                  95

Gln Pro Leu Val Ser Pro Ile Ser Ala Phe Leu Thr Ala Thr Arg Trp
            100                 105                 110

Leu Leu Gln Glu Leu Val Leu Phe Leu Leu Glu Trp Ser Val Trp Gly
        115                 120                 125

Ser Trp Tyr Asp Arg Gly Ala Glu Ala Lys Ser Val Phe His His Ser
    130                 135                 140

His Lys His Lys Lys Gln Asp Pro Leu Gln Pro Cys Asp Thr Glu Tyr
145                 150                 155                 160

Pro Val Phe Val Tyr Gln Pro Ala Ile Arg Glu Ala Asn Gly Ile Val
                165                 170                 175

Glu Cys Gly Pro Cys Gln Lys Val Phe Val Val Gln Gln Ile Pro Asn
            180                 185                 190

Ser Asn Leu Leu Leu Leu Val Thr Asp Pro Thr Cys Asp Cys Ser Ile
        195                 200                 205

Phe Pro Pro Val Leu Gln Glu Ala Thr Glu Val Lys Tyr Asn Ala Ser
    210                 215                 220

Val Lys Cys Asp Arg Met Arg Ser Gln Lys Leu Arg Arg Arg Pro Asp
225                 230                 235                 240

Ser Cys His Ala Phe His Pro Glu Glu Asn Ala Gln Asp Cys Gly Gly
                245                 250                 255

Ala Ser Asp Thr Ser Ala Ser Pro Pro Leu Leu Leu Leu Pro Val Cys
            260                 265                 270
```

Ala Trp Gly Leu Leu Pro Gln Leu Leu Arg
        275   280

<210> 10652
<211> 267
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      alpha 2/delta
      subunit 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446341"

<400> 10652
Met Lys Leu Glu Phe Leu Gln Arg Lys Phe Trp Ala Ala Thr Arg Gln
1   5   10   15

Asp Leu Asp Cys Phe Val Ile Asp Asn Asn Gly Phe Ile Leu Ile Ser
            20   25   30

Lys Arg Ser Arg Glu Thr Gly Arg Phe Leu Gly Glu Val Asp Gly Ala
        35   40   45

Val Leu Thr Gln Leu Leu Ser Met Gly Val Phe Ser Gln Val Thr Met
    50   55   60

Tyr Asp Tyr Gln Ala Met Cys Lys Pro Ser Ser His His His Ser Ala
65   70   75   80

Ala Gln Pro Leu Val Ser Pro Ile Ser Ala Phe Leu Thr Ala Thr Arg
                85   90   95

Trp Leu Leu Gln Glu Leu Val Leu Phe Leu Leu Glu Trp Ser Val Trp
            100   105   110

Gly Ser Trp Tyr Asp Arg Gly Ala Glu Ala Lys Ser Val Phe His His

```
        115                 120                 125

Ser His Lys His Lys Lys Gln Asp Pro Leu Gln Pro Cys Asp Thr Glu
    130                 135                 140

Tyr Pro Val Phe Val Tyr Gln Pro Ala Ile Arg Glu Ala Asn Gly Ile
145                 150                 155                 160

Val Glu Cys Gly Pro Cys Gln Lys Val Phe Val Val Gln Gln Ile Pro
                165                 170                 175

Asn Ser Asn Leu Leu Leu Leu Val Thr Asp Pro Thr Cys Asp Cys Ser
            180                 185                 190

Ile Phe Pro Pro Val Leu Gln Glu Ala Thr Glu Val Lys Tyr Asn Ala
        195                 200                 205

Ser Val Lys Cys Asp Arg Met Arg Ser Gln Lys Leu Arg Arg Arg Pro
    210                 215                 220

Asp Ser Cys His Ala Phe His Pro Glu Glu Asn Ala Gln Asp Cys Gly
225                 230                 235                 240

Gly Ala Ser Asp Thr Ser Ala Ser Pro Pro Leu Leu Leu Leu Pro Val
                245                 250                 255

Cys Ala Trp Gly Leu Leu Pro Gln Leu Leu Arg
            260                 265


<210> 10653
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      alpha 2/delta
      subunit 4; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000464949"

<400> 10653
Met Lys Leu Glu Phe Leu Gln Arg Lys Phe Trp Ala Ala Thr Arg Gln
1   5   10   15

Cys Ser Thr Val Asp Gly Pro Cys Thr Gln Ser Cys Glu Asp Ser Asp
            20   25   30

Leu Asp Cys Phe Val Ile Asp Asn Asn Gly Phe Ile Leu Ile Ser Lys
        35   40   45

Arg Ser Arg Glu Ser Asp Tyr Val
    50   55

<210> 10654
<211> 1154
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
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      subunit 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q7Z3S7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465060"

<400> 10654
Met Val Cys Gly Cys Ser Ala Leu Leu Pro Leu Pro Asn Pro Arg Pro
1   5   10   15

Thr Met Pro Ala Thr Pro Asn Phe Leu Ala Asn Pro Ser Ser Ser Ser
            20   25   30

```
Arg Trp Ile Pro Leu Gln Pro Met Pro Val Ala Trp Ala Phe Val Gln
        35                  40                  45

Lys Thr Ser Ala Leu Leu Trp Leu Leu Leu Leu Gly Thr Ser Leu Ser
    50                  55                  60

Pro Ala Trp Gly Gln Ala Lys Ile Pro Leu Glu Thr Val Lys Leu Trp
65                  70                  75                  80

Ala Asp Thr Phe Gly Gly Asp Leu Tyr Asn Thr Val Thr Lys Tyr Ser
                85                  90                  95

Gly Ser Leu Leu Leu Gln Lys Lys Tyr Lys Asp Val Glu Ser Ser Leu
            100                 105                 110

Lys Ile Glu Glu Val Asp Gly Leu Glu Leu Val Arg Lys Phe Ser Glu
        115                 120                 125

Asp Met Glu Asn Met Leu Arg Arg Lys Val Glu Ala Val Gln Asn Leu
    130                 135                 140

Val Glu Ala Ala Glu Glu Ala Asp Leu Asn His Glu Phe Asn Glu Ser
145                 150                 155                 160

Leu Val Phe Asp Tyr Tyr Asn Ser Val Leu Ile Asn Glu Arg Asp Glu
                165                 170                 175

Lys Gly Asn Phe Val Glu Leu Gly Ala Glu Phe Leu Leu Glu Ser Asn
            180                 185                 190

Ala His Phe Ser Asn Leu Pro Val Asn Thr Ser Ile Ser Ser Val Gln
        195                 200                 205

Leu Pro Thr Asn Val Tyr Asn Lys Asp Pro Asp Ile Leu Asn Gly Val
    210                 215                 220

Tyr Met Ser Glu Ala Leu Asn Ala Val Phe Val Glu Asn Phe Gln Arg
225                 230                 235                 240

Asp Pro Thr Leu Thr Trp Gln Tyr Phe Gly Ser Ala Thr Gly Phe Phe
                245                 250                 255
```

```
Arg Ile Tyr Pro Gly Ile Lys Trp Thr Pro Asp Glu Asn Gly Val Ile
            260                 265                 270

Thr Phe Asp Cys Arg Asn Arg Gly Trp Tyr Ile Gln Ala Ala Thr Ser
        275                 280                 285

Pro Lys Asp Ile Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly
    290                 295                 300

Leu Arg Met Thr Ile Ala Lys His Thr Ile Thr Thr Ile Leu Asp Thr
305                 310                 315                 320

Leu Gly Glu Asn Asp Phe Ile Asn Ile Ile Ala Tyr Asn Asp Tyr Val
                325                 330                 335

His Tyr Ile Glu Pro Cys Phe Lys Gly Ile Leu Val Gln Ala Asp Arg
            340                 345                 350

Asp Asn Arg Glu His Phe Lys Leu Leu Val Glu Glu Leu Met Val Lys
        355                 360                 365

Gly Val Gly Val Val Asp Gln Ala Leu Arg Glu Ala Phe Gln Ile Leu
    370                 375                 380

Lys Gln Phe Gln Glu Ala Lys Gln Gly Ser Leu Cys Asn Gln Ala Ile
385                 390                 395                 400

Met Leu Ile Ser Asp Gly Ala Val Glu Asp Tyr Glu Pro Val Phe Glu
                405                 410                 415

Lys Tyr Asn Trp Pro Asp Cys Lys Val Arg Val Phe Thr Tyr Leu Ile
            420                 425                 430

Gly Arg Glu Val Ser Phe Ala Asp Arg Met Lys Trp Ile Ala Cys Asn
        435                 440                 445

Asn Lys Gly Tyr Tyr Thr Gln Ile Ser Thr Leu Ala Asp Thr Gln Glu
    450                 455                 460

Asn Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Met Val Ile Asn
465                 470                 475                 480

His Asp His Asp Ile Ile Trp Thr Glu Ala Tyr Met Asp Ser Lys Leu
```

485 490 495

Leu Ser Ser Gln Ala Gln Ser Leu Thr Leu Leu Thr Thr Val Ala Met
500 505 510

Pro Val Phe Ser Lys Lys Asn Glu Thr Arg Ser His Gly Ile Leu Leu
515 520 525

Gly Val Val Gly Ser Asp Val Ala Leu Arg Glu Leu Met Lys Leu Ala
530 535 540

Pro Arg Tyr Lys Leu Gly Val His Gly Tyr Ala Phe Leu Asn Thr Asn
545 550 555 560

Asn Gly Tyr Ile Leu Ser His Pro Asp Leu Arg Pro Leu Tyr Arg Glu
565 570 575

Gly Lys Lys Leu Lys Pro Lys Pro Asn Tyr Asn Ser Val Asp Leu Ser
580 585 590

Glu Val Glu Trp Glu Asp Gln Ala Glu Ser Leu Arg Thr Ala Met Ile
595 600 605

Asn Arg Glu Thr Gly Thr Leu Ser Met Asp Val Lys Val Pro Met Asp
610 615 620

Lys Gly Lys Arg Val Leu Phe Leu Thr Asn Asp Tyr Phe Phe Thr Asp
625 630 635 640

Ile Ser Asp Thr Pro Phe Ser Leu Gly Val Val Leu Ser Arg Gly His
645 650 655

Gly Glu Tyr Ile Leu Leu Gly Asn Thr Ser Val Glu Glu Gly Leu His
660 665 670

Asp Leu Leu His Pro Asp Leu Ala Leu Ala Gly Asp Trp Ile Tyr Cys
675 680 685

Ile Thr Asp Ile Asp Pro Asp His Arg Lys Leu Ser Gln Leu Glu Ala
690 695 700

Met Ile Arg Phe Leu Thr Arg Lys Asp Pro Asp Leu Glu Cys Asp Glu
705 710 715 720

```
Glu Leu Val Arg Glu Val Leu Phe Asp Ala Val Val Thr Ala Pro Met
                725                 730                 735

Glu Ala Tyr Trp Thr Ala Leu Ala Leu Asn Met Ser Glu Glu Ser Glu
            740                 745                 750

His Val Val Asp Met Ala Phe Leu Gly Thr Arg Ala Gly Leu Leu Arg
        755                 760                 765

Ser Ser Leu Phe Val Gly Ser Glu Lys Val Ser Asp Arg Lys Phe Leu
    770                 775                 780

Thr Pro Glu Asp Glu Ala Ser Val Phe Thr Leu Asp Arg Phe Pro Leu
785                 790                 795                 800

Trp Tyr Arg Gln Ala Ser Glu His Pro Ala Gly Ser Phe Val Phe Asn
                805                 810                 815

Leu Arg Trp Ala Glu Gly Pro Glu Ser Ala Gly Glu Pro Met Val Val
            820                 825                 830

Thr Ala Ser Thr Ala Val Ala Val Thr Val Asp Lys Arg Thr Ala Ile
        835                 840                 845

Ala Ala Ala Ala Gly Val Gln Met Lys Leu Glu Phe Leu Gln Arg Lys
    850                 855                 860

Phe Trp Ala Ala Thr Arg Gln Cys Ser Thr Val Asp Gly Pro Cys Thr
865                 870                 875                 880

Gln Ser Cys Glu Asp Ser Asp Leu Asp Cys Phe Val Ile Asp Asn Asn
                885                 890                 895

Gly Phe Ile Leu Ile Ser Lys Arg Ser Arg Glu Thr Gly Arg Phe Leu
            900                 905                 910

Gly Glu Val Asp Gly Ala Val Leu Thr Gln Leu Leu Ser Met Gly Val
        915                 920                 925

Phe Ser Gln Val Thr Met Tyr Asp Tyr Gln Ala Met Cys Lys Pro Ser
    930                 935                 940
```

```
Ser His His His Ser Ala Ala Gln Pro Leu Val Ser Pro Ile Ser Ala
945                 950                 955                 960

Phe Leu Thr Ala Thr Arg Trp Leu Leu Gln Glu Leu Val Leu Phe Leu
                965                 970                 975

Leu Glu Trp Ser Val Trp Gly Ser Trp Tyr Asp Arg Gly Ala Glu Ala
            980                 985                 990

Lys Ser Val Phe His His Ser His  Lys His Lys Lys Gln  Asp Pro
Leu
        995                 1000                1005

Gln Pro  Cys Asp Thr Glu Tyr  Pro Val Phe Val Tyr  Gln Pro Ala
    1010                1015                1020

Ile Arg  Glu Ala Asn Gly Ile  Val Glu Cys Gly Pro  Cys Gln Lys
    1025                1030                1035

Val Phe  Val Val Gln Gln Ile  Pro Asn Ser Asn Leu  Leu Leu Leu
    1040                1045                1050

Val Thr  Asp Pro Thr Cys Asp  Cys Ser Ile Phe Pro  Pro Val Leu
    1055                1060                1065

Gln Glu  Ala Thr Glu Val Lys  Tyr Asn Ala Ser Val  Lys Cys Asp
    1070                1075                1080

Arg Met  Arg Ser Gln Lys Leu  Arg Arg Arg Pro Asp  Ser Cys His
    1085                1090                1095

Ala Phe  His Pro Glu Val Arg  Val Glu Ala Asp Arg  Gly Trp Ala
    1100                1105                1110

Gly Phe  Ser Ser Pro Asn Pro  Leu Cys Leu Gly Leu  Cys Pro Cys
    1115                1120                1125

Arg Gln  Glu His Ile Gly Met  Pro Met Asn Thr Pro  Val Pro Val
    1130                1135                1140

Leu Leu  Gly Gly Asn Ile Arg  Val Tyr Ala Leu
    1145                1150
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<210> 10655
<211> 1112
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 4; "

<220>
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<223> /note="ENSP ID: ENSP00000465372"

<400> 10655
Met Val Cys Gly Cys Ser Ala Leu Leu Pro Leu Pro Asn Pro Arg Pro
1 5 10 15

Thr Met Pro Ala Thr Pro Asn Phe Leu Ala Asn Pro Ser Ser Ser Ser
20 25 30

Arg Trp Ile Pro Leu Gln Pro Met Pro Val Ala Trp Ala Phe Val Gln
35 40 45

Lys Thr Ser Ala Leu Leu Trp Leu Leu Leu Leu Gly Thr Ser Leu Ser
50 55 60

Pro Ala Trp Gly Gln Ala Lys Ile Pro Leu Glu Thr Val Lys Leu Trp
65 70 75 80

Ala Asp Thr Phe Gly Gly Asp Leu Tyr Asn Thr Val Thr Lys Tyr Ser
85 90 95

Gly Ser Leu Leu Leu Gln Lys Lys Tyr Lys Asp Val Glu Ser Ser Leu
100 105 110

Lys Ile Glu Glu Val Asp Gly Leu Glu Leu Val Arg Lys Phe Ser Glu
115 120 125

```
Asp Met Glu Asn Met Leu Arg Arg Lys Val Glu Ala Val Gln Asn Leu
    130                 135                 140

Val Glu Ala Ala Glu Glu Ala Asp Leu Asn His Glu Phe Asn Glu Ser
145                 150                 155                 160

Leu Val Phe Asp Tyr Tyr Asn Ser Val Leu Ile Asn Glu Arg Asp Glu
                165                 170                 175

Lys Gly Asn Phe Val Glu Leu Gly Ala Glu Phe Leu Leu Glu Ser Asn
            180                 185                 190

Ala His Phe Ser Asn Leu Pro Val Asn Thr Ser Ile Ser Ser Val Gln
        195                 200                 205

Leu Pro Thr Asn Val Tyr Asn Lys Asp Pro Asp Ile Leu Asn Gly Val
    210                 215                 220

Tyr Met Ser Glu Ala Leu Asn Ala Val Phe Val Glu Asn Phe Gln Arg
225                 230                 235                 240

Asp Pro Thr Leu Thr Trp Gln Tyr Phe Gly Ser Ala Thr Gly Phe Phe
                245                 250                 255

Arg Ile Tyr Pro Gly Ile Lys Trp Thr Pro Asp Glu Asn Gly Val Ile
            260                 265                 270

Thr Phe Asp Cys Arg Asn Arg Gly Trp Tyr Ile Gln Ala Ala Thr Ser
        275                 280                 285

Pro Lys Asp Ile Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly
    290                 295                 300

Leu Arg Met Thr Ile Ala Lys His Thr Ile Thr Thr Ile Leu Asp Thr
305                 310                 315                 320

Leu Gly Glu Asn Asp Phe Ile Asn Ile Ile Ala Tyr Asn Asp Tyr Val
                325                 330                 335

His Tyr Ile Glu Pro Cys Phe Lys Gly Ile Leu Val Gln Ala Asp Arg
            340                 345                 350

Asp Asn Arg Glu His Phe Lys Leu Leu Val Glu Glu Leu Met Val Lys
```

```
        355                 360                 365

Gly Val Gly Val Val Asp Gln Ala Leu Arg Glu Ala Phe Gln Ile Leu
    370                 375                 380

Lys Gln Phe Gln Glu Ala Lys Gln Gly Ser Leu Cys Asn Gln Ala Ile
385                 390                 395                 400

Met Leu Ile Ser Asp Gly Ala Val Glu Asp Tyr Glu Pro Val Phe Glu
                405                 410                 415

Lys Tyr Asn Trp Pro Asp Cys Lys Val Arg Val Phe Thr Tyr Leu Ile
            420                 425                 430

Gly Arg Glu Val Ser Phe Ala Asp Arg Met Lys Trp Ile Ala Cys Asn
        435                 440                 445

Asn Lys Gly Tyr Tyr Thr Gln Ile Ser Thr Leu Ala Asp Thr Gln Glu
    450                 455                 460

Asn Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Met Val Ile Asn
465                 470                 475                 480

His Asp His Asp Ile Ile Trp Thr Glu Ala Tyr Met Asp Ser Lys Leu
                485                 490                 495

Leu Ser Ser Gln Ala Gln Ser Leu Thr Leu Leu Thr Thr Val Ala Met
            500                 505                 510

Pro Val Phe Ser Lys Lys Asn Glu Thr Arg Ser His Gly Ile Leu Leu
        515                 520                 525

Gly Val Val Gly Ser Asp Val Ala Leu Arg Glu Leu Met Lys Leu Ala
    530                 535                 540

Pro Arg Tyr Lys Tyr Arg Glu Gly Lys Lys Leu Lys Pro Lys Pro Asn
545                 550                 555                 560

Tyr Asn Ser Val Asp Leu Ser Glu Val Glu Trp Glu Asp Gln Ala Glu
                565                 570                 575

Ser Leu Arg Thr Ala Met Ile Asn Arg Glu Thr Gly Thr Leu Ser Met
            580                 585                 590
```

```
Asp Val Lys Val Pro Met Asp Lys Gly Lys Arg Val Leu Phe Leu Thr
        595                 600                 605

Asn Asp Tyr Phe Phe Thr Asp Ile Ser Asp Thr Pro Phe Ser Leu Gly
    610                 615                 620

Val Val Leu Ser Arg Gly His Gly Glu Tyr Ile Leu Leu Gly Asn Thr
625                 630                 635                 640

Ser Val Glu Glu Gly Leu His Asp Leu Leu His Pro Asp Leu Ala Leu
                645                 650                 655

Ala Gly Asp Trp Ile Tyr Cys Ile Thr Asp Ile Asp Pro Asp His Arg
            660                 665                 670

Lys Leu Ser Gln Leu Glu Ala Met Ile Arg Phe Leu Thr Arg Lys Asp
        675                 680                 685

Pro Asp Leu Glu Cys Asp Glu Glu Leu Val Arg Glu Val Leu Phe Asp
    690                 695                 700

Ala Val Val Thr Ala Pro Met Glu Ala Tyr Trp Thr Ala Leu Ala Leu
705                 710                 715                 720

Asn Met Ser Glu Glu Ser Glu His Val Val Asp Met Ala Phe Leu Gly
                725                 730                 735

Thr Arg Ala Gly Leu Leu Arg Ser Ser Leu Phe Val Gly Ser Glu Lys
            740                 745                 750

Val Ser Asp Arg Lys Phe Leu Thr Pro Glu Asp Glu Ala Ser Val Phe
        755                 760                 765

Thr Leu Asp Arg Phe Pro Leu Trp Tyr Arg Gln Ala Ser Glu His Pro
    770                 775                 780

Ala Gly Ser Phe Val Phe Asn Leu Arg Trp Ala Glu Gly Pro Glu Ser
785                 790                 795                 800

Ala Gly Glu Pro Met Val Val Thr Ala Ser Thr Ala Val Ala Val Thr
                805                 810                 815
```

```
Val Asp Lys Arg Thr Ala Ile Ala Ala Ala Ala Gly Val Gln Met Lys
            820                 825                 830

Leu Glu Phe Leu Gln Arg Lys Phe Trp Ala Ala Thr Arg Gln Cys Ser
        835                 840                 845

Thr Val Asp Gly Pro Cys Thr Gln Ser Cys Glu Asp Ser Asp Leu Asp
    850                 855                 860

Cys Phe Val Ile Asp Asn Asn Gly Phe Ile Leu Ile Ser Lys Arg Ser
865                 870                 875                 880

Arg Glu Thr Gly Arg Phe Leu Gly Glu Val Asp Gly Ala Val Leu Thr
                885                 890                 895

Gln Leu Leu Ser Met Gly Val Phe Ser Gln Val Thr Met Tyr Asp Tyr
            900                 905                 910

Gln Ala Met Cys Lys Pro Ser Ser His His His Ser Ala Ala Gln Pro
        915                 920                 925

Leu Val Ser Pro Ile Ser Ala Phe Leu Thr Ala Thr Arg Trp Leu Leu
    930                 935                 940

Gln Glu Leu Val Leu Phe Leu Leu Glu Trp Ser Val Trp Gly Ser Trp
945                 950                 955                 960

Tyr Asp Arg Gly Ala Glu Ala Lys Ser Val Phe His His Ser His Lys
                965                 970                 975

His Lys Lys Gln Asp Pro Leu Gln Pro Cys Asp Thr Glu Tyr Pro Val
            980                 985                 990

Phe Val Tyr Gln Pro Ala Ile Arg  Glu Ala Asn Gly Ile  Val Glu
Cys
        995                 1000                1005

Gly Pro  Cys Gln Lys Val Phe  Val Val Gln Gln Ile  Pro Asn Ser
    1010                1015                1020

Asn Leu  Leu Leu Leu Val Thr  Asp Pro Thr Cys Asp  Cys Ser Ile
    1025                1030                1035
```

```
Phe Pro  Pro Val Leu Gln Glu  Ala Thr Glu Val Lys  Tyr Asn Ala
    1040                1045                1050

Ser Val  Lys Cys Asp Arg Met  Arg Ser Gln Lys Leu  Arg Arg Arg
    1055                1060                1065

Pro Asp  Ser Cys His Ala Phe  His Pro Glu Glu Asn  Ala Gln Asp
    1070                1075                1080

Cys Gly  Gly Ala Ser Asp Thr  Ser Ala Ser Pro Pro  Leu Leu Leu
    1085                1090                1095

Leu Pro  Val Cys Ala Trp Gly  Leu Leu Pro Gln Leu  Leu Arg
    1100                1105                1110


<210> 10656
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      alpha 2/delta
      subunit 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000467333"

<400> 10656
Met Lys Leu Glu Phe Leu Gln Arg Lys Phe Trp Ala Ala Thr Arg Gln
1               5                  10                  15

Cys Ser Thr Val Asp Gly Pro Cys Thr Gln Ser Cys Glu Asp Ser Asp
            20                  25                  30

Leu Asp Cys Phe Val Ile Asp Asn Asn Gly Phe Ile Leu Ile Ser Lys
        35                  40                  45
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Arg Ser Arg Glu Ser Asp Tyr Val
50 55

<210> 10657
<211> 1090
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
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alpha 2/delta
subunit 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q7Z3S7; "

<220>
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<223> /note="ENSP ID: ENSP00000467697"

<400> 10657
Met Ala Val Ala Leu Gly Thr Arg Arg Arg Asp Arg Val Lys Leu Trp
1 5 10 15

Ala Asp Thr Phe Gly Gly Asp Leu Tyr Asn Thr Val Thr Lys Tyr Ser
20 25 30

Gly Ser Leu Leu Leu Gln Lys Lys Tyr Lys Asp Val Glu Ser Ser Leu
35 40 45

Lys Ile Glu Glu Val Asp Gly Leu Glu Leu Val Arg Lys Phe Ser Glu
50 55 60

Asp Met Glu Asn Met Leu Arg Arg Lys Val Glu Ala Val Gln Asn Leu
65 70 75 80

Val Glu Ala Ala Glu Glu Ala Asp Leu Asn His Glu Phe Asn Glu Ser
85 90 95

Leu Val Phe Asp Tyr Tyr Asn Ser Val Leu Ile Asn Glu Arg Asp Glu

```
            100                 105                 110

Lys Gly Asn Phe Val Glu Leu Gly Ala Glu Phe Leu Leu Glu Ser Asn
        115                 120                 125

Ala His Phe Ser Asn Leu Pro Val Asn Thr Ser Ile Ser Ser Val Gln
    130                 135                 140

Leu Pro Thr Asn Val Tyr Asn Lys Asp Pro Asp Ile Leu Asn Gly Val
145                 150                 155                 160

Tyr Met Ser Glu Ala Leu Asn Ala Val Phe Val Glu Asn Phe Gln Arg
                165                 170                 175

Asp Pro Thr Leu Thr Trp Gln Tyr Phe Gly Ser Ala Thr Gly Phe Phe
            180                 185                 190

Arg Ile Tyr Pro Gly Ile Lys Trp Thr Pro Asp Glu Asn Gly Val Ile
        195                 200                 205

Thr Phe Asp Cys Arg Asn Arg Gly Trp Tyr Ile Gln Ala Ala Thr Ser
    210                 215                 220

Pro Lys Asp Ile Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly
225                 230                 235                 240

Leu Arg Met Thr Ile Ala Lys His Thr Ile Thr Thr Ile Leu Asp Thr
                245                 250                 255

Leu Gly Glu Asn Asp Phe Ile Asn Ile Ile Ala Tyr Asn Asp Tyr Val
            260                 265                 270

His Tyr Ile Glu Pro Cys Phe Lys Gly Ile Leu Val Gln Ala Asp Arg
        275                 280                 285

Asp Asn Arg Glu His Phe Lys Leu Leu Val Glu Glu Leu Met Val Lys
    290                 295                 300

Gly Val Gly Val Val Asp Gln Ala Leu Arg Glu Ala Phe Gln Ile Leu
305                 310                 315                 320

Lys Gln Phe Gln Glu Ala Lys Gln Gly Ser Leu Cys Asn Gln Ala Ile
                325                 330                 335
```

Met Leu Ile Ser Asp Gly Ala Val Glu Asp Tyr Glu Pro Val Phe Glu
340 345 350

Lys Tyr Asn Trp Pro Asp Cys Lys Val Arg Val Phe Thr Tyr Leu Ile
355 360 365

Gly Arg Glu Val Ser Phe Ala Asp Arg Met Lys Trp Ile Ala Cys Asn
370 375 380

Asn Lys Gly Tyr Tyr Thr Gln Ile Ser Thr Leu Ala Asp Thr Gln Glu
385 390 395 400

Asn Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Met Val Ile Asn
405 410 415

His Asp His Asp Ile Ile Trp Thr Glu Ala Tyr Met Asp Ser Lys Leu
420 425 430

Leu Ser Ser Gln Ala Gln Ser Leu Thr Leu Leu Thr Thr Val Ala Met
435 440 445

Pro Val Phe Ser Lys Lys Asn Glu Thr Arg Ser His Gly Ile Leu Leu
450 455 460

Gly Val Val Gly Ser Asp Val Ala Leu Arg Glu Leu Met Lys Leu Ala
465 470 475 480

Pro Arg Tyr Lys Leu Gly Val His Gly Tyr Ala Phe Leu Asn Thr Asn
485 490 495

Asn Gly Tyr Ile Leu Ser His Pro Asp Leu Arg Pro Leu Tyr Arg Glu
500 505 510

Gly Lys Lys Leu Lys Pro Lys Pro Asn Tyr Asn Ser Val Asp Leu Ser
515 520 525

Glu Val Glu Trp Glu Asp Gln Ala Glu Ser Leu Arg Thr Ala Met Ile
530 535 540

Asn Arg Glu Thr Gly Thr Leu Ser Met Asp Val Lys Val Pro Met Asp
545 550 555 560

Lys Gly Lys Arg Val Leu Phe Leu Thr Asn Asp Tyr Phe Phe Thr Asp
565 570 575

Ile Ser Asp Thr Pro Phe Ser Leu Gly Val Val Leu Ser Arg Gly His
580 585 590

Gly Glu Tyr Ile Leu Leu Gly Asn Thr Ser Val Glu Glu Gly Leu His
595 600 605

Asp Leu Leu His Pro Asp Leu Ala Leu Ala Gly Asp Trp Ile Tyr Cys
610 615 620

Ile Thr Asp Ile Asp Pro Asp His Arg Lys Leu Ser Gln Leu Glu Ala
625 630 635 640

Met Ile Arg Phe Leu Thr Arg Lys Asp Pro Asp Leu Glu Cys Asp Glu
645 650 655

Glu Leu Val Arg Glu Val Leu Phe Asp Ala Val Val Thr Ala Pro Met
660 665 670

Glu Ala Tyr Trp Thr Ala Leu Ala Leu Asn Met Ser Glu Glu Ser Glu
675 680 685

His Val Val Asp Met Ala Phe Leu Gly Thr Arg Ala Gly Leu Leu Arg
690 695 700

Ser Ser Leu Phe Val Gly Ser Glu Lys Val Ser Asp Arg Lys Phe Leu
705 710 715 720

Thr Pro Glu Asp Glu Ala Ser Val Phe Thr Leu Asp Arg Phe Pro Leu
725 730 735

Trp Tyr Arg Gln Ala Ser Glu His Pro Ala Gly Ser Phe Val Phe Asn
740 745 750

Leu Arg Trp Ala Glu Gly Pro Glu Ser Ala Gly Glu Pro Met Val Val
755 760 765

Thr Ala Ser Thr Ala Val Ala Val Thr Val Asp Lys Arg Thr Ala Ile
770 775 780

```
Ala Ala Ala Ala Gly Val Gln Met Lys Leu Glu Phe Leu Gln Arg Lys
785                 790                 795                 800

Phe Trp Ala Ala Thr Arg Gln Cys Ser Thr Val Asp Gly Pro Cys Thr
                805                 810                 815

Gln Ser Cys Glu Asp Ser Asp Leu Asp Cys Phe Val Ile Asp Asn Asn
            820                 825                 830

Gly Phe Ile Leu Ile Ser Lys Arg Ser Arg Glu Thr Gly Arg Phe Leu
        835                 840                 845

Gly Glu Val Asp Gly Ala Val Leu Thr Gln Leu Leu Ser Met Gly Val
    850                 855                 860

Phe Ser Gln Val Thr Met Tyr Asp Tyr Gln Ala Met Cys Lys Pro Ser
865                 870                 875                 880

Ser His His His Ser Ala Ala Gln Pro Leu Val Ser Pro Ile Ser Ala
                885                 890                 895

Phe Leu Thr Ala Thr Arg Trp Leu Leu Gln Glu Leu Val Leu Phe Leu
            900                 905                 910

Leu Glu Trp Ser Val Trp Gly Ser Trp Tyr Asp Arg Gly Ala Glu Ala
        915                 920                 925

Lys Ser Val Phe His His Ser His Lys His Lys Lys Gln Asp Pro Leu
    930                 935                 940

Gln Pro Cys Asp Thr Glu Tyr Pro Val Phe Val Tyr Gln Pro Ala Ile
945                 950                 955                 960

Arg Glu Ala Asn Gly Ile Val Glu Cys Gly Pro Cys Gln Lys Val Phe
                965                 970                 975

Val Val Gln Gln Ile Pro Asn Ser Asn Leu Leu Leu Leu Val Thr Asp
            980                 985                 990

Pro Thr Cys Asp Cys Ser Ile Phe  Pro Pro Val Leu Gln  Glu Ala
Thr
        995                 1000                1005
```

```
Glu Val  Lys Tyr Asn Ala Ser  Val Lys Cys Asp Arg  Met Arg Ser
    1010                1015                1020

Gln Lys  Leu Arg Arg Arg Pro  Asp Ser Cys His Ala  Phe His Pro
    1025                1030                1035

Glu Val  Arg Val Glu Ala Asp  Arg Gly Trp Ala Gly  Phe Ser Ser
    1040                1045                1050

Pro Asn  Pro Leu Cys Leu Gly  Leu Cys Pro Cys Arg  Gln Glu His
    1055                1060                1065

Ile Gly  Met Pro Met Asn Thr  Pro Val Pro Val Leu  Leu Gly Gly
    1070                1075                1080

Asn Ile  Arg Val Tyr Ala Leu
    1085                1090
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<210> 10658
<211> 780
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468080"

<400> 10658

```
Met Val Cys Gly Cys Ser Ala Leu Leu Pro Leu Pro Asn Pro Arg Pro
1               5                  10                  15

Thr Met Pro Ala Thr Pro Asn Phe Leu Ala Asn Pro Ser Ser Ser Ser
            20                  25                  30

Arg Trp Ile Pro Leu Gln Pro Met Pro Val Ala Trp Ala Phe Val Gln
```

```
        35                  40                  45

Lys Thr Ser Ala Leu Leu Trp Leu Leu Leu Leu Gly Thr Ser Leu Ser
    50                  55                  60

Pro Ala Trp Gly Gln Ala Lys Ile Pro Leu Glu Thr Val Lys Leu Trp
65                  70                  75                  80

Ala Asp Thr Phe Gly Gly Asp Leu Tyr Asn Thr Val Thr Lys Tyr Ser
                85                  90                  95

Gly Ser Leu Leu Leu Gln Lys Lys Tyr Lys Asp Val Glu Ser Ser Leu
            100                 105                 110

Lys Ile Glu Glu Val Asp Gly Leu Glu Leu Val Arg Lys Phe Ser Glu
        115                 120                 125

Asp Met Glu Asn Met Leu Arg Arg Lys Val Glu Ala Val Gln Asn Leu
    130                 135                 140

Val Glu Ala Ala Glu Glu Ala Asp Leu Asn His Glu Phe Asn Glu Ser
145                 150                 155                 160

Leu Val Phe Asp Tyr Tyr Asn Ser Val Leu Ile Asn Glu Arg Asp Glu
                165                 170                 175

Lys Gly Asn Phe Val Glu Leu Gly Ala Glu Phe Leu Leu Glu Ser Asn
            180                 185                 190

Ala His Phe Ser Asn Leu Pro Val Asn Thr Ser Ile Ser Ser Val Gln
        195                 200                 205

Leu Pro Thr Asn Val Tyr Asn Lys Asp Pro Asp Ile Leu Asn Gly Val
    210                 215                 220

Tyr Met Ser Glu Ala Leu Asn Ala Val Phe Val Glu Asn Phe Gln Arg
225                 230                 235                 240

Asp Pro Thr Leu Thr Trp Gln Tyr Phe Gly Ser Ala Thr Gly Phe Phe
                245                 250                 255

Arg Ile Tyr Pro Gly Ile Leu Val Gln Ala Asp Arg Asp Asn Arg Glu
            260                 265                 270
```

```
His Phe Lys Leu Leu Val Glu Glu Leu Met Val Lys Gly Val Gly Val
        275                 280                 285

Val Asp Gln Ala Leu Arg Glu Ala Phe Gln Ile Leu Lys Gln Phe Gln
    290                 295                 300

Glu Ala Lys Gln Gly Ser Leu Cys Asn Gln Ala Ile Met Leu Ile Ser
305                 310                 315                 320

Asp Gly Ala Val Glu Asp Tyr Glu Pro Val Phe Glu Lys Tyr Asn Trp
                325                 330                 335

Pro Asp Cys Lys Ile Ser Thr Leu Ala Asp Thr Gln Glu Asn Val Met
            340                 345                 350

Glu Tyr Leu His Val Leu Ser Arg Pro Met Val Ile Asn His Asp His
        355                 360                 365

Asp Ile Ile Trp Thr Glu Ala Tyr Met Asp Ser Lys Leu Leu Ser Ser
    370                 375                 380

Gln Ala Gln Ser Leu Thr Leu Leu Thr Thr Val Ala Met Pro Val Phe
385                 390                 395                 400

Ser Lys Lys Asn Glu Thr Arg Ser His Gly Ile Leu Leu Gly Val Val
                405                 410                 415

Gly Ser Asp Val Ala Leu Arg Glu Leu Met Lys Leu Ala Pro Arg Tyr
            420                 425                 430

Lys Leu Gly Val His Gly Tyr Ala Phe Leu Asn Thr Asn Asn Gly Tyr
        435                 440                 445

Ile Leu Ser His Pro Asp Leu Arg Pro Leu Tyr Arg Glu Gly Lys Lys
    450                 455                 460

Leu Lys Pro Lys Pro Asn Tyr Asn Ser Val Asp Leu Ser Glu Val Glu
465                 470                 475                 480

Trp Glu Asp Gln Ala Glu Ser Lys Arg Val Leu Phe Leu Thr Asn Asp
                485                 490                 495
```

```
Tyr Phe Phe Thr Asp Ile Ser Asp Thr Pro Phe Ser Leu Gly Val Val
            500                 505                 510

Leu Ser Arg Gly His Gly Glu Tyr Ile Leu Leu Gly Asn Thr Ser Val
        515                 520                 525

Glu Glu Gly Leu His Asp Leu Leu His Pro Asp Leu Ala Leu Ala Gly
    530                 535                 540

Asp Trp Ile Tyr Cys Ile Thr Asp Ile Asp Pro Asp His Arg Lys Leu
545                 550                 555                 560

Ser Gln Leu Glu Ala Met Ile Arg Phe Leu Thr Arg Lys Asp Pro Asp
                565                 570                 575

Leu Glu Cys Asp Glu Glu Leu Val Arg Glu Val Leu Phe Asp Ala Val
            580                 585                 590

Val Thr Ala Pro Met Glu Ala Tyr Trp Thr Ala Leu Ala Leu Asn Met
        595                 600                 605

Ser Glu Glu Ser Glu His Val Val Asp Met Ala Phe Leu Gly Thr Arg
    610                 615                 620

Ala Gly Leu Leu Arg Ser Ser Leu Phe Val Gly Ser Glu Lys Val Ser
625                 630                 635                 640

Asp Arg Lys Phe Leu Thr Pro Glu Asp Glu Ala Ser Val Phe Thr Leu
                645                 650                 655

Asp Arg Phe Pro Leu Trp Tyr Arg Gln Ala Ser Glu His Pro Ala Gly
            660                 665                 670

Ser Phe Val Phe Asn Leu Arg Trp Ala Glu Gly Pro Glu Ser Ala Gly
        675                 680                 685

Glu Pro Met Val Val Thr Ala Ser Thr Ala Val Ala Val Thr Val Asp
    690                 695                 700

Lys Arg Thr Ala Ile Ala Ala Ala Ala Gly Val Gln Met Lys Leu Glu
705                 710                 715                 720
```

Phe Leu Gln Arg Lys Phe Trp Ala Ala Thr Arg Gln Cys Ser Thr Val
725 730 735

Asp Gly Pro Cys Thr Gln Ser Cys Glu Asp Ser Asp Leu Asp Cys Phe
740 745 750

Val Ile Asp Asn Asn Gly Phe Ile Leu Ile Ser Lys Arg Ser Arg Glu
755 760 765

Pro Gly Ile Lys Leu Arg Lys Lys Pro Ile Gln Thr
770 775 780

<210> 10659
<211> 284
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2124; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA2D4; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468167"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10659
Xaa Gly Val Gln Met Lys Leu Glu Phe Leu Gln Arg Lys Phe Trp Ala
1 5 10 15

Ala Thr Arg Gln Cys Ser Thr Val Asp Gly Pro Cys Thr Gln Ser Cys
20 25 30

Glu Asp Ser Asp Leu Asp Cys Phe Val Ile Asp Asn Asn Gly Phe Ile
35 40 45

```
Leu Ile Ser Lys Arg Ser Arg Glu Thr Gly Arg Phe Leu Gly Glu Val
    50                  55                  60

Asp Gly Ala Val Leu Thr Gln Leu Leu Ser Met Gly Val Phe Ser Gln
65                  70                  75                  80

Val Thr Met Tyr Asp Tyr Gln Ala Met Cys Lys Pro Ser Ser His His
                85                  90                  95

His Ser Ala Ala Gln Pro Leu Pro Ile Ser Ala Phe Leu Thr Ala Thr
            100                 105                 110

Arg Trp Leu Leu Gln Glu Leu Val Leu Phe Leu Leu Glu Trp Ser Val
        115                 120                 125

Trp Gly Ser Trp Tyr Asp Arg Gly Ala Glu Ala Lys Ser Val Phe His
    130                 135                 140

His Ser His Lys His Lys Lys Gln Asp Pro Leu Gln Pro Cys Asp Thr
145                 150                 155                 160

Glu Tyr Pro Val Phe Val Tyr Gln Pro Ala Ile Arg Glu Ala Asn Gly
                165                 170                 175

Ile Val Glu Cys Gly Pro Cys Gln Lys Val Phe Val Val Gln Gln Ile
            180                 185                 190

Pro Asn Ser Asn Leu Leu Leu Leu Val Thr Asp Pro Thr Cys Asp Cys
        195                 200                 205

Ser Ile Phe Pro Pro Val Leu Gln Glu Ala Thr Glu Val Lys Tyr Asn
    210                 215                 220

Ala Ser Val Lys Cys Asp Arg Met Arg Ser Gln Lys Leu Arg Arg Arg
225                 230                 235                 240

Pro Asp Ser Cys His Ala Phe His Pro Glu Glu Asn Ala Gln Asp Cys
                245                 250                 255

Gly Gly Ala Ser Asp Thr Ser Ala Ser Pro Pro Leu Leu Leu Leu Pro
            260                 265                 270
```

Val Cys Ala Trp Gly Leu Leu Pro Gln Leu Leu Arg
275 280

<210> 10660
<211> 1073
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2124; "

<220>
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<223> /note="Gene Symbol: CACNA2D4; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
alpha 2/delta
subunit 4; "

<220>
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<223> /note="Uniprot ID: Q7Z3S7; "

<220>
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<223> /note="ENSP ID: ENSP00000468530"

<400> 10660
Met Ala Val Ala Leu Gly Thr Arg Arg Arg Asp Arg Val Lys Leu Trp
1 5 10 15

Ala Asp Thr Phe Gly Gly Asp Leu Tyr Asn Thr Val Thr Lys Tyr Ser
20 25 30

Gly Ser Leu Leu Leu Gln Lys Lys Tyr Lys Asp Val Glu Ser Ser Leu
35 40 45

Lys Ile Glu Glu Val Asp Gly Leu Glu Leu Val Arg Lys Phe Ser Glu
50 55 60

Asp Met Glu Asn Met Leu Arg Arg Lys Val Glu Ala Val Gln Asn Leu
65 70 75 80

Val Glu Ala Ala Glu Glu Ala Asp Leu Asn His Glu Phe Asn Glu Ser
85 90 95

Leu Val Phe Asp Tyr Tyr Asn Ser Val Leu Ile Asn Glu Arg Asp Glu

```
            100                 105                 110

Lys Gly Asn Phe Val Glu Leu Gly Ala Glu Phe Leu Leu Glu Ser Asn
        115                 120                 125

Ala His Phe Ser Asn Leu Pro Val Asn Thr Ser Ile Ser Ser Val Gln
    130                 135                 140

Leu Pro Thr Asn Val Tyr Asn Lys Asp Pro Asp Ile Leu Asn Gly Val
145                 150                 155                 160

Tyr Met Ser Glu Ala Leu Asn Ala Val Phe Val Glu Asn Phe Gln Arg
                165                 170                 175

Asp Pro Thr Leu Thr Trp Gln Tyr Phe Gly Ser Ala Thr Gly Phe Phe
            180                 185                 190

Arg Ile Tyr Pro Gly Ile Lys Trp Thr Pro Asp Glu Asn Gly Val Ile
        195                 200                 205

Thr Phe Asp Cys Arg Asn Arg Gly Trp Tyr Ile Gln Ala Ala Thr Ser
    210                 215                 220

Pro Lys Asp Ile Val Ile Leu Val Asp Val Ser Gly Ser Met Lys Gly
225                 230                 235                 240

Leu Arg Met Thr Ile Ala Lys His Thr Ile Thr Thr Ile Leu Asp Thr
                245                 250                 255

Leu Gly Glu Asn Asp Phe Ile Asn Ile Ile Ala Tyr Asn Asp Tyr Val
            260                 265                 270

His Tyr Ile Glu Pro Cys Phe Lys Gly Ile Leu Val Gln Ala Asp Arg
        275                 280                 285

Asp Asn Arg Glu His Phe Lys Leu Leu Val Glu Glu Leu Met Val Lys
    290                 295                 300

Gly Val Gly Val Val Asp Gln Ala Leu Arg Glu Ala Phe Gln Ile Leu
305                 310                 315                 320

Lys Gln Phe Gln Glu Ala Lys Gln Gly Ser Leu Cys Asn Gln Ala Ile
                325                 330                 335
```

```
Met Leu Ile Ser Asp Gly Ala Val Glu Asp Tyr Glu Pro Val Phe Glu
            340                 345                 350

Lys Tyr Asn Trp Pro Asp Cys Lys Val Arg Val Phe Thr Tyr Leu Ile
        355                 360                 365

Gly Arg Glu Val Ser Phe Ala Asp Arg Met Lys Trp Ile Ala Cys Asn
    370                 375                 380

Asn Lys Gly Tyr Tyr Thr Gln Ile Ser Thr Leu Ala Asp Thr Gln Glu
385                 390                 395                 400

Asn Val Met Glu Tyr Leu His Val Leu Ser Arg Pro Met Val Ile Asn
                405                 410                 415

His Asp His Asp Ile Ile Trp Thr Glu Ala Tyr Met Asp Ser Lys Leu
            420                 425                 430

Leu Ser Ser Gln Ala Gln Ser Leu Thr Leu Leu Thr Thr Val Ala Met
        435                 440                 445

Pro Val Phe Ser Lys Lys Asn Glu Thr Arg Ser His Gly Ile Leu Leu
    450                 455                 460

Gly Val Val Gly Ser Asp Val Ala Leu Arg Glu Leu Met Lys Leu Ala
465                 470                 475                 480

Pro Arg Tyr Lys Leu Gly Val His Gly Tyr Ala Phe Leu Asn Thr Asn
                485                 490                 495

Asn Gly Tyr Ile Leu Ser His Pro Asp Leu Arg Pro Leu Tyr Arg Glu
            500                 505                 510

Gly Lys Lys Leu Lys Pro Lys Pro Asn Tyr Asn Ser Val Asp Leu Ser
        515                 520                 525

Glu Val Glu Trp Glu Asp Gln Ala Glu Ser Leu Arg Thr Ala Met Ile
    530                 535                 540

Asn Arg Glu Thr Gly Thr Leu Ser Met Asp Val Lys Val Pro Met Asp
545                 550                 555                 560
```

```
Lys Gly Lys Arg Val Leu Phe Leu Thr Asn Asp Tyr Phe Phe Thr Asp
                565                 570                 575

Ile Ser Asp Thr Pro Phe Ser Leu Gly Val Val Leu Ser Arg Gly His
            580                 585                 590

Gly Glu Tyr Ile Leu Leu Gly Asn Thr Ser Val Glu Glu Gly Leu His
        595                 600                 605

Asp Leu Leu His Pro Asp Leu Ala Leu Ala Gly Asp Trp Ile Tyr Cys
    610                 615                 620

Ile Thr Asp Ile Asp Pro Asp His Arg Lys Leu Ser Gln Leu Glu Ala
625                 630                 635                 640

Met Ile Arg Phe Leu Thr Arg Lys Asp Pro Asp Leu Glu Cys Asp Glu
                645                 650                 655

Glu Leu Val Arg Glu Val Leu Phe Asp Ala Val Val Thr Ala Pro Met
            660                 665                 670

Glu Ala Tyr Trp Thr Ala Leu Ala Leu Asn Met Ser Glu Glu Ser Glu
        675                 680                 685

His Val Val Asp Met Ala Phe Leu Gly Thr Arg Ala Gly Leu Leu Arg
    690                 695                 700

Ser Ser Leu Phe Val Gly Ser Glu Lys Val Ser Asp Arg Lys Phe Leu
705                 710                 715                 720

Thr Pro Glu Asp Glu Ala Ser Val Phe Thr Leu Asp Arg Phe Pro Leu
                725                 730                 735

Trp Tyr Arg Gln Ala Ser Glu His Pro Ala Gly Ser Phe Val Phe Asn
            740                 745                 750

Leu Arg Trp Ala Glu Gly Pro Glu Ser Ala Gly Glu Pro Met Val Val
        755                 760                 765

Thr Ala Ser Thr Ala Val Ala Val Thr Val Asp Lys Arg Thr Ala Ile
    770                 775                 780
```

```
Ala Ala Ala Ala Gly Val Gln Met Lys Leu Glu Phe Leu Gln Arg Lys
785                 790                 795                 800

Phe Trp Ala Ala Thr Arg Gln Cys Ser Thr Val Asp Gly Pro Cys Thr
                805                 810                 815

Gln Ser Cys Glu Asp Ser Asp Leu Asp Cys Phe Val Ile Asp Asn Asn
            820                 825                 830

Gly Phe Ile Leu Ile Ser Lys Arg Ser Arg Glu Thr Gly Arg Phe Leu
        835                 840                 845

Gly Glu Val Asp Gly Ala Val Leu Thr Gln Leu Leu Ser Met Gly Val
    850                 855                 860

Phe Ser Gln Val Thr Met Tyr Asp Tyr Gln Ala Met Cys Lys Pro Ser
865                 870                 875                 880

Ser His His His Ser Ala Ala Gln Pro Leu Val Ser Pro Ile Ser Ala
                885                 890                 895

Phe Leu Thr Ala Thr Arg Trp Leu Leu Gln Glu Leu Val Leu Phe Leu
            900                 905                 910

Leu Glu Trp Ser Val Trp Gly Ser Trp Tyr Asp Arg Gly Ala Glu Ala
        915                 920                 925

Lys Ser Val Phe His His Ser His Lys His Lys Lys Gln Asp Pro Leu
    930                 935                 940

Gln Pro Cys Asp Thr Glu Tyr Pro Val Phe Val Tyr Gln Pro Ala Ile
945                 950                 955                 960

Arg Glu Ala Asn Gly Ile Val Glu Cys Gly Pro Cys Gln Lys Val Phe
                965                 970                 975

Val Val Gln Gln Ile Pro Asn Ser Asn Leu Leu Leu Leu Val Thr Asp
            980                 985                 990

Pro Thr Cys Asp Cys Ser Ile Phe  Pro Pro Val Leu Gln  Glu Ala
Thr
        995                 1000                1005
```

Glu Val Lys Tyr Asn Ala Ser Val Lys Cys Asp Arg Met Arg Ser
1010 1015 1020

Gln Lys Leu Arg Arg Arg Pro Asp Ser Cys His Ala Phe His Pro
1025 1030 1035

Glu Glu Asn Ala Gln Asp Cys Gly Gly Ala Ser Asp Thr Ser Ala
1040 1045 1050

Ser Pro Pro Leu Leu Leu Leu Pro Val Cys Ala Trp Gly Leu Leu
1055 1060 1065

Pro Gln Leu Leu Arg
1070

<210> 10661
<211> 523
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2125; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 1
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q02641; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000345461"

<400> 10661
Met Val Gln Lys Thr Ser Met Ser Arg Gly Pro Tyr Pro Pro Ser Gln
1 5 10 15

Glu Ile Pro Met Glu Val Phe Asp Pro Ser Pro Gln Gly Lys Tyr Ser
20 25 30

Lys Arg Lys Gly Arg Phe Lys Arg Ser Asp Gly Ser Thr Ser Ser Asp

```
        35                  40                  45

Thr Thr Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Glu Ser Tyr Thr
    50                  55                  60

Ser Arg Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala
65                  70                  75                  80

Leu Arg Lys Glu Ala Glu Arg Gln Ala Leu Ala Gln Leu Glu Lys Ala
                85                  90                  95

Lys Thr Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Gly Tyr Asn
            100                 105                 110

Pro Ser Pro Gly Asp Glu Val Pro Val Gln Gly Val Ala Ile Thr Phe
        115                 120                 125

Glu Pro Lys Asp Phe Leu His Ile Lys Glu Lys Tyr Asn Asn Asp Trp
    130                 135                 140

Trp Ile Gly Arg Leu Val Lys Glu Gly Cys Glu Val Gly Phe Ile Pro
145                 150                 155                 160

Ser Pro Val Lys Leu Asp Ser Leu Arg Leu Leu Gln Glu Gln Lys Leu
                165                 170                 175

Arg Gln Asn Arg Leu Gly Ser Ser Lys Ser Gly Asp Asn Ser Ser Ser
            180                 185                 190

Ser Leu Gly Asp Val Val Thr Gly Thr Arg Arg Pro Thr Pro Pro Ala
        195                 200                 205

Ser Gly Asn Glu Met Thr Asn Leu Ala Phe Glu Leu Asp Pro Leu Glu
    210                 215                 220

Leu Glu Glu Glu Glu Ala Glu Leu Gly Glu Gln Ser Gly Ser Ala Lys
225                 230                 235                 240

Thr Ser Val Ser Ser Val Thr Thr Pro Pro Pro His Gly Lys Arg Ile
                245                 250                 255

Pro Phe Phe Lys Lys Thr Glu His Val Pro Pro Tyr Asp Val Val Pro
            260                 265                 270
```

```
Ser Met Arg Pro Ile Ile Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu
        275                 280                 285

Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg
    290                 295                 300

Phe Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Ile Ser Leu
305                 310                 315                 320

Ala Lys Arg Ser Val Leu Asn Asn Pro Ser Lys His Ile Ile Ile Glu
                325                 330                 335

Arg Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln Ser Glu Ile Glu
            340                 345                 350

Arg Ile Phe Glu Leu Ala Arg Thr Leu Gln Leu Val Ala Leu Asp Ala
        355                 360                 365

Asp Thr Ile Asn His Pro Ala Gln Leu Ser Lys Thr Ser Leu Ala Pro
    370                 375                 380

Ile Ile Val Tyr Ile Lys Ile Thr Ser Pro Lys Val Leu Gln Arg Leu
385                 390                 395                 400

Ile Lys Ser Arg Gly Lys Ser Gln Ser Lys His Leu Asn Val Gln Ile
                405                 410                 415

Ala Ala Ser Glu Lys Leu Ala Gln Cys Pro Pro Glu Met Phe Asp Ile
            420                 425                 430

Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu Ala Glu
        435                 440                 445

Tyr Leu Glu Ala Tyr Trp Lys Ala Thr His Pro Pro Ser Ser Thr Pro
    450                 455                 460

Pro Asn Pro Leu Leu Asn Arg Thr Met Ala Thr Ala Ala Leu Ala Ala
465                 470                 475                 480

Ser Pro Ala Pro Val Ser Asn Leu Gln Val Gln Val Leu Thr Ser Leu
                485                 490                 495
```

Arg Arg Asn Leu Gly Phe Trp Gly Gly Leu Glu Ser Ser Gln Arg Gly
500 505 510

Ser Val Val Pro Gln Glu Gln Glu His Ala Met
515 520

<210> 10662
<211> 598
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2125; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 1
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q02641; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377840"

<400> 10662
Met Val Gln Lys Thr Ser Met Ser Arg Gly Pro Tyr Pro Pro Ser Gln
1 5 10 15

Glu Ile Pro Met Glu Val Phe Asp Pro Ser Pro Gln Gly Lys Tyr Ser
20 25 30

Lys Arg Lys Gly Arg Phe Lys Arg Ser Asp Gly Ser Thr Ser Ser Asp
35 40 45

Thr Thr Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Glu Ser Tyr Thr
50 55 60

Ser Arg Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala
65 70 75 80

```
Leu Arg Lys Glu Ala Glu Arg Gln Ala Leu Ala Gln Leu Glu Lys Ala
                85                  90                  95

Lys Thr Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Gly Tyr Asn
            100                 105                 110

Pro Ser Pro Gly Asp Glu Val Pro Val Gln Gly Val Ala Ile Thr Phe
        115                 120                 125

Glu Pro Lys Asp Phe Leu His Ile Lys Glu Lys Tyr Asn Asn Asp Trp
    130                 135                 140

Trp Ile Gly Arg Leu Val Lys Glu Gly Cys Glu Val Gly Phe Ile Pro
145                 150                 155                 160

Ser Pro Val Lys Leu Asp Ser Leu Arg Leu Leu Gln Glu Gln Lys Leu
                165                 170                 175

Arg Gln Asn Arg Leu Gly Ser Ser Lys Ser Gly Asp Asn Ser Ser Ser
            180                 185                 190

Ser Leu Gly Asp Val Val Thr Gly Thr Arg Arg Pro Thr Pro Pro Ala
        195                 200                 205

Ser Ala Lys Gln Lys Gln Lys Ser Thr Glu His Val Pro Pro Tyr Asp
    210                 215                 220

Val Val Pro Ser Met Arg Pro Ile Ile Leu Val Gly Pro Ser Leu Lys
225                 230                 235                 240

Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu
                245                 250                 255

Lys His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp
            260                 265                 270

Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Ser Lys His Ile
        275                 280                 285

Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln Ser
    290                 295                 300

Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Thr Leu Gln Leu Val Ala
```

305 310 315 320

Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ser Lys Thr Ser
325 330 335

Leu Ala Pro Ile Ile Val Tyr Ile Lys Ile Thr Ser Pro Lys Val Leu
340 345 350

Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ser Lys His Leu Asn
355 360 365

Val Gln Ile Ala Ala Ser Glu Lys Leu Ala Gln Cys Pro Pro Glu Met
370 375 380

Phe Asp Ile Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His
385 390 395 400

Leu Ala Glu Tyr Leu Glu Ala Tyr Trp Lys Ala Thr His Pro Pro Ser
405 410 415

Ser Thr Pro Pro Asn Pro Leu Leu Asn Arg Thr Met Ala Thr Ala Ala
420 425 430

Leu Ala Ala Ser Pro Ala Pro Val Ser Asn Leu Gln Gly Pro Tyr Leu
435 440 445

Ala Ser Gly Asp Gln Pro Leu Glu Arg Ala Thr Gly Glu His Ala Ser
450 455 460

Met His Glu Tyr Pro Gly Glu Leu Gly Gln Pro Pro Gly Leu Tyr Pro
465 470 475 480

Ser Ser His Pro Pro Gly Arg Ala Gly Thr Leu Arg Ala Leu Ser Arg
485 490 495

Gln Asp Thr Phe Asp Ala Asp Thr Pro Gly Ser Arg Asn Ser Ala Tyr
500 505 510

Thr Glu Leu Gly Asp Ser Cys Val Asp Met Glu Thr Asp Pro Ser Glu
515 520 525

Gly Pro Gly Leu Gly Asp Pro Ala Gly Gly Gly Thr Pro Pro Ala Arg
530 535 540

```
Gln Gly Ser Trp Glu Asp Glu Glu Glu Asp Tyr Glu Glu Glu Leu Thr
545                 550                 555                 560


Asp Asn Arg Asn Arg Gly Arg Asn Lys Ala Arg Tyr Cys Ala Glu Gly
                565                 570                 575


Gly Gly Pro Val Leu Gly Arg Asn Lys Asn Glu Leu Glu Gly Trp Gly
            580                 585                 590


Arg Gly Val Tyr Ile Arg
        595


<210> 10663
<211> 478
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2125; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 1
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  Q02641; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000377847"

<400> 10663
Met Val Gln Lys Thr Ser Met Ser Arg Gly Pro Tyr Pro Pro Ser Gln
1               5                   10                  15


Glu Ile Pro Met Glu Val Phe Asp Pro Ser Pro Gln Gly Lys Tyr Ser
            20                  25                  30


Lys Arg Lys Gly Arg Phe Lys Arg Ser Asp Gly Ser Thr Ser Ser Asp
        35                  40                  45
```

```
Thr Thr Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Glu Ser Tyr Thr
    50                  55                  60

Ser Arg Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala
65                  70                  75                  80

Leu Arg Lys Glu Ala Glu Arg Gln Ala Leu Ala Gln Leu Glu Lys Ala
                85                  90                  95

Lys Thr Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Gly Tyr Asn
            100                 105                 110

Pro Ser Pro Gly Asp Glu Val Pro Val Gln Gly Val Ala Ile Thr Phe
        115                 120                 125

Glu Pro Lys Asp Phe Leu His Ile Lys Glu Lys Tyr Asn Asn Asp Trp
    130                 135                 140

Trp Ile Gly Arg Leu Val Lys Glu Gly Cys Glu Val Gly Phe Ile Pro
145                 150                 155                 160

Ser Pro Val Lys Leu Asp Ser Leu Arg Leu Leu Gln Glu Gln Lys Leu
                165                 170                 175

Arg Gln Asn Arg Leu Gly Ser Ser Lys Ser Gly Asp Asn Ser Ser Ser
            180                 185                 190

Ser Leu Gly Asp Val Val Thr Gly Thr Arg Arg Pro Thr Pro Pro Ala
        195                 200                 205

Ser Ala Lys Gln Lys Gln Lys Ser Thr Glu His Val Pro Pro Tyr Asp
    210                 215                 220

Val Val Pro Ser Met Arg Pro Ile Ile Leu Val Gly Pro Ser Leu Lys
225                 230                 235                 240

Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu
                245                 250                 255

Lys His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp
            260                 265                 270
```

```
Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Ser Lys His Ile
        275                 280                 285

Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln Ser
    290                 295                 300

Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Thr Leu Gln Leu Val Ala
305                 310                 315                 320

Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ser Lys Thr Ser
                325                 330                 335

Leu Ala Pro Ile Ile Val Tyr Ile Lys Ile Thr Ser Pro Lys Val Leu
            340                 345                 350

Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ser Lys His Leu Asn
        355                 360                 365

Val Gln Ile Ala Ala Ser Glu Lys Leu Ala Gln Cys Pro Pro Glu Met
    370                 375                 380

Phe Asp Ile Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His
385                 390                 395                 400

Leu Ala Glu Tyr Leu Glu Ala Tyr Trp Lys Ala Thr His Pro Pro Ser
                405                 410                 415

Ser Thr Pro Pro Asn Pro Leu Leu Asn Arg Thr Met Ala Thr Ala Ala
            420                 425                 430

Leu Ala Ala Ser Pro Ala Pro Val Ser Asn Leu Gln Val Gln Val Leu
        435                 440                 445

Thr Ser Leu Arg Arg Asn Leu Gly Phe Trp Gly Gly Leu Glu Ser Ser
    450                 455                 460

Gln Arg Gly Ser Val Val Pro Gln Glu Gln Glu His Ala Met
465                 470                 475
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<210> 10664
<211> 216
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2125; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 1
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000477612"

<400> 10664
Met Val Gln Lys Thr Ser Met Ser Arg Gly Pro Tyr Pro Pro Ser Gln
1   5   10   15

Glu Ile Pro Met Glu Val Phe Asp Pro Ser Pro Gln Gly Lys Tyr Ser
            20   25   30

Lys Arg Lys Gly Arg Phe Lys Arg Ser Asp Gly Ser Thr Ser Ser Asp
        35   40   45

Thr Thr Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Glu Ser Tyr Thr
    50   55   60

Ser Arg Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala
65   70   75   80

Leu Arg Lys Glu Ala Glu Arg Gln Ala Leu Ala Gln Leu Glu Lys Ala
                85   90   95

Lys Thr Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Gly Tyr Asn
            100   105   110

Pro Ser Pro Gly Asp Glu Val Pro Val Gln Gly Val Ala Ile Thr Phe
        115   120   125

Glu Pro Lys Asp Phe Leu His Ile Lys Glu Lys Tyr Asn Asn Asp Trp
    130   135   140

Trp Ile Gly Arg Leu Val Lys Glu Gly Cys Glu Val Gly Phe Ile Pro
145   150   155   160

Ser Pro Val Lys Leu Asp Ser Leu Arg Leu Leu Gln Glu Gln Lys Leu
                165   170   175

Arg Gln Asn Arg Leu Gly Ser Ser Lys Ser Gly Asp Asn Ser Ser Ser
            180   185   190

Ser Leu Gly Asp Val Val Thr Gly Thr Arg Arg Pro Thr Pro Pro Ala
        195   200   205

Ser Asp Arg Ala Cys Ala Pro Leu
    210   215

<210> 10665
<211> 632
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2126; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB2; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 2
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q08289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000282343"

<400> 10665
Met Asn Gln Gly Ser Gly Leu Asp Leu Leu Lys Ile Ser Tyr Gly Lys
1   5   10   15

Gly Ala Arg Arg Lys Asn Arg Phe Lys Gly Ser Asp Gly Ser Thr Ser
            20   25   30

Ser Asp Thr Thr Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Asp Ser
        35   40   45

```
Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg
    50                  55                  60

Glu Ala Val Arg Arg Glu Ala Glu Arg Gln Ala Gln Ala Gln Leu Glu
65                  70                  75                  80

Lys Ala Lys Thr Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Ser
                85                  90                  95

Tyr Ser Ala Ala His Glu Asp Asp Val Pro Val Pro Gly Met Ala Ile
            100                 105                 110

Ser Phe Glu Ala Lys Asp Phe Leu His Val Lys Glu Lys Phe Asn Asn
        115                 120                 125

Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Cys Glu Ile Gly Phe
    130                 135                 140

Ile Pro Ser Pro Val Lys Leu Glu Asn Met Arg Leu Gln His Glu Gln
145                 150                 155                 160

Arg Ala Lys Gln Gly Lys Phe Tyr Ser Ser Lys Ser Gly Gly Asn Ser
                165                 170                 175

Ser Ser Ser Leu Gly Asp Ile Val Pro Ser Ser Arg Lys Ser Thr Pro
            180                 185                 190

Pro Ser Ser Ala Ile Asp Ile Asp Ala Thr Gly Leu Asp Ala Glu Glu
        195                 200                 205

Asn Asp Ile Pro Ala Asn His Arg Ser Pro Lys Pro Ser Ala Asn Ser
    210                 215                 220

Val Thr Ser Pro His Ser Lys Glu Lys Arg Met Pro Phe Phe Lys Lys
225                 230                 235                 240

Thr Glu His Thr Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val
                245                 250                 255

Val Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met
            260                 265                 270
```

```
Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe Glu Gly Arg Ile
        275                 280                 285

Ser Ile Thr Arg Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val
    290                 295                 300

Leu Asn Asn Pro Ser Lys His Ala Ile Ile Glu Arg Ser Asn Thr Arg
305                 310                 315                 320

Ser Ser Leu Ala Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu
                325                 330                 335

Ala Arg Thr Leu Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His
            340                 345                 350

Pro Ala Gln Leu Ser Lys Thr Ser Leu Ala Pro Ile Ile Val Tyr Val
        355                 360                 365

Lys Ile Ser Ser Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly
    370                 375                 380

Lys Ser Gln Ala Lys His Leu Asn Val Gln Met Val Ala Ala Asp Lys
385                 390                 395                 400

Leu Ala Gln Cys Pro Pro Glu Leu Phe Asp Val Ile Leu Asp Glu Asn
                405                 410                 415

Gln Leu Glu Asp Ala Cys Glu His Leu Ala Asp Tyr Leu Glu Ala Tyr
            420                 425                 430

Trp Lys Ala Thr His Pro Pro Ser Ser Ser Leu Pro Asn Pro Leu Leu
        435                 440                 445

Ser Arg Thr Leu Ala Thr Ser Ser Leu Pro Leu Ser Pro Thr Leu Ala
    450                 455                 460

Ser Asn Ser Gln Gly Ser Gln Gly Asp Gln Arg Thr Asp Arg Ser Ala
465                 470                 475                 480

Pro Ile Arg Ser Ala Ser Gln Ala Glu Glu Glu Pro Ser Val Glu Pro
                485                 490                 495

Val Lys Lys Ser Gln His Arg Ser Ser Ser Ser Ala Pro His His Asn
```

500 505 510

His Arg Ser Gly Thr Ser Arg Gly Leu Ser Arg Gln Glu Thr Phe Asp
515 520 525

Ser Glu Thr Gln Glu Ser Arg Asp Ser Ala Tyr Val Glu Pro Lys Glu
530 535 540

Asp Tyr Ser His Asp His Val Asp His Tyr Ala Ser His Arg Asp His
545 550 555 560

Asn His Arg Asp Glu Thr His Gly Ser Ser Asp His Arg His Arg Glu
565 570 575

Ser Arg His Arg Ser Arg Asp Val Asp Arg Glu Gln Asp His Asn Glu
580 585 590

Cys Asn Lys Gln Arg Ser Arg His Lys Ser Lys Asp Arg Tyr Cys Glu
595 600 605

Lys Asp Gly Glu Val Ile Ser Lys Lys Arg Asn Glu Ala Gly Glu Trp
610 615 620

Asn Arg Asp Val Tyr Ile Arg Gln
625 630

<210> 10666
<211> 660
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2126; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB2; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 2
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: Q08289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000320025"

<400> 10666
Met Val Gln Arg Asp Met Ser Lys Ser Pro Pro Thr Ala Ala Ala Ala
1 5 10 15

Val Ala Gln Glu Ile Gln Met Glu Leu Leu Glu Asn Val Ala Pro Ala
20 25 30

Gly Ala Leu Gly Ala Ala Ala Gln Ser Tyr Gly Lys Gly Ala Arg Arg
35 40 45

Lys Asn Arg Phe Lys Gly Ser Asp Gly Ser Thr Ser Ser Asp Thr Thr
50 55 60

Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Asp Ser Tyr Thr Ser Arg
65 70 75 80

Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala Val Arg
85 90 95

Arg Glu Ala Glu Arg Gln Ala Gln Ala Gln Leu Glu Lys Ala Lys Thr
100 105 110

Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Ser Tyr Ser Ala Ala
115 120 125

His Glu Asp Asp Val Pro Val Pro Gly Met Ala Ile Ser Phe Glu Ala
130 135 140

Lys Asp Phe Leu His Val Lys Glu Lys Phe Asn Asn Asp Trp Trp Ile
145 150 155 160

Gly Arg Leu Val Lys Glu Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro
165 170 175

Val Lys Leu Glu Asn Met Arg Leu Gln His Glu Gln Arg Ala Lys Gln
180 185 190

Gly Lys Phe Tyr Ser Ser Lys Ser Gly Gly Asn Ser Ser Ser Ser Leu
195 200 205

```
Gly Asp Ile Val Pro Ser Ser Arg Lys Ser Thr Pro Pro Ser Ser Ala
    210                 215                 220

Ile Asp Ile Asp Ala Thr Gly Leu Asp Ala Glu Glu Asn Asp Ile Pro
225                 230                 235                 240

Ala Asn His Arg Ser Pro Lys Pro Ser Ala Asn Ser Val Thr Ser Pro
                245                 250                 255

His Ser Lys Glu Lys Arg Met Pro Phe Phe Lys Lys Thr Glu His Thr
            260                 265                 270

Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly
        275                 280                 285

Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu
    290                 295                 300

Phe Asp Phe Leu Lys His Arg Phe Glu Gly Arg Ile Ser Ile Thr Arg
305                 310                 315                 320

Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro
                325                 330                 335

Ser Lys His Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala
            340                 345                 350

Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Thr Leu
        355                 360                 365

Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu
    370                 375                 380

Ser Lys Thr Ser Leu Ala Pro Ile Ile Val Tyr Val Lys Ile Ser Ser
385                 390                 395                 400

Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ala
                405                 410                 415

Lys His Leu Asn Val Gln Met Val Ala Ala Asp Lys Leu Ala Gln Cys
            420                 425                 430
```

```
Pro Pro Glu Leu Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp
        435                 440                 445

Ala Cys Glu His Leu Ala Asp Tyr Leu Glu Ala Tyr Trp Lys Ala Thr
    450                 455                 460

His Pro Pro Ser Ser Ser Leu Pro Asn Pro Leu Leu Ser Arg Thr Leu
465                 470                 475                 480

Ala Thr Ser Ser Leu Pro Leu Ser Pro Thr Leu Ala Ser Asn Ser Gln
                485                 490                 495

Gly Ser Gln Gly Asp Gln Arg Thr Asp Arg Ser Ala Pro Ile Arg Ser
            500                 505                 510

Ala Ser Gln Ala Glu Glu Glu Pro Ser Val Glu Pro Val Lys Lys Ser
        515                 520                 525

Gln His Arg Ser Ser Ser Ser Ala Pro His His Asn His Arg Ser Gly
    530                 535                 540

Thr Ser Arg Gly Leu Ser Arg Gln Glu Thr Phe Asp Ser Glu Thr Gln
545                 550                 555                 560

Glu Ser Arg Asp Ser Ala Tyr Val Glu Pro Lys Glu Asp Tyr Ser His
                565                 570                 575

Asp His Val Asp His Tyr Ala Ser His Arg Asp His Asn His Arg Asp
            580                 585                 590

Glu Thr His Gly Ser Ser Asp His Arg His Arg Glu Ser Arg His Arg
        595                 600                 605

Ser Arg Asp Val Asp Arg Glu Gln Asp His Asn Glu Cys Asn Lys Gln
    610                 615                 620

Arg Ser Arg His Lys Ser Lys Asp Arg Tyr Cys Glu Lys Asp Gly Glu
625                 630                 635                 640

Val Ile Ser Lys Lys Arg Asn Glu Ala Gly Glu Trp Asn Arg Asp Val
                645                 650                 655

Tyr Ile Arg Gln
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660

<210> 10667
<211> 636
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, beta 2
subunit; "

<220>
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<220>
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<400> 10667
Met Val Gln Arg Asp Met Ser Lys Ser Pro Pro Thr Ala Ala Ala Ala
1 5 10 15

Val Ala Gln Glu Ile Gln Met Glu Leu Leu Glu Asn Val Ala Pro Ala
20 25 30

Gly Ala Leu Gly Ala Ala Ala Gln Ser Tyr Gly Lys Gly Ala Arg Arg
35 40 45

Lys Asn Arg Phe Lys Gly Ser Asp Gly Ser Thr Ser Ser Asp Thr Thr
50 55 60

Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Asp Ser Tyr Thr Ser Arg
65 70 75 80

Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala Val Arg
85 90 95

Arg Glu Ala Glu Arg Gln Ala Gln Ala Gln Leu Glu Lys Ala Lys Thr
100 105 110

```
Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Ser Tyr Ser Ala Ala
        115                 120                 125

His Glu Asp Asp Val Pro Val Pro Gly Met Ala Ile Ser Phe Glu Ala
    130                 135                 140

Lys Asp Phe Leu His Val Lys Glu Lys Phe Asn Asn Asp Trp Trp Ile
145                 150                 155                 160

Gly Arg Leu Val Lys Glu Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro
                165                 170                 175

Val Lys Leu Glu Asn Met Arg Leu Gln His Glu Gln Arg Ala Lys Gln
            180                 185                 190

Gly Lys Phe Tyr Ser Ser Lys Ser Gly Gly Asn Ser Ser Ser Ser Leu
        195                 200                 205

Gly Asp Ile Val Pro Ser Ser Arg Lys Ser Thr Pro Pro Ser Ser Gly
    210                 215                 220

Ala Lys Ser Ala Asp Glu Gln Asp Gln Trp Lys Thr Ala Gly Leu Phe
225                 230                 235                 240

Trp Arg Phe Thr Thr Glu His Thr Pro Pro Tyr Asp Val Val Pro Ser
                245                 250                 255

Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val
            260                 265                 270

Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe
        275                 280                 285

Glu Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Ile Ser Leu Ala
    290                 295                 300

Lys Arg Ser Val Leu Asn Asn Pro Ser Lys His Ala Ile Ile Glu Arg
305                 310                 315                 320

Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln Ser Glu Ile Glu Arg
                325                 330                 335
```

```
Ile Phe Glu Leu Ala Arg Thr Leu Gln Leu Val Val Leu Asp Ala Asp
            340                 345                 350

Thr Ile Asn His Pro Ala Gln Leu Ser Lys Thr Ser Leu Ala Pro Ile
        355                 360                 365

Ile Val Tyr Val Lys Ile Ser Ser Pro Lys Val Leu Gln Arg Leu Ile
    370                 375                 380

Lys Ser Arg Gly Lys Ser Gln Ala Lys His Leu Asn Val Gln Met Val
385                 390                 395                 400

Ala Ala Asp Lys Leu Ala Gln Cys Pro Pro Glu Leu Phe Asp Val Ile
                405                 410                 415

Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu Ala Asp Tyr
            420                 425                 430

Leu Glu Ala Tyr Trp Lys Ala Thr His Pro Pro Ser Ser Ser Leu Pro
        435                 440                 445

Asn Pro Leu Leu Ser Arg Thr Leu Ala Thr Ser Ser Leu Pro Leu Ser
    450                 455                 460

Pro Thr Leu Ala Ser Asn Ser Gln Gly Ser Gln Gly Asp Gln Arg Thr
465                 470                 475                 480

Asp Arg Ser Ala Pro Ile Arg Ser Ala Ser Gln Ala Glu Glu Glu Pro
                485                 490                 495

Ser Val Glu Pro Val Lys Lys Ser Gln His Arg Ser Ser Ser Ser Ala
            500                 505                 510

Pro His His Asn His Arg Ser Gly Thr Ser Arg Gly Leu Ser Arg Gln
        515                 520                 525

Glu Thr Phe Asp Ser Glu Thr Gln Glu Ser Arg Asp Ser Ala Tyr Val
    530                 535                 540

Glu Pro Lys Glu Asp Tyr Ser His Asp His Val Asp His Tyr Ala Ser
545                 550                 555                 560
```

```
His Arg Asp His Asn His Arg Asp Glu Thr His Gly Ser Ser Asp His
                565                 570                 575

Arg His Arg Glu Ser Arg His Arg Ser Arg Asp Val Asp Arg Glu Gln
            580                 585                 590

Asp His Asn Glu Cys Asn Lys Gln Arg Ser Arg His Lys Ser Lys Asp
        595                 600                 605

Arg Tyr Cys Glu Lys Asp Gly Glu Val Ile Ser Lys Lys Arg Asn Glu
    610                 615                 620

Ala Gly Glu Trp Asn Arg Asp Val Tyr Ile Arg Gln
625                 630                 635


<210> 10668
<211> 612
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2126; "

<220>
<221> source
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<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 2
      subunit; "

<220>
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<223> /note="Uniprot ID:  Q08289; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366532"

<400> 10668
Met Lys Ala Thr Trp Ile Arg Leu Leu Lys Arg Ala Lys Gly Gly Arg
1               5                   10                  15

Leu Lys Asn Ser Asp Ile Cys Gly Ser Ala Asp Ser Tyr Thr Ser Arg
            20                  25                  30

Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala Val Arg
```

```
        35                  40                  45

Arg Glu Ala Glu Arg Gln Ala Gln Ala Gln Leu Glu Lys Ala Lys Thr
    50                  55                  60

Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Ser Tyr Ser Ala Ala
65                  70                  75                  80

His Glu Asp Asp Val Pro Val Pro Gly Met Ala Ile Ser Phe Glu Ala
                85                  90                  95

Lys Asp Phe Leu His Val Lys Glu Lys Phe Asn Asn Asp Trp Trp Ile
            100                 105                 110

Gly Arg Leu Val Lys Glu Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro
        115                 120                 125

Val Lys Leu Glu Asn Met Arg Leu Gln His Glu Gln Arg Ala Lys Gln
    130                 135                 140

Gly Lys Phe Tyr Ser Ser Lys Ser Gly Gly Asn Ser Ser Ser Ser Leu
145                 150                 155                 160

Gly Asp Ile Val Pro Ser Ser Arg Lys Ser Thr Pro Pro Ser Ser Ala
                165                 170                 175

Ile Asp Ile Asp Ala Thr Gly Leu Asp Ala Glu Glu Asn Asp Ile Pro
            180                 185                 190

Ala Asn His Arg Ser Pro Lys Pro Ser Ala Asn Ser Val Thr Ser Pro
        195                 200                 205

His Ser Lys Glu Lys Arg Met Pro Phe Phe Lys Lys Thr Glu His Thr
    210                 215                 220

Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly
225                 230                 235                 240

Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu
                245                 250                 255

Phe Asp Phe Leu Lys His Arg Phe Glu Gly Arg Ile Ser Ile Thr Arg
            260                 265                 270
```

```
Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro
        275                 280                 285

Ser Lys His Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala
    290                 295                 300

Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Thr Leu
305                 310                 315                 320

Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu
                325                 330                 335

Ser Lys Thr Ser Leu Ala Pro Ile Ile Val Tyr Val Lys Ile Ser Ser
            340                 345                 350

Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ala
        355                 360                 365

Lys His Leu Asn Val Gln Met Val Ala Ala Asp Lys Leu Ala Gln Cys
    370                 375                 380

Pro Pro Glu Leu Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp
385                 390                 395                 400

Ala Cys Glu His Leu Ala Asp Tyr Leu Glu Ala Tyr Trp Lys Ala Thr
                405                 410                 415

His Pro Pro Ser Ser Ser Leu Pro Asn Pro Leu Leu Ser Arg Thr Leu
            420                 425                 430

Ala Thr Ser Ser Leu Pro Leu Ser Pro Thr Leu Ala Ser Asn Ser Gln
        435                 440                 445

Gly Ser Gln Gly Asp Gln Arg Thr Asp Arg Ser Ala Pro Ile Arg Ser
    450                 455                 460

Ala Ser Gln Ala Glu Glu Glu Pro Ser Val Glu Pro Val Lys Lys Ser
465                 470                 475                 480

Gln His Arg Ser Ser Ser Ser Ala Pro His His Asn His Arg Ser Gly
                485                 490                 495
```

```
Thr Ser Arg Gly Leu Ser Arg Gln Glu Thr Phe Asp Ser Glu Thr Gln
            500                 505                 510

Glu Ser Arg Asp Ser Ala Tyr Val Glu Pro Lys Glu Asp Tyr Ser His
        515                 520                 525

Asp His Val Asp His Tyr Ala Ser His Arg Asp His Asn His Arg Asp
    530                 535                 540

Glu Thr His Gly Ser Ser Asp His Arg His Arg Glu Ser Arg His Arg
545                 550                 555                 560

Ser Arg Asp Val Asp Arg Glu Gln Asp His Asn Glu Cys Asn Lys Gln
                565                 570                 575

Arg Ser Arg His Lys Ser Lys Asp Arg Tyr Cys Glu Lys Asp Gly Glu
            580                 585                 590

Val Ile Ser Lys Lys Arg Asn Glu Ala Gly Glu Trp Asn Arg Asp Val
        595                 600                 605

Tyr Ile Arg Gln
    610
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<210> 10669
<211> 567
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
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subunit; "

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<223> /note="Uniprot ID: Q08289; "

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<221> source
<223> /note="ENSP ID: ENSP00000366536"

<400> 10669
Met Gln Cys Cys Gly Leu Val His Arg Arg Arg Val Arg Val Ser Tyr
1 5 10 15

Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser
20 25 30

Leu Glu Glu Asp Arg Glu Ala Val Arg Arg Glu Ala Glu Arg Gln Ala
35 40 45

Gln Ala Gln Leu Glu Lys Ala Lys Thr Lys Pro Val Ala Phe Ala Val
50 55 60

Arg Thr Asn Val Ser Tyr Ser Ala Ala His Glu Asp Asp Val Pro Val
65 70 75 80

Pro Gly Met Ala Ile Ser Phe Glu Ala Lys Asp Phe Leu His Val Lys
85 90 95

Glu Lys Phe Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly
100 105 110

Cys Glu Ile Gly Phe Ile Pro Ser Pro Val Lys Leu Glu Asn Met Arg
115 120 125

Leu Gln His Glu Gln Arg Ala Lys Gln Gly Lys Phe Tyr Ser Ser Lys
130 135 140

Ser Gly Gly Asn Ser Ser Ser Ser Leu Gly Asp Ile Val Pro Ser Ser
145 150 155 160

Arg Lys Ser Thr Pro Pro Ser Ser Ala Lys Gln Lys Gln Lys Ser Thr
165 170 175

Glu His Thr Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val
180 185 190

Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln
195 200 205

Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe Glu Gly Arg Ile Ser

```
    210                 215                 220

Ile Thr Arg Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu
225                 230                 235                 240

Asn Asn Pro Ser Lys His Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser
                245                 250                 255

Ser Leu Ala Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala
            260                 265                 270

Arg Thr Leu Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro
        275                 280                 285

Ala Gln Leu Ser Lys Thr Ser Leu Ala Pro Ile Ile Val Tyr Val Lys
    290                 295                 300

Ile Ser Ser Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys
305                 310                 315                 320

Ser Gln Ala Lys His Leu Asn Val Gln Met Val Ala Ala Asp Lys Leu
                325                 330                 335

Ala Gln Cys Pro Pro Glu Leu Phe Asp Val Ile Leu Asp Glu Asn Gln
            340                 345                 350

Leu Glu Asp Ala Cys Glu His Leu Ala Asp Tyr Leu Glu Ala Tyr Trp
        355                 360                 365

Lys Ala Thr His Pro Pro Ser Ser Ser Leu Pro Asn Pro Leu Leu Ser
    370                 375                 380

Arg Thr Leu Ala Thr Ser Ser Leu Pro Leu Ser Pro Thr Leu Ala Ser
385                 390                 395                 400

Asn Ser Gln Gly Ser Gln Gly Asp Gln Arg Thr Asp Arg Ser Ala Pro
                405                 410                 415

Ile Arg Ser Ala Ser Gln Ala Glu Glu Glu Pro Ser Val Glu Pro Val
            420                 425                 430

Lys Lys Ser Gln His Arg Ser Ser Ser Ser Ala Pro His His Asn His
        435                 440                 445
```

```
Arg Ser Gly Thr Ser Arg Gly Leu Ser Arg Gln Glu Thr Phe Asp Ser
    450                 455                 460

Glu Thr Gln Glu Ser Arg Asp Ser Ala Tyr Val Glu Pro Lys Glu Asp
465                 470                 475                 480

Tyr Ser His Asp His Val Asp His Tyr Ala Ser His Arg Asp His Asn
                485                 490                 495

His Arg Asp Glu Thr His Gly Ser Ser Asp His Arg His Arg Glu Ser
            500                 505                 510

Arg His Arg Ser Arg Asp Val Asp Arg Glu Gln Asp His Asn Glu Cys
        515                 520                 525

Asn Lys Gln Arg Ser Arg His Lys Ser Lys Asp Arg Tyr Cys Glu Lys
    530                 535                 540

Asp Gly Glu Val Ile Ser Lys Lys Arg Asn Glu Ala Gly Glu Trp Asn
545                 550                 555                 560

Arg Asp Val Tyr Ile Arg Gln
                565


<210> 10670
<211> 410
<212> PRT
<213> Homo sapiens

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beta 2
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000366545"
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<400> 10670
Met Val Gln Arg Asp Met Ser Lys Ser Pro Pro Thr Ala Ala Ala Ala
1 5 10 15

Val Ala Gln Glu Ile Gln Met Glu Leu Leu Glu Asn Val Ala Pro Ala
20 25 30

Gly Ala Leu Gly Ala Ala Ala Gln Ser Tyr Gly Lys Gly Ala Arg Arg
35 40 45

Lys Asn Arg Phe Lys Gly Ser Asp Gly Ser Thr Ser Ser Asp Thr Thr
50 55 60

Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Asp Ser Tyr Thr Ser Arg
65 70 75 80

Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg Glu Ala Val Arg
85 90 95

Arg Glu Ala Glu Arg Gln Ala Gln Ala Gln Leu Glu Lys Ala Lys Thr
100 105 110

Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Ser Tyr Ser Ala Ala
115 120 125

His Glu Asp Asp Val Pro Val Pro Gly Met Ala Ile Ser Phe Glu Ala
130 135 140

Lys Asp Phe Leu His Val Lys Glu Val Leu Gln Arg Leu Ile Lys Ser
145 150 155 160

Arg Gly Lys Ser Gln Ala Lys His Leu Asn Val Gln Met Val Ala Ala
165 170 175

Asp Lys Leu Ala Gln Cys Pro Pro Glu Leu Phe Asp Val Ile Leu Asp
180 185 190

Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu Ala Asp Tyr Leu Glu
195 200 205

Ala Tyr Trp Lys Ala Thr His Pro Pro Ser Ser Ser Leu Pro Asn Pro
210 215 220

```
Leu Leu Ser Arg Thr Leu Ala Thr Ser Ser Leu Pro Leu Ser Pro Thr
225                 230                 235                 240

Leu Ala Ser Asn Ser Gln Gly Ser Gln Gly Asp Gln Arg Thr Asp Arg
                245                 250                 255

Ser Ala Pro Ile Arg Ser Ala Ser Gln Ala Glu Glu Glu Pro Ser Val
            260                 265                 270

Glu Pro Val Lys Lys Ser Gln His Arg Ser Ser Ser Ser Ala Pro His
        275                 280                 285

His Asn His Arg Ser Gly Thr Ser Arg Gly Leu Ser Arg Gln Glu Thr
    290                 295                 300

Phe Asp Ser Glu Thr Gln Glu Ser Arg Asp Ser Ala Tyr Val Glu Pro
305                 310                 315                 320

Lys Glu Asp Tyr Ser His Asp His Val Asp His Tyr Ala Ser His Arg
                325                 330                 335

Asp His Asn His Arg Asp Glu Thr His Gly Ser Ser Asp His Arg His
            340                 345                 350

Arg Glu Ser Arg His Arg Ser Arg Asp Val Asp Arg Glu Gln Asp His
        355                 360                 365

Asn Glu Cys Asn Lys Gln Arg Ser Arg His Lys Ser Lys Asp Arg Tyr
    370                 375                 380

Cys Glu Lys Asp Gly Glu Val Ile Ser Lys Lys Arg Asn Glu Ala Gly
385                 390                 395                 400

Glu Trp Asn Arg Asp Val Tyr Ile Arg Gln
                405                 410


<210> 10671
<211> 606
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2126; "
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<220>
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<223> /note="Uniprot ID: Q08289; "

<220>
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<223> /note="ENSP ID: ENSP00000366546"

<400> 10671
Met Leu Asp Arg Arg Leu Ile Ala Pro Gln Thr Lys Tyr Ile Ile Pro
1   5   10   15

Gly Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val
            20   25   30

Ser Leu Glu Glu Asp Arg Glu Ala Val Arg Arg Glu Ala Glu Arg Gln
        35   40   45

Ala Gln Ala Gln Leu Glu Lys Ala Lys Thr Lys Pro Val Ala Phe Ala
    50   55   60

Val Arg Thr Asn Val Ser Tyr Ser Ala Ala His Glu Asp Asp Val Pro
65   70   75   80

Val Pro Gly Met Ala Ile Ser Phe Glu Ala Lys Asp Phe Leu His Val
                85   90   95

Lys Glu Lys Phe Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu
            100   105   110

Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro Val Lys Leu Glu Asn Met
        115   120   125

Arg Leu Gln His Glu Gln Arg Ala Lys Gln Gly Lys Phe Tyr Ser Ser
    130   135   140

Lys Ser Gly Gly Asn Ser Ser Ser Ser Leu Gly Asp Ile Val Pro Ser
145   150   155   160

Ser Arg Lys Ser Thr Pro Pro Ser Ser Ala Ile Asp Ile Asp Ala Thr
165 170 175

Gly Leu Asp Ala Glu Glu Asn Asp Ile Pro Ala Asn His Arg Ser Pro
180 185 190

Lys Pro Ser Ala Asn Ser Val Thr Ser Pro His Ser Lys Glu Lys Arg
195 200 205

Met Pro Phe Phe Lys Lys Thr Glu His Thr Pro Pro Tyr Asp Val Val
210 215 220

Pro Ser Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly Tyr
225 230 235 240

Glu Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His
245 250 255

Arg Phe Glu Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Ile Ser
260 265 270

Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Ser Lys His Ala Ile Ile
275 280 285

Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln Ser Glu Ile
290 295 300

Glu Arg Ile Phe Glu Leu Ala Arg Thr Leu Gln Leu Val Val Leu Asp
305 310 315 320

Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ser Lys Thr Ser Leu Ala
325 330 335

Pro Ile Ile Val Tyr Val Lys Ile Ser Ser Pro Lys Val Leu Gln Arg
340 345 350

Leu Ile Lys Ser Arg Gly Lys Ser Gln Ala Lys His Leu Asn Val Gln
355 360 365

Met Val Ala Ala Asp Lys Leu Ala Gln Cys Pro Pro Glu Leu Phe Asp
370 375 380

```
Val Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu Ala
385                 390                 395                 400

Asp Tyr Leu Glu Ala Tyr Trp Lys Ala Thr His Pro Pro Ser Ser Ser
                405                 410                 415

Leu Pro Asn Pro Leu Leu Ser Arg Thr Leu Ala Thr Ser Ser Leu Pro
            420                 425                 430

Leu Ser Pro Thr Leu Ala Ser Asn Ser Gln Gly Ser Gln Gly Asp Gln
        435                 440                 445

Arg Thr Asp Arg Ser Ala Pro Ile Arg Ser Ala Ser Gln Ala Glu Glu
    450                 455                 460

Glu Pro Ser Val Glu Pro Val Lys Lys Ser Gln His Arg Ser Ser Ser
465                 470                 475                 480

Ser Ala Pro His His Asn His Arg Ser Gly Thr Ser Arg Gly Leu Ser
                485                 490                 495

Arg Gln Glu Thr Phe Asp Ser Glu Thr Gln Glu Ser Arg Asp Ser Ala
            500                 505                 510

Tyr Val Glu Pro Lys Glu Asp Tyr Ser His Asp His Val Asp His Tyr
        515                 520                 525

Ala Ser His Arg Asp His Asn His Arg Asp Glu Thr His Gly Ser Ser
    530                 535                 540

Asp His Arg His Arg Glu Ser Arg His Arg Ser Arg Asp Val Asp Arg
545                 550                 555                 560

Glu Gln Asp His Asn Glu Cys Asn Lys Gln Arg Ser Arg His Lys Ser
                565                 570                 575

Lys Asp Arg Tyr Cys Glu Lys Asp Gly Glu Val Ile Ser Lys Lys Arg
            580                 585                 590

Asn Glu Ala Gly Glu Trp Asn Arg Asp Val Tyr Ile Arg Gln
        595                 600                 605
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<210> 10672
<211> 608
<212> PRT
<213> Homo sapiens

<220>
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<220>
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subunit; "

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<223> /note="Uniprot ID: Q08289; "

<220>
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<223> /note="ENSP ID: ENSP00000366548"

<400> 10672
Met Asn Gln Gly Ser Gly Leu Asp Leu Leu Lys Ile Ser Tyr Gly Lys
1 5 10 15

Gly Ala Arg Arg Lys Asn Arg Phe Lys Gly Ser Asp Gly Ser Thr Ser
20 25 30

Ser Asp Thr Thr Ser Asn Ser Phe Val Arg Gln Gly Ser Ala Asp Ser
35 40 45

Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp Arg
50 55 60

Glu Ala Val Arg Arg Glu Ala Glu Arg Gln Ala Gln Ala Gln Leu Glu
65 70 75 80

Lys Ala Lys Thr Lys Pro Val Ala Phe Ala Val Arg Thr Asn Val Ser
85 90 95

Tyr Ser Ala Ala His Glu Asp Asp Val Pro Val Pro Gly Met Ala Ile
100 105 110

Ser Phe Glu Ala Lys Asp Phe Leu His Val Lys Glu Lys Phe Asn Asn

```
        115                 120                 125

Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Cys Glu Ile Gly Phe
    130                 135                 140

Ile Pro Ser Pro Val Lys Leu Glu Asn Met Arg Leu Gln His Glu Gln
145                 150                 155                 160

Arg Ala Lys Gln Gly Lys Phe Tyr Ser Ser Lys Ser Gly Gly Asn Ser
                165                 170                 175

Ser Ser Ser Leu Gly Asp Ile Val Pro Ser Ser Arg Lys Ser Thr Pro
            180                 185                 190

Pro Ser Ser Gly Ala Lys Ser Ala Asp Glu Gln Asp Gln Trp Lys Thr
        195                 200                 205

Ala Gly Leu Phe Trp Arg Phe Thr Thr Glu His Thr Pro Pro Tyr Asp
    210                 215                 220

Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys
225                 230                 235                 240

Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu
                245                 250                 255

Lys His Arg Phe Glu Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp
            260                 265                 270

Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Ser Lys His Ala
        275                 280                 285

Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln Ser
    290                 295                 300

Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Thr Leu Gln Leu Val Val
305                 310                 315                 320

Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ser Lys Thr Ser
                325                 330                 335

Leu Ala Pro Ile Ile Val Tyr Val Lys Ile Ser Ser Pro Lys Val Leu
            340                 345                 350
```

```
Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ala Lys His Leu Asn
        355                 360                 365

Val Gln Met Val Ala Ala Asp Lys Leu Ala Gln Cys Pro Pro Glu Leu
    370                 375                 380

Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His
385                 390                 395                 400

Leu Ala Asp Tyr Leu Glu Ala Tyr Trp Lys Ala Thr His Pro Pro Ser
                405                 410                 415

Ser Ser Leu Pro Asn Pro Leu Leu Ser Arg Thr Leu Ala Thr Ser Ser
            420                 425                 430

Leu Pro Leu Ser Pro Thr Leu Ala Ser Asn Ser Gln Gly Ser Gln Gly
        435                 440                 445

Asp Gln Arg Thr Asp Arg Ser Ala Pro Ile Arg Ser Ala Ser Gln Ala
    450                 455                 460

Glu Glu Glu Pro Ser Val Glu Pro Val Lys Lys Ser Gln His Arg Ser
465                 470                 475                 480

Ser Ser Ser Ala Pro His His Asn His Arg Ser Gly Thr Ser Arg Gly
                485                 490                 495

Leu Ser Arg Gln Glu Thr Phe Asp Ser Glu Thr Gln Glu Ser Arg Asp
            500                 505                 510

Ser Ala Tyr Val Glu Pro Lys Glu Asp Tyr Ser His Asp His Val Asp
        515                 520                 525

His Tyr Ala Ser His Arg Asp His Asn His Arg Asp Glu Thr His Gly
    530                 535                 540

Ser Ser Asp His Arg His Arg Glu Ser Arg His Arg Ser Arg Asp Val
545                 550                 555                 560

Asp Arg Glu Gln Asp His Asn Glu Cys Asn Lys Gln Arg Ser Arg His
                565                 570                 575
```

Lys Ser Lys Asp Arg Tyr Cys Glu Lys Asp Gly Glu Val Ile Ser Lys
580 585 590

Lys Arg Asn Glu Ala Gly Glu Trp Asn Arg Asp Val Tyr Ile Arg Gln
595 600 605

<210> 10673
<211> 605
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, beta 2
subunit; "

<220>
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<223> /note="Uniprot ID: Q08289; "

<220>
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<400> 10673
Met Gln Cys Cys Gly Leu Val His Arg Arg Arg Val Arg Val Ser Tyr
1 5 10 15

Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser
20 25 30

Leu Glu Glu Asp Arg Glu Ala Val Arg Arg Glu Ala Glu Arg Gln Ala
35 40 45

Gln Ala Gln Leu Glu Lys Ala Lys Thr Lys Pro Val Ala Phe Ala Val
50 55 60

Arg Thr Asn Val Ser Tyr Ser Ala Ala His Glu Asp Asp Val Pro Val
65 70 75 80

```
Pro Gly Met Ala Ile Ser Phe Glu Ala Lys Asp Phe Leu His Val Lys
                85                  90                  95

Glu Lys Phe Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly
            100                 105                 110

Cys Glu Ile Gly Phe Ile Pro Ser Pro Val Lys Leu Glu Asn Met Arg
        115                 120                 125

Leu Gln His Glu Gln Arg Ala Lys Gln Gly Lys Phe Tyr Ser Ser Lys
    130                 135                 140

Ser Gly Gly Asn Ser Ser Ser Ser Leu Gly Asp Ile Val Pro Ser Ser
145                 150                 155                 160

Arg Lys Ser Thr Pro Pro Ser Ser Ala Ile Asp Ile Asp Ala Thr Gly
                165                 170                 175

Leu Asp Ala Glu Glu Asn Asp Ile Pro Ala Asn His Arg Ser Pro Lys
            180                 185                 190

Pro Ser Ala Asn Ser Val Thr Ser Pro His Ser Lys Glu Lys Arg Met
        195                 200                 205

Pro Phe Phe Lys Lys Thr Glu His Thr Pro Pro Tyr Asp Val Val Pro
    210                 215                 220

Ser Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu
225                 230                 235                 240

Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg
                245                 250                 255

Phe Glu Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Ile Ser Leu
            260                 265                 270

Ala Lys Arg Ser Val Leu Asn Asn Pro Ser Lys His Ala Ile Ile Glu
        275                 280                 285

Arg Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln Ser Glu Ile Glu
    290                 295                 300

Arg Ile Phe Glu Leu Ala Arg Thr Leu Gln Leu Val Val Leu Asp Ala
```

305 310 315 320

Asp Thr Ile Asn His Pro Ala Gln Leu Ser Lys Thr Ser Leu Ala Pro
325 330 335

Ile Ile Val Tyr Val Lys Ile Ser Ser Pro Lys Val Leu Gln Arg Leu
340 345 350

Ile Lys Ser Arg Gly Lys Ser Gln Ala Lys His Leu Asn Val Gln Met
355 360 365

Val Ala Ala Asp Lys Leu Ala Gln Cys Pro Pro Glu Leu Phe Asp Val
370 375 380

Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu Ala Asp
385 390 395 400

Tyr Leu Glu Ala Tyr Trp Lys Ala Thr His Pro Pro Ser Ser Ser Leu
405 410 415

Pro Asn Pro Leu Leu Ser Arg Thr Leu Ala Thr Ser Ser Leu Pro Leu
420 425 430

Ser Pro Thr Leu Ala Ser Asn Ser Gln Gly Ser Gln Gly Asp Gln Arg
435 440 445

Thr Asp Arg Ser Ala Pro Ile Arg Ser Ala Ser Gln Ala Glu Glu Glu
450 455 460

Pro Ser Val Glu Pro Val Lys Lys Ser Gln His Arg Ser Ser Ser Ser
465 470 475 480

Ala Pro His His Asn His Arg Ser Gly Thr Ser Arg Gly Leu Ser Arg
485 490 495

Gln Glu Thr Phe Asp Ser Glu Thr Gln Glu Ser Arg Asp Ser Ala Tyr
500 505 510

Val Glu Pro Lys Glu Asp Tyr Ser His Asp His Val Asp His Tyr Ala
515 520 525

Ser His Arg Asp His Asn His Arg Asp Glu Thr His Gly Ser Ser Asp
530 535 540

```
His Arg His Arg Glu Ser Arg His Arg Ser Arg Asp Val Asp Arg Glu
545                 550                 555                 560


Gln Asp His Asn Glu Cys Asn Lys Gln Arg Ser Arg His Lys Ser Lys
                565                 570                 575


Asp Arg Tyr Cys Glu Lys Asp Gly Glu Val Ile Ser Lys Lys Arg Asn
            580                 585                 590


Glu Ala Gly Glu Trp Asn Arg Asp Val Tyr Ile Arg Gln
        595                 600                 605


<210> 10674
<211> 164
<212> PRT
<213> Homo sapiens

<220>
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<220>
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beta 2
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<220>
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<223> /note="ENSP ID: ENSP00000478676"

<400> 10674
Met Tyr Leu Trp Arg Arg Thr Gly Arg Gln Cys Ala Pro Ile Arg Ser
1               5                   10                  15


Ala Ser Gln Ala Glu Glu Glu Pro Ser Val Glu Pro Val Lys Lys Ser
            20                  25                  30


Gln His Arg Ser Ser Ser Ser Ala Pro His His Asn His Arg Ser Gly
        35                  40                  45


Thr Ser Arg Gly Leu Ser Arg Gln Glu Thr Phe Asp Ser Glu Thr Gln
    50                  55                  60
```

```
Glu Ser Arg Asp Ser Ala Tyr Val Glu Pro Lys Glu Asp Tyr Ser His
65                  70                  75                  80

Asp His Val Asp His Tyr Ala Ser His Arg Asp His Asn His Arg Asp
                85                  90                  95

Glu Thr His Gly Ser Ser Asp His Arg His Arg Glu Ser Arg His Arg
            100                 105                 110

Ser Arg Asp Val Asp Arg Glu Gln Asp His Asn Glu Cys Asn Lys Gln
        115                 120                 125

Arg Ser Arg His Lys Ser Lys Asp Arg Tyr Cys Glu Lys Asp Gly Glu
    130                 135                 140

Val Ile Ser Lys Lys Arg Asn Glu Ala Gly Glu Trp Asn Arg Asp Val
145                 150                 155                 160

Tyr Ile Arg Gln
```

<210> 10675
<211> 581
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000479756"

<400> 10675

```
Met Gln Cys Cys Gly Leu Val His Arg Arg Arg Val Arg Val Ser Tyr
1               5                   10                  15
```

```
Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser
            20                  25                  30

Leu Glu Glu Asp Arg Glu Ala Val Arg Arg Glu Ala Glu Arg Gln Ala
        35                  40                  45

Gln Ala Gln Leu Glu Lys Ala Lys Thr Lys Pro Val Ala Phe Ala Val
    50                  55                  60

Arg Thr Asn Val Ser Tyr Ser Ala Ala His Glu Asp Asp Val Pro Val
65                  70                  75                  80

Pro Gly Met Ala Ile Ser Phe Glu Ala Lys Asp Phe Leu His Val Lys
                85                  90                  95

Glu Lys Phe Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly
            100                 105                 110

Cys Glu Ile Gly Phe Ile Pro Ser Pro Val Lys Leu Glu Asn Met Arg
        115                 120                 125

Leu Gln His Glu Gln Arg Ala Lys Gln Gly Lys Phe Tyr Ser Ser Lys
    130                 135                 140

Ser Gly Gly Asn Ser Ser Ser Ser Leu Gly Asp Ile Val Pro Ser Ser
145                 150                 155                 160

Arg Lys Ser Thr Pro Pro Ser Ser Gly Ala Lys Ser Ala Asp Glu Gln
                165                 170                 175

Asp Gln Trp Lys Thr Ala Gly Leu Phe Trp Arg Phe Thr Thr Glu His
            180                 185                 190

Thr Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val
        195                 200                 205

Gly Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala
    210                 215                 220

Leu Phe Asp Phe Leu Lys His Arg Phe Glu Gly Arg Ile Ser Ile Thr
225                 230                 235                 240

Arg Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn
```

```
                245                 250                 255

Pro Ser Lys His Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu
            260                 265                 270

Ala Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Thr
        275                 280                 285

Leu Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln
    290                 295                 300

Leu Ser Lys Thr Ser Leu Ala Pro Ile Ile Val Tyr Val Lys Ile Ser
305                 310                 315                 320

Ser Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln
                325                 330                 335

Ala Lys His Leu Asn Val Gln Met Val Ala Ala Asp Lys Leu Ala Gln
            340                 345                 350

Cys Pro Pro Glu Leu Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu
        355                 360                 365

Asp Ala Cys Glu His Leu Ala Asp Tyr Leu Glu Ala Tyr Trp Lys Ala
    370                 375                 380

Thr His Pro Pro Ser Ser Ser Leu Pro Asn Pro Leu Leu Ser Arg Thr
385                 390                 395                 400

Leu Ala Thr Ser Ser Leu Pro Leu Ser Pro Thr Leu Ala Ser Asn Ser
                405                 410                 415

Gln Gly Ser Gln Gly Asp Gln Arg Thr Asp Arg Ser Ala Pro Ile Arg
            420                 425                 430

Ser Ala Ser Gln Ala Glu Glu Glu Pro Ser Val Glu Pro Val Lys Lys
        435                 440                 445

Ser Gln His Arg Ser Ser Ser Ser Ala Pro His His Asn His Arg Ser
    450                 455                 460

Gly Thr Ser Arg Gly Leu Ser Arg Gln Glu Thr Phe Asp Ser Glu Thr
465                 470                 475                 480
```

```
Gln Glu Ser Arg Asp Ser Ala Tyr Val Glu Pro Lys Glu Asp Tyr Ser
                485                 490                 495

His Asp His Val Asp His Tyr Ala Ser His Arg Asp His Asn His Arg
            500                 505                 510

Asp Glu Thr His Gly Ser Ser Asp His Arg His Arg Glu Ser Arg His
        515                 520                 525

Arg Ser Arg Asp Val Asp Arg Glu Gln Asp His Asn Glu Cys Asn Lys
    530                 535                 540

Gln Arg Ser Arg His Lys Ser Lys Asp Arg Tyr Cys Glu Lys Asp Gly
545                 550                 555                 560

Glu Val Ile Ser Lys Lys Arg Asn Glu Ala Gly Glu Trp Asn Arg Asp
                565                 570                 575

Val Tyr Ile Arg Gln
            580
```

<210> 10676
<211> 355
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CACNB2; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, beta 2
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480260"

<400> 10676
```
Met Gln Cys Cys Gly Leu Val His Arg Arg Arg Val Arg Val Ser Tyr
1               5                   10                  15
```

```
Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser
            20                  25                  30

Leu Glu Glu Asp Arg Glu Ala Val Arg Arg Glu Ala Glu Arg Gln Ala
        35                  40                  45

Gln Ala Gln Leu Glu Lys Ala Lys Thr Lys Pro Val Ala Phe Ala Val
    50                  55                  60

Arg Thr Asn Val Ser Tyr Ser Ala Ala His Glu Asp Asp Val Pro Val
65                  70                  75                  80

Pro Gly Met Ala Ile Ser Phe Glu Ala Lys Asp Phe Leu His Val Lys
                85                  90                  95

Glu Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ala Lys
            100                 105                 110

His Leu Asn Val Gln Met Val Ala Ala Asp Lys Leu Ala Gln Cys Pro
        115                 120                 125

Pro Glu Leu Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala
    130                 135                 140

Cys Glu His Leu Ala Asp Tyr Leu Glu Ala Tyr Trp Lys Ala Thr His
145                 150                 155                 160

Pro Pro Ser Ser Ser Leu Pro Asn Pro Leu Leu Ser Arg Thr Leu Ala
                165                 170                 175

Thr Ser Ser Leu Pro Leu Ser Pro Thr Leu Ala Ser Asn Ser Gln Gly
            180                 185                 190

Ser Gln Gly Asp Gln Arg Thr Asp Arg Ser Ala Pro Ile Arg Ser Ala
        195                 200                 205

Ser Gln Ala Glu Glu Glu Pro Ser Val Glu Pro Val Lys Lys Ser Gln
    210                 215                 220

His Arg Ser Ser Ser Ser Ala Pro His His Asn His Arg Ser Gly Thr
225                 230                 235                 240
```

```
Ser Arg Gly Leu Ser Arg Gln Glu Thr Phe Asp Ser Glu Thr Gln Glu
                245                 250                 255

Ser Arg Asp Ser Ala Tyr Val Glu Pro Lys Glu Asp Tyr Ser His Asp
            260                 265                 270

His Val Asp His Tyr Ala Ser His Arg Asp His Asn His Arg Asp Glu
        275                 280                 285

Thr His Gly Ser Ser Asp His Arg His Arg Glu Ser Arg His Arg Ser
    290                 295                 300

Arg Asp Val Asp Arg Glu Gln Asp His Asn Glu Cys Asn Lys Gln Arg
305                 310                 315                 320

Ser Arg His Lys Ser Lys Asp Arg Tyr Cys Glu Lys Asp Gly Glu Val
                325                 330                 335

Ile Ser Lys Lys Arg Asn Glu Ala Gly Glu Trp Asn Arg Asp Val Tyr
            340                 345                 350

Ile Arg Gln
        355


<210> 10677
<211> 176
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2126; "

<220>
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<223> /note="Gene Symbol: CACNB2; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 2
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480563"

<400> 10677
Met Leu Asp Arg Arg Leu Ile Ala Pro Gln Thr Lys Tyr Ile Ile Pro
```

```
1               5                   10                  15

Gly Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val
            20                  25                  30

Ser Leu Glu Glu Asp Arg Glu Ala Val Arg Arg Glu Ala Glu Arg Gln
        35                  40                  45

Ala Gln Ala Gln Leu Glu Lys Ala Lys Thr Lys Pro Val Ala Phe Ala
    50                  55                  60

Val Arg Thr Asn Val Ser Tyr Ser Ala Ala His Glu Asp Asp Val Pro
65                  70                  75                  80

Val Pro Gly Met Ala Ile Ser Phe Glu Ala Lys Asp Phe Leu His Val
                85                  90                  95

Lys Glu Lys Phe Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu
            100                 105                 110

Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro Val Lys Leu Glu Asn Met
        115                 120                 125

Arg Leu Gln His Glu Gln Arg Ala Lys Gln Gly Lys Phe Tyr Ser Ser
    130                 135                 140

Lys Ser Gly Gly Asn Ser Ser Ser Ser Leu Gly Asp Ile Val Pro Ser
145                 150                 155                 160

Ser Arg Lys Ser Thr Pro Pro Ser Ser Asp Arg Ala His Ser Ser Val
                165                 170                 175
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<210> 10678
<211> 484
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CACNB3; "

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<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 3
subunit; "

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<223> /note="Uniprot ID: P54284; "

<220>
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<223> /note="ENSP ID: ENSP00000301050"

<400> 10678
Met Tyr Asp Asp Ser Tyr Val Pro Gly Phe Glu Asp Ser Glu Ala Gly
1 5 10 15

Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser Asp Val Ser
20 25 30

Leu Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu Ser Gln Ala
35 40 45

Gln Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala Phe Ala Val
50 55 60

Arg Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu Cys Pro Val
65 70 75 80

Gln Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu His Ile Lys
85 90 95

Glu Lys Tyr Ser Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly
100 105 110

Gly Asp Ile Ala Phe Ile Pro Ser Pro Gln Arg Leu Glu Ser Ile Arg
115 120 125

Leu Lys Gln Glu Gln Lys Ala Arg Arg Ser Gly Asn Pro Ser Ser Leu
130 135 140

Ser Asp Ile Gly Asn Arg Arg Ser Pro Pro Pro Ser Leu Ala Lys Gln
145 150 155 160

Lys Gln Lys Gln Ala Glu His Val Pro Pro Tyr Asp Val Val Pro Ser
165 170 175

```
Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val
            180                 185                 190

Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe
        195                 200                 205

Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Leu Ser Leu Ala
    210                 215                 220

Lys Arg Ser Val Leu Asn Asn Pro Gly Lys Arg Thr Ile Ile Glu Arg
225                 230                 235                 240

Ser Ser Ala Arg Ser Ser Ile Ala Glu Val Gln Ser Glu Ile Glu Arg
                245                 250                 255

Ile Phe Glu Leu Ala Lys Ser Leu Gln Leu Val Val Leu Asp Ala Asp
            260                 265                 270

Thr Ile Asn His Pro Ala Gln Leu Ala Lys Thr Ser Leu Ala Pro Ile
        275                 280                 285

Ile Val Phe Val Lys Val Ser Ser Pro Lys Val Leu Gln Arg Leu Ile
    290                 295                 300

Arg Ser Arg Gly Lys Ser Gln Met Lys His Leu Thr Val Gln Met Met
305                 310                 315                 320

Ala Tyr Asp Lys Leu Val Gln Cys Pro Pro Glu Ser Phe Asp Val Ile
                325                 330                 335

Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu Ala Glu Tyr
            340                 345                 350

Leu Glu Val Tyr Trp Arg Ala Thr His His Pro Ala Pro Gly Pro Gly
        355                 360                 365

Leu Leu Gly Pro Pro Ser Ala Ile Pro Gly Leu Gln Asn Gln Gln Leu
    370                 375                 380

Leu Gly Glu Arg Gly Glu Glu His Ser Pro Leu Glu Arg Asp Ser Leu
385                 390                 395                 400
```

Met Pro Ser Asp Glu Ala Ser Glu Ser Ser Arg Gln Ala Trp Thr Gly
405 410 415

Ser Ser Gln Arg Ser Ser Arg His Leu Glu Glu Asp Tyr Ala Asp Ala
420 425 430

Tyr Gln Asp Leu Tyr Gln Pro His Arg Gln His Thr Ser Gly Leu Pro
435 440 445

Ser Ala Asn Gly His Asp Pro Gln Asp Arg Leu Leu Ala Gln Asp Ser
450 455 460

Glu His Asn His Ser Asp Arg Asn Trp Gln Arg Asn Arg Pro Trp Pro
465 470 475 480

Lys Asp Ser Tyr

<210> 10679
<211> 483
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
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<223> /note="Gene Symbol: CACNB3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 3
subunit; "

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<221> source
<223> /note="Uniprot ID: P54284; "

<220>
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<223> /note="ENSP ID: ENSP00000444160"

<400> 10679
Met Ser Phe Ser Asp Ser Ser Ala Thr Phe Leu Leu Asn Glu Gly Ser
1 5 10 15

Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser Asp Val Ser Leu

```
            20                  25                  30

Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu Ser Gln Ala Gln
        35                  40                  45

Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala Phe Ala Val Arg
    50                  55                  60

Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu Cys Pro Val Gln
65                  70                  75                  80

Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu His Ile Lys Glu
                85                  90                  95

Lys Tyr Ser Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Gly
            100                 105                 110

Asp Ile Ala Phe Ile Pro Ser Pro Gln Arg Leu Glu Ser Ile Arg Leu
        115                 120                 125

Lys Gln Glu Gln Lys Ala Arg Arg Ser Gly Asn Pro Ser Ser Leu Ser
    130                 135                 140

Asp Ile Gly Asn Arg Arg Ser Pro Pro Pro Ser Leu Ala Lys Gln Lys
145                 150                 155                 160

Gln Lys Gln Ala Glu His Val Pro Pro Tyr Asp Val Val Pro Ser Met
                165                 170                 175

Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val Thr
            180                 185                 190

Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe Asp
        195                 200                 205

Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Leu Ser Leu Ala Lys
    210                 215                 220

Arg Ser Val Leu Asn Asn Pro Gly Lys Arg Thr Ile Ile Glu Arg Ser
225                 230                 235                 240

Ser Ala Arg Ser Ser Ile Ala Glu Val Gln Ser Glu Ile Glu Arg Ile
                245                 250                 255
```

```
Phe Glu Leu Ala Lys Ser Leu Gln Leu Val Val Leu Asp Ala Asp Thr
            260                 265                 270

Ile Asn His Pro Ala Gln Leu Ala Lys Thr Ser Leu Ala Pro Ile Ile
        275                 280                 285

Val Phe Val Lys Val Ser Ser Pro Lys Val Leu Gln Arg Leu Ile Arg
    290                 295                 300

Ser Arg Gly Lys Ser Gln Met Lys His Leu Thr Val Gln Met Met Ala
305                 310                 315                 320

Tyr Asp Lys Leu Val Gln Cys Pro Pro Glu Ser Phe Asp Val Ile Leu
                325                 330                 335

Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu Ala Glu Tyr Leu
            340                 345                 350

Glu Val Tyr Trp Arg Ala Thr His His Pro Ala Pro Gly Pro Gly Leu
        355                 360                 365

Leu Gly Pro Pro Ser Ala Ile Pro Gly Leu Gln Asn Gln Gln Leu Leu
    370                 375                 380

Gly Glu Arg Gly Glu Glu His Ser Pro Leu Glu Arg Asp Ser Leu Met
385                 390                 395                 400

Pro Ser Asp Glu Ala Ser Glu Ser Ser Arg Gln Ala Trp Thr Gly Ser
                405                 410                 415

Ser Gln Arg Ser Ser Arg His Leu Glu Glu Asp Tyr Ala Asp Ala Tyr
            420                 425                 430

Gln Asp Leu Tyr Gln Pro His Arg Gln His Thr Ser Gly Leu Pro Ser
        435                 440                 445

Ala Asn Gly His Asp Pro Gln Asp Arg Leu Leu Ala Gln Asp Ser Glu
    450                 455                 460

His Asn His Ser Asp Arg Asn Trp Gln Arg Asn Arg Pro Trp Pro Lys
465                 470                 475                 480
```

Asp Ser Tyr

<210> 10680
<211> 471
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
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<223> /note="Gene Symbol: CACNB3; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, beta 3
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P54284; "

<220>
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<223> /note="ENSP ID: ENSP00000445495"

<400> 10680
Met Glu Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser
1 5 10 15

Asp Val Ser Leu Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu
20 25 30

Ser Gln Ala Gln Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala
35 40 45

Phe Ala Val Arg Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu
50 55 60

Cys Pro Val Gln Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu
65 70 75 80

His Ile Lys Glu Lys Tyr Ser Asn Asp Trp Trp Ile Gly Arg Leu Val
85 90 95

```
Lys Glu Gly Gly Asp Ile Ala Phe Ile Pro Ser Pro Gln Arg Leu Glu
            100                 105                 110

Ser Ile Arg Leu Lys Gln Glu Gln Lys Ala Arg Arg Ser Gly Asn Pro
        115                 120                 125

Ser Ser Leu Ser Asp Ile Gly Asn Arg Arg Ser Pro Pro Pro Ser Leu
    130                 135                 140

Ala Lys Gln Lys Gln Lys Gln Ala Glu His Val Pro Pro Tyr Asp Val
145                 150                 155                 160

Val Pro Ser Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly
                165                 170                 175

Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys
            180                 185                 190

His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Leu
        195                 200                 205

Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Gly Lys Arg Thr Ile
    210                 215                 220

Ile Glu Arg Ser Ser Ala Arg Ser Ser Ile Ala Glu Val Gln Ser Glu
225                 230                 235                 240

Ile Glu Arg Ile Phe Glu Leu Ala Lys Ser Leu Gln Leu Val Val Leu
                245                 250                 255

Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ala Lys Thr Ser Leu
            260                 265                 270

Ala Pro Ile Ile Val Phe Val Lys Val Ser Ser Pro Lys Val Leu Gln
        275                 280                 285

Arg Leu Ile Arg Ser Arg Gly Lys Ser Gln Met Lys His Leu Thr Val
    290                 295                 300

Gln Met Met Ala Tyr Asp Lys Leu Val Gln Cys Pro Pro Glu Ser Phe
305                 310                 315                 320

Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu His Leu
```

```
                325                 330                 335

Ala Glu Tyr Leu Glu Val Tyr Trp Arg Ala Thr His His Pro Ala Pro
            340                 345                 350

Gly Pro Gly Leu Leu Gly Pro Pro Ser Ala Ile Pro Gly Leu Gln Asn
        355                 360                 365

Gln Gln Leu Leu Gly Glu Arg Gly Glu Glu His Ser Pro Leu Glu Arg
    370                 375                 380

Asp Ser Leu Met Pro Ser Asp Glu Ala Ser Glu Ser Ser Arg Gln Ala
385                 390                 395                 400

Trp Thr Gly Ser Ser Gln Arg Ser Ser Arg His Leu Glu Glu Asp Tyr
                405                 410                 415

Ala Asp Ala Tyr Gln Asp Leu Tyr Gln Pro His Arg Gln His Thr Ser
            420                 425                 430

Gly Leu Pro Ser Ala Asn Gly His Asp Pro Gln Asp Arg Leu Leu Ala
        435                 440                 445

Gln Asp Ser Glu His Asn His Ser Asp Arg Asn Trp Gln Arg Asn Arg
    450                 455                 460

Pro Trp Pro Lys Asp Ser Tyr
465                 470


<210> 10681
<211> 457
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
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<223> /note="Gene Symbol: CACNB3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 3
      subunit; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000446529"

<400> 10681
Met Tyr Asp Asp Ser Tyr Val Pro Gly Phe Glu Asp Ser Glu Ala Gly
1   5   10   15

Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser Asp Val Ser
            20   25   30

Leu Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu Ser Gln Ala
        35   40   45

Gln Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala Phe Ala Val
    50   55   60

Arg Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu Cys Pro Val
65   70   75   80

Gln Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu His Ile Lys
                85   90   95

Glu Lys Tyr Ser Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly
            100   105   110

Gly Asp Ile Ala Phe Ile Pro Ser Pro Gln Arg Leu Glu Ser Ile Arg
        115   120   125

Leu Lys Gln Glu Gln Lys Ala Arg Arg Ser Gly Asn Pro Ser Ser Leu
    130   135   140

Ser Asp Ile Gly Asn Arg Arg Ser Pro Pro Pro Ser Leu Ala Lys Gln
145   150   155   160

Lys Gln Lys Gln Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe
                165   170   175

Leu Lys His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala
            180   185   190

Asp Leu Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Gly Lys Arg
        195   200   205

```
Thr Ile Ile Glu Arg Ser Ser Ala Arg Ser Ser Ile Ala Glu Val Gln
    210                 215                 220

Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Lys Ser Leu Gln Leu Val
225                 230                 235                 240

Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ala Lys Thr
                245                 250                 255

Ser Leu Ala Pro Ile Ile Val Phe Val Lys Val Ser Ser Pro Lys Val
            260                 265                 270

Leu Gln Arg Leu Ile Arg Ser Arg Gly Lys Ser Gln Met Lys His Leu
        275                 280                 285

Thr Val Gln Met Met Ala Tyr Asp Lys Leu Val Gln Cys Pro Pro Glu
    290                 295                 300

Ser Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu
305                 310                 315                 320

His Leu Ala Glu Tyr Leu Glu Val Tyr Trp Arg Ala Thr His His Pro
                325                 330                 335

Ala Pro Gly Pro Gly Leu Leu Gly Pro Pro Ser Ala Ile Pro Gly Leu
            340                 345                 350

Gln Asn Gln Gln Leu Leu Gly Glu Arg Gly Glu Glu His Ser Pro Leu
        355                 360                 365

Glu Arg Asp Ser Leu Met Pro Ser Asp Glu Ala Ser Glu Ser Ser Arg
    370                 375                 380

Gln Ala Trp Thr Gly Ser Ser Gln Arg Ser Ser Arg His Leu Glu Glu
385                 390                 395                 400

Asp Tyr Ala Asp Ala Tyr Gln Asp Leu Tyr Gln Pro His Arg Gln His
                405                 410                 415

Thr Ser Gly Leu Pro Ser Ala Asn Gly His Asp Pro Gln Asp Arg Leu
            420                 425                 430
```

Leu Ala Gln Asp Ser Glu His Asn His Ser Asp Arg Asn Trp Gln Arg
435 440 445

Asn Arg Pro Trp Pro Lys Asp Ser Tyr
450 455

<210> 10682
<211> 105
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 3
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000446611"

<400> 10682
Met Ser Phe Ser Asp Ser Ser Ala Thr Phe Leu Leu Asn Glu Gly Ser
1 5 10 15

Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser Asp Val Ser Leu
20 25 30

Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu Ser Gln Ala Gln
35 40 45

Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala Phe Ala Val Arg
50 55 60

Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu Cys Pro Val Gln
65 70 75 80

Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu His Ile Lys Glu
85 90 95

Glu Ile Trp Glu Pro Phe Gln Pro Glu

100 105

<210> 10683
<211> 84
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2127; "

<220>
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<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 3
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447261"

<400> 10683
Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala Phe Ala Val Arg
1 5 10 15

Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu Cys Pro Val Gln
20 25 30

Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu His Ile Lys Glu
35 40 45

Asn Leu Gly Gly Pro Pro Cys Leu Ser His Ser Phe Ala Leu His Pro
50 55 60

Val Ile Ser Val Leu Val Pro His Thr Ser Leu Glu Asn Arg Ala Pro
65 70 75 80

Asp Phe Val Pro

<210> 10684
<211> 37
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2127; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB3; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 3
subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000447462"

<400> 10684
Met Tyr Asp Asp Ser Tyr Val Pro Gly Phe Glu Asp Ser Glu Ala Pro
1 5 10 15

Pro Ala Glu Ala Ser Ser Ala Ala Gly Ile Leu Ser Ser Cys Pro Ala
20 25 30

Trp Arg Ala Trp Arg
35

<210> 10685
<211> 55
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CACNB3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 3
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448074"

<400> 10685
Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val
1 5 10 15

Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe
            20   25   30

Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Leu Ser Leu Ala
        35   40   45

Lys Arg Ser Val Leu Asn Asn
    50   55

<210> 10686
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB3; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 3
      subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000448076"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10686
Xaa Lys Asp Phe Leu His Ile Lys Glu Lys Tyr Ser Asn Asp Trp Trp
1   5   10   15

Ile Gly Arg Leu Val Lys Glu Gly Gly Asp Ile Ala Phe Ile Pro Ser
            20   25   30

Pro Gln Arg Leu Glu Ser Ile Arg Leu Lys Gln Glu Gln Lys Ala Arg
        35   40   45

Arg Ser Gly Asn Pro Ser Ser Leu Ser Asp Ile Gly Asn Arg Arg Ser
    50   55   60

Pro Pro Pro Ser Leu Gly Gly Thr Cys Ser Pro Ile
65 70 75

<210> 10687
<211> 122
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2127; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 3
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448137"

<400> 10687
Met Arg Pro Val Val Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val
1 5 10 15

Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe
20 25 30

Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala Asp Leu Ser Leu Ala
35 40 45

Lys Arg Ser Val Leu Asn Asn Pro Gly Lys Arg Thr Ile Ile Glu Arg
50 55 60

Ser Ser Ala Arg Ser Ser Ile Ala Glu Val Gln Ser Glu Ile Glu Arg
65 70 75 80

Ile Phe Glu Leu Ala Lys Ser Leu Gln Leu Val Val Leu Asp Ala Asp
85 90 95

Thr Ile Asn His Pro Ala Gln Leu Ala Lys Thr Ser Leu Ala Pro Ile
100 105 110

Ile Val Phe Val Lys Val Ser Ser Pro Lys
115 120

<210> 10688
<211> 443
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
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<223> /note="Gene Symbol: CACNB3; "

<220>
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subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P54284; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000448304"

<400> 10688
Met Tyr Asp Asp Ser Tyr Val Pro Gly Phe Glu Asp Ser Glu Ala Gly
1 5 10 15

Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser Asp Val Ser
20 25 30

Leu Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu Ser Gln Ala
35 40 45

Gln Gln Gln Leu Glu Arg Ala Lys Lys Tyr Ser Asn Asp Trp Trp Ile
50 55 60

Gly Arg Leu Val Lys Glu Gly Gly Asp Ile Ala Phe Ile Pro Ser Pro
65 70 75 80

Gln Arg Leu Glu Ser Ile Arg Leu Lys Gln Glu Gln Lys Ala Arg Arg
85 90 95

```
Ser Gly Asn Pro Ser Ser Leu Ser Asp Ile Gly Asn Arg Arg Ser Pro
            100                 105                 110

Pro Pro Ser Leu Ala Lys Gln Lys Gln Lys Gln Ala Glu His Val Pro
        115                 120                 125

Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly Pro
    130                 135                 140

Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu Phe
145                 150                 155                 160

Asp Phe Leu Lys His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg Val
                165                 170                 175

Thr Ala Asp Leu Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Gly
            180                 185                 190

Lys Arg Thr Ile Ile Glu Arg Ser Ser Ala Arg Ser Ser Ile Ala Glu
        195                 200                 205

Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Lys Ser Leu Gln
    210                 215                 220

Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ala
225                 230                 235                 240

Lys Thr Ser Leu Ala Pro Ile Ile Val Phe Val Lys Val Ser Ser Pro
                245                 250                 255

Lys Val Leu Gln Arg Leu Ile Arg Ser Arg Gly Lys Ser Gln Met Lys
            260                 265                 270

His Leu Thr Val Gln Met Met Ala Tyr Asp Lys Leu Val Gln Cys Pro
        275                 280                 285

Pro Glu Ser Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala
    290                 295                 300

Cys Glu His Leu Ala Glu Tyr Leu Glu Val Tyr Trp Arg Ala Thr His
305                 310                 315                 320

His Pro Ala Pro Gly Pro Gly Leu Leu Gly Pro Pro Ser Ala Ile Pro
```

325 330 335

Gly Leu Gln Asn Gln Gln Leu Leu Gly Glu Arg Gly Glu Glu His Ser
340 345 350

Pro Leu Glu Arg Asp Ser Leu Met Pro Ser Asp Glu Ala Ser Glu Ser
355 360 365

Ser Arg Gln Ala Trp Thr Gly Ser Ser Gln Arg Ser Ser Arg His Leu
370 375 380

Glu Glu Asp Tyr Ala Asp Ala Tyr Gln Asp Leu Tyr Gln Pro His Arg
385 390 395 400

Gln His Thr Ser Gly Leu Pro Ser Ala Asn Gly His Asp Pro Gln Asp
405 410 415

Arg Leu Leu Ala Gln Asp Ser Glu His Asn His Ser Asp Arg Asn Trp
420 425 430

Gln Arg Asn Arg Pro Trp Pro Lys Asp Ser Tyr
435 440

<210> 10689
<211> 151
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 3
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449389"

<400> 10689
Met Glu Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser
1 5 10 15

```
Asp Val Ser Leu Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu
            20                  25                  30

Ser Gln Ala Gln Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala
        35                  40                  45

Phe Ala Val Arg Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu
    50                  55                  60

Cys Pro Val Gln Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu
65                  70                  75                  80

His Ile Lys Glu Lys Tyr Ser Asn Asp Trp Trp Ile Gly Arg Leu Val
                85                  90                  95

Lys Glu Gly Gly Asp Ile Ala Phe Ile Pro Ser Pro Gln Arg Leu Glu
            100                 105                 110

Ser Ile Arg Leu Lys Gln Glu Gln Lys Ala Arg Arg Ser Gly Asn Pro
        115                 120                 125

Ser Ser Leu Ser Asp Ile Gly Asn Arg Arg Ser Pro Pro Pro Ser Leu
    130                 135                 140

Gly Gly Thr Cys Ser Pro Ile
145                 150
```

<210> 10690
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2127; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 3
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000449497"

<400> 10690
Met Tyr Asp Asp Ser Tyr Val Pro Gly Phe Glu Asp Ser Glu Ala Gly
1   5   10   15

Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Leu Asp Ser Asp Val Ser
            20   25   30

Leu Glu Glu Asp Arg Glu Ser Ala Arg Arg Glu Val Glu Ser Gln Ala
        35   40   45

Gln Gln Gln Leu Glu Arg Ala Lys His Lys Pro Val Ala Phe Ala Val
    50   55   60

Arg Thr Asn Val Ser Tyr Cys Gly Val Leu Asp Glu Glu Cys Pro Val
65   70   75   80

Gln Gly Ser Gly Val Asn Phe Glu Ala Lys Asp Phe Leu His Ile Lys
                85   90   95

Glu Tyr Ser Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Gly
            100   105   110

Asp Ile Ala Phe Ile Pro Ser Pro Gln Arg Leu Glu Ser Ile Arg Leu
        115   120   125

Lys Gln Glu Gln Lys Ala Arg Arg Ser Gly Asn Pro Ser Ser Leu Ser
    130   135   140

<210> 10691
<211> 458
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2128; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,

beta 4
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: O00305; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000201943"

<400> 10691

```
Met Ser Ser Ser Ser Tyr Ala Lys Asn Gly Thr Ala Asp Gly Pro His
1               5                  10                  15

Ser Pro Thr Ser Gln Val Ala Arg Gly Thr Thr Thr Arg Arg Ser Arg
            20                  25                  30

Leu Lys Arg Ser Asp Gly Ser Thr Thr Ser Thr Ser Phe Ile Leu Arg
        35                  40                  45

Gln Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val
    50                  55                  60

Ser Leu Glu Glu Asp Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln Gln
65                  70                  75                  80

Ala Ala Ile Gln Leu Glu Arg Ala Lys Ser Lys Pro Val Ala Phe Ala
                85                  90                  95

Val Lys Thr Asn Val Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val Pro
            100                 105                 110

Val Pro Ser Thr Ala Ile Ser Phe Asp Ala Lys Asp Phe Leu His Ile
        115                 120                 125

Lys Glu Lys Tyr Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu
    130                 135                 140

Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro Leu Arg Leu Glu Asn Ile
145                 150                 155                 160

Arg Ile Gln Gln Glu Gln Lys Arg Gly Arg Phe His Gly Gly Lys Ser
                165                 170                 175

Ser Gly Asn Ser Ser Ser Ser Leu Gly Glu Met Val Ser Gly Thr Phe
```

```
            180                 185                 190

Arg Ala Thr Pro Thr Ser Thr Ala Lys Gln Lys Gln Lys Val Thr Glu
        195                 200                 205

His Ile Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu
    210                 215                 220

Val Gly Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys
225                 230                 235                 240

Ala Leu Phe Asp Phe Leu Lys His Arg Phe Asp Gly Arg Ile Ser Ile
                245                 250                 255

Thr Arg Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn
            260                 265                 270

Asn Pro Ser Lys Arg Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser
        275                 280                 285

Leu Ala Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg
    290                 295                 300

Ser Leu Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala
305                 310                 315                 320

Gln Leu Ile Lys Thr Ser Leu Ala Pro Ile Ile Val His Val Lys Val
                325                 330                 335

Ser Ser Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser
            340                 345                 350

Gln Ser Lys His Leu Asn Val Gln Leu Val Ala Ala Asp Lys Leu Ala
        355                 360                 365

Gln Cys Pro Pro Ser Gln Arg Met Arg His Ser Asn His Ser Thr Glu
    370                 375                 380

Asn Ser Pro Ile Glu Arg Arg Ser Leu Met Thr Ser Asp Glu Asn Tyr
385                 390                 395                 400

His Asn Glu Arg Ala Arg Lys Ser Arg Asn Arg Leu Ser Ser Ser Ser
                405                 410                 415
```

Gln His Ser Arg Asp His Tyr Pro Leu Val Glu Glu Asp Tyr Pro Asp
420 425 430

Ser Tyr Gln Asp Thr Tyr Lys Pro His Arg Asn Arg Gly Ser Pro Gly
435 440 445

Gly Tyr Ser His Asp Ser Arg His Arg Leu
450 455

<210> 10692
<211> 207
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2128; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 4
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000353425"

<400> 10692
Met Tyr Asp Asn Leu Tyr Leu His Gly Ile Glu Asp Ser Glu Ala Gly
1 5 10 15

Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser Leu
20 25 30

Glu Glu Asp Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln Gln Ala Ala
35 40 45

Ile Gln Leu Glu Arg Ala Lys Ser Lys Pro Val Ala Phe Ala Val Lys
50 55 60

Thr Asn Val Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val Pro Val Pro
65 70 75 80

```
Ser Thr Ala Ile Ser Phe Asp Ala Lys Asp Phe Leu His Ile Lys Glu
                85                  90                  95

Lys Tyr Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Cys
            100                 105                 110

Glu Ile Gly Phe Ile Pro Ser Pro Leu Arg Leu Glu Asn Ile Arg Ile
        115                 120                 125

Gln Gln Glu Gln Lys Arg Gly Arg Phe His Gly Gly Lys Ser Ser Gly
    130                 135                 140

Asn Ser Ser Ser Ser Leu Gly Glu Met Val Ser Gly Thr Phe Arg Ala
145                 150                 155                 160

Thr Pro Thr Ser Thr Ala Lys Gln Lys Gln Lys Val Thr Glu His Ile
                165                 170                 175

Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly
            180                 185                 190

Pro Ser Leu Lys Gly Tyr Glu Asp Phe Asn Asn Glu Ser Asp Ser
        195                 200                 205


<210> 10693
<211> 473
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2128; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 4
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000380490"

<400> 10693
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```
Met Ala Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp
1               5                  10                  15

Val Ser Leu Glu Glu Asp Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln
            20                  25                  30

Gln Ala Ala Ile Gln Leu Glu Arg Ala Lys Ser Lys Pro Val Ala Phe
        35                  40                  45

Ala Val Lys Thr Asn Val Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val
    50                  55                  60

Pro Val Pro Ser Thr Ala Ile Ser Phe Asp Ala Lys Asp Phe Leu His
65                  70                  75                  80

Ile Lys Glu Lys Tyr Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys
                85                  90                  95

Glu Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro Leu Arg Leu Glu Asn
            100                 105                 110

Ile Arg Ile Gln Gln Glu Gln Lys Arg Gly Arg Phe His Gly Gly Lys
        115                 120                 125

Ser Ser Gly Asn Ser Ser Ser Ser Leu Gly Glu Met Val Ser Gly Thr
    130                 135                 140

Phe Arg Ala Thr Pro Thr Ser Thr Ala Lys Gln Lys Gln Lys Val Thr
145                 150                 155                 160

Glu His Ile Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val
                165                 170                 175

Leu Val Gly Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln
            180                 185                 190

Lys Ala Leu Phe Asp Phe Leu Lys His Arg Phe Asp Gly Arg Ile Ser
        195                 200                 205

Ile Thr Arg Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu
    210                 215                 220

Asn Asn Pro Ser Lys Arg Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser
```

225 230 235 240

Ser Leu Ala Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala
245 250 255

Arg Ser Leu Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro
260 265 270

Ala Gln Leu Ile Lys Thr Ser Leu Ala Pro Ile Ile Val His Val Lys
275 280 285

Val Ser Ser Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys
290 295 300

Ser Gln Ser Lys His Leu Asn Val Gln Leu Val Ala Ala Asp Lys Leu
305 310 315 320

Ala Gln Cys Pro Pro Glu Met Phe Asp Val Ile Leu Asp Glu Asn Gln
325 330 335

Leu Glu Asp Ala Cys Glu His Leu Gly Glu Tyr Leu Glu Ala Tyr Trp
340 345 350

Arg Ala Thr His Thr Thr Ser Ser Thr Pro Met Thr Pro Leu Leu Gly
355 360 365

Arg Asn Leu Gly Ser Thr Ala Leu Ser Pro Tyr Pro Thr Ala Ile Ser
370 375 380

Gly Leu Gln Ser Gln Arg Met Arg His Ser Asn His Ser Thr Glu Asn
385 390 395 400

Ser Pro Ile Glu Arg Arg Ser Leu Met Thr Ser Asp Glu Asn Tyr His
405 410 415

Asn Glu Arg Ala Arg Lys Ser Arg Asn Arg Leu Ser Ser Ser Ser Gln
420 425 430

His Ser Arg Asp His Tyr Pro Leu Val Glu Glu Asp Tyr Pro Asp Ser
435 440 445

Tyr Gln Asp Thr Tyr Lys Pro His Arg Asn Arg Gly Ser Pro Gly Gly
450 455 460

Tyr Ser His Asp Ser Arg His Arg Leu
465 470

<210> 10694
<211> 515
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2128; "

<220>
<221> source
<223> /note="Gene Symbol: CACNB4; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, beta 4
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390161"

<400> 10694
Ala Ala Val Leu Thr Gly Phe Ser Leu Ala Pro Val Cys Arg Val Gln
1 5 10 15

Val Ala Arg Gly Thr Thr Thr Arg Arg Ser Arg Leu Lys Arg Ser Asp
20 25 30

Gly Ser Thr Thr Ser Thr Ser Phe Ile Leu Arg Gln Gly Ser Ala Asp
35 40 45

Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser Leu Glu Glu Asp
50 55 60

Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln Gln Ala Ala Ile Gln Leu
65 70 75 80

Glu Arg Ala Lys Ser Lys Pro Val Ala Phe Ala Val Lys Thr Asn Val
85 90 95

Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val Pro Val Pro Ser Thr Ala
100 105 110

```
Ile Ser Phe Asp Ala Lys Asp Phe Leu His Ile Lys Glu Lys Tyr Asn
        115                 120                 125

Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Cys Glu Ile Gly
    130                 135                 140

Phe Ile Pro Ser Pro Leu Arg Leu Glu Asn Ile Arg Ile Gln Gln Glu
145                 150                 155                 160

Gln Lys Arg Gly Arg Phe His Gly Gly Lys Ser Ser Gly Asn Ser Ser
                165                 170                 175

Ser Ser Leu Gly Glu Met Val Ser Gly Thr Phe Arg Ala Thr Pro Thr
            180                 185                 190

Ser Thr Ala Lys Gln Lys Gln Lys Val Thr Glu His Ile Pro Pro Tyr
        195                 200                 205

Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly Pro Ser Leu
    210                 215                 220

Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu Phe Asp Phe
225                 230                 235                 240

Leu Lys His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg Val Thr Ala
                245                 250                 255

Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro Ser Lys Arg
            260                 265                 270

Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala Glu Val Gln
        275                 280                 285

Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Ser Leu Gln Leu Val
    290                 295                 300

Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu Ile Lys Thr
305                 310                 315                 320

Ser Leu Ala Pro Ile Ile Val His Val Lys Val Ser Ser Pro Lys Val
                325                 330                 335
```

```
Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ser Lys His Leu
            340                 345                 350

Asn Val Gln Leu Val Ala Ala Asp Lys Leu Ala Gln Cys Pro Pro Glu
        355                 360                 365

Met Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp Ala Cys Glu
    370                 375                 380

His Leu Gly Glu Tyr Leu Glu Ala Tyr Trp Arg Ala Thr His Thr Thr
385                 390                 395                 400

Ser Ser Thr Pro Met Thr Pro Leu Leu Gly Arg Asn Leu Gly Ser Thr
                405                 410                 415

Ala Leu Ser Pro Tyr Pro Thr Ala Ile Ser Gly Leu Gln Ser Gln Arg
            420                 425                 430

Met Arg His Ser Asn His Ser Thr Glu Asn Ser Pro Ile Glu Arg Arg
        435                 440                 445

Ser Leu Met Thr Ser Asp Glu Asn Tyr His Asn Glu Arg Ala Arg Lys
    450                 455                 460

Ser Arg Asn Arg Leu Ser Ser Ser Ser Gln His Ser Arg Asp His Tyr
465                 470                 475                 480

Pro Leu Val Glu Glu Asp Tyr Pro Asp Ser Tyr Gln Asp Thr Tyr Lys
                485                 490                 495

Pro His Arg Asn Arg Gly Ser Pro Gly Gly Tyr Ser His Asp Ser Arg
            500                 505                 510

His Arg Leu
        515
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<210> 10695
<211> 108
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2128; "

<220>
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<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 4
      subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000399242"

<400> 10695
Met Ala Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp
1   5   10   15

Val Ser Leu Glu Glu Asp Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln
            20   25   30

Gln Ala Ala Ile Gln Leu Glu Arg Ala Lys Ser Lys Pro Val Ala Phe
        35   40   45

Ala Val Lys Thr Asn Val Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val
    50   55   60

Pro Val Pro Ser Thr Ala Ile Ser Phe Asp Ala Lys Asp Phe Leu His
65   70   75   80

Ile Lys Glu Lys Tyr Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys
                85   90   95

Glu Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro Leu
            100   105

<210> 10696
<211> 502
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="ENSP ID: ENSP00000410978"

<400> 10696

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Met Asp Val Val Ala Arg Gly Thr Thr Thr Arg Arg Ser Arg Leu Lys
1               5                  10                  15

Arg Ser Asp Gly Ser Thr Thr Ser Thr Ser Phe Ile Leu Arg Gln Gly
            20                  25                  30

Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser Leu
        35                  40                  45

Glu Glu Asp Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln Gln Ala Ala
    50                  55                  60

Ile Gln Leu Glu Arg Ala Lys Ser Lys Pro Val Ala Phe Ala Val Lys
65                  70                  75                  80

Thr Asn Val Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val Pro Val Pro
                85                  90                  95

Ser Thr Ala Ile Ser Phe Asp Ala Lys Asp Phe Leu His Ile Lys Glu
            100                 105                 110

Lys Tyr Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Cys
        115                 120                 125

Glu Ile Gly Phe Ile Pro Ser Pro Leu Arg Leu Glu Asn Ile Arg Ile
    130                 135                 140

Gln Gln Glu Gln Lys Arg Gly Arg Phe His Gly Gly Lys Ser Ser Gly
145                 150                 155                 160

Asn Ser Ser Ser Ser Leu Gly Glu Met Val Ser Gly Thr Phe Arg Ala
                165                 170                 175
```

```
Thr Pro Thr Ser Thr Ala Lys Gln Lys Gln Lys Val Thr Glu His Ile
            180                 185                 190

Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly
        195                 200                 205

Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu
    210                 215                 220

Phe Asp Phe Leu Lys His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg
225                 230                 235                 240

Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro
                245                 250                 255

Ser Lys Arg Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala
            260                 265                 270

Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Ser Leu
        275                 280                 285

Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu
    290                 295                 300

Ile Lys Thr Ser Leu Ala Pro Ile Ile Val His Val Lys Val Ser Ser
305                 310                 315                 320

Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ser
                325                 330                 335

Lys His Leu Asn Val Gln Leu Val Ala Ala Asp Lys Leu Ala Gln Cys
            340                 345                 350

Pro Pro Glu Met Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp
        355                 360                 365

Ala Cys Glu His Leu Gly Glu Tyr Leu Glu Ala Tyr Trp Arg Ala Thr
    370                 375                 380

His Thr Thr Ser Ser Thr Pro Met Thr Pro Leu Leu Gly Arg Asn Leu
385                 390                 395                 400
```

Gly Ser Thr Ala Leu Ser Pro Tyr Pro Thr Ala Ile Ser Gly Leu Gln
405 410 415

Ser Gln Arg Met Arg His Ser Asn His Ser Thr Glu Asn Ser Pro Ile
420 425 430

Glu Arg Arg Ser Leu Met Thr Ser Asp Glu Asn Tyr His Asn Glu Arg
435 440 445

Ala Arg Lys Ser Arg Asn Arg Leu Ser Ser Ser Ser Gln His Ser Arg
450 455 460

Asp His Tyr Pro Leu Val Glu Glu Asp Tyr Pro Asp Ser Tyr Gln Asp
465 470 475 480

Thr Tyr Lys Pro His Arg Asn Arg Gly Ser Pro Gly Gly Tyr Ser His
485 490 495

Asp Ser Arg His Arg Leu
500

<210> 10697
<211> 520
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
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subunit; "

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<223> /note="Uniprot ID: O00305; "

<220>
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<223> /note="ENSP ID: ENSP00000438949"

<400> 10697
Met Ser Ser Ser Ser Tyr Ala Lys Asn Gly Thr Ala Asp Gly Pro His

```
1               5                   10                  15

Ser Pro Thr Ser Gln Val Ala Arg Gly Thr Thr Thr Arg Arg Ser Arg
            20                  25                  30

Leu Lys Arg Ser Asp Gly Ser Thr Thr Ser Thr Ser Phe Ile Leu Arg
        35                  40                  45

Gln Gly Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val
    50                  55                  60

Ser Leu Glu Glu Asp Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln Gln
65                  70                  75                  80

Ala Ala Ile Gln Leu Glu Arg Ala Lys Ser Lys Pro Val Ala Phe Ala
                85                  90                  95

Val Lys Thr Asn Val Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val Pro
            100                 105                 110

Val Pro Ser Thr Ala Ile Ser Phe Asp Ala Lys Asp Phe Leu His Ile
        115                 120                 125

Lys Glu Lys Tyr Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu
    130                 135                 140

Gly Cys Glu Ile Gly Phe Ile Pro Ser Pro Leu Arg Leu Glu Asn Ile
145                 150                 155                 160

Arg Ile Gln Gln Glu Gln Lys Arg Gly Arg Phe His Gly Gly Lys Ser
                165                 170                 175

Ser Gly Asn Ser Ser Ser Ser Leu Gly Glu Met Val Ser Gly Thr Phe
            180                 185                 190

Arg Ala Thr Pro Thr Ser Thr Ala Lys Gln Lys Gln Lys Val Thr Glu
        195                 200                 205

His Ile Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu
    210                 215                 220

Val Gly Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys
225                 230                 235                 240
```

```
Ala Leu Phe Asp Phe Leu Lys His Arg Phe Asp Gly Arg Ile Ser Ile
                245                 250                 255

Thr Arg Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn
            260                 265                 270

Asn Pro Ser Lys Arg Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser
        275                 280                 285

Leu Ala Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg
    290                 295                 300

Ser Leu Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala
305                 310                 315                 320

Gln Leu Ile Lys Thr Ser Leu Ala Pro Ile Ile Val His Val Lys Val
                325                 330                 335

Ser Ser Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser
            340                 345                 350

Gln Ser Lys His Leu Asn Val Gln Leu Val Ala Ala Asp Lys Leu Ala
        355                 360                 365

Gln Cys Pro Pro Glu Met Phe Asp Val Ile Leu Asp Glu Asn Gln Leu
    370                 375                 380

Glu Asp Ala Cys Glu His Leu Gly Glu Tyr Leu Glu Ala Tyr Trp Arg
385                 390                 395                 400

Ala Thr His Thr Thr Ser Ser Thr Pro Met Thr Pro Leu Leu Gly Arg
                405                 410                 415

Asn Leu Gly Ser Thr Ala Leu Ser Pro Tyr Pro Thr Ala Ile Ser Gly
            420                 425                 430

Leu Gln Ser Gln Arg Met Arg His Ser Asn His Ser Thr Glu Asn Ser
        435                 440                 445

Pro Ile Glu Arg Arg Ser Leu Met Thr Ser Asp Glu Asn Tyr His Asn
    450                 455                 460
```

Glu Arg Ala Arg Lys Ser Arg Asn Arg Leu Ser Ser Ser Ser Gln His
465 470 475 480

Ser Arg Asp His Tyr Pro Leu Val Glu Glu Asp Tyr Pro Asp Ser Tyr
485 490 495

Gln Asp Thr Tyr Lys Pro His Arg Asn Arg Gly Ser Pro Gly Gly Tyr
500 505 510

Ser His Asp Ser Arg His Arg Leu
515 520

<210> 10698
<211> 486
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CACNB4; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
beta 4
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: O00305; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000443893"

<400> 10698
Met Tyr Asp Asn Leu Tyr Leu His Gly Ile Glu Asp Ser Glu Ala Gly
1 5 10 15

Ser Ala Asp Ser Tyr Thr Ser Arg Pro Ser Asp Ser Asp Val Ser Leu
20 25 30

Glu Glu Asp Arg Glu Ala Ile Arg Gln Glu Arg Glu Gln Gln Ala Ala
35 40 45

```
Ile Gln Leu Glu Arg Ala Lys Ser Lys Pro Val Ala Phe Ala Val Lys
    50                  55                  60

Thr Asn Val Ser Tyr Cys Gly Ala Leu Asp Glu Asp Val Pro Val Pro
65                  70                  75                  80

Ser Thr Ala Ile Ser Phe Asp Ala Lys Asp Phe Leu His Ile Lys Glu
                85                  90                  95

Lys Tyr Asn Asn Asp Trp Trp Ile Gly Arg Leu Val Lys Glu Gly Cys
            100                 105                 110

Glu Ile Gly Phe Ile Pro Ser Pro Leu Arg Leu Glu Asn Ile Arg Ile
        115                 120                 125

Gln Gln Glu Gln Lys Arg Gly Arg Phe His Gly Gly Lys Ser Ser Gly
    130                 135                 140

Asn Ser Ser Ser Ser Leu Gly Glu Met Val Ser Gly Thr Phe Arg Ala
145                 150                 155                 160

Thr Pro Thr Ser Thr Ala Lys Gln Lys Gln Lys Val Thr Glu His Ile
                165                 170                 175

Pro Pro Tyr Asp Val Val Pro Ser Met Arg Pro Val Val Leu Val Gly
            180                 185                 190

Pro Ser Leu Lys Gly Tyr Glu Val Thr Asp Met Met Gln Lys Ala Leu
        195                 200                 205

Phe Asp Phe Leu Lys His Arg Phe Asp Gly Arg Ile Ser Ile Thr Arg
    210                 215                 220

Val Thr Ala Asp Ile Ser Leu Ala Lys Arg Ser Val Leu Asn Asn Pro
225                 230                 235                 240

Ser Lys Arg Ala Ile Ile Glu Arg Ser Asn Thr Arg Ser Ser Leu Ala
                245                 250                 255

Glu Val Gln Ser Glu Ile Glu Arg Ile Phe Glu Leu Ala Arg Ser Leu
            260                 265                 270

Gln Leu Val Val Leu Asp Ala Asp Thr Ile Asn His Pro Ala Gln Leu
```

275 280 285

Ile Lys Thr Ser Leu Ala Pro Ile Ile Val His Val Lys Val Ser Ser
290 295 300

Pro Lys Val Leu Gln Arg Leu Ile Lys Ser Arg Gly Lys Ser Gln Ser
305 310 315 320

Lys His Leu Asn Val Gln Leu Val Ala Ala Asp Lys Leu Ala Gln Cys
325 330 335

Pro Pro Glu Met Phe Asp Val Ile Leu Asp Glu Asn Gln Leu Glu Asp
340 345 350

Ala Cys Glu His Leu Gly Glu Tyr Leu Glu Ala Tyr Trp Arg Ala Thr
355 360 365

His Thr Thr Ser Ser Thr Pro Met Thr Pro Leu Leu Gly Arg Asn Leu
370 375 380

Gly Ser Thr Ala Leu Ser Pro Tyr Pro Thr Ala Ile Ser Gly Leu Gln
385 390 395 400

Ser Gln Arg Met Arg His Ser Asn His Ser Thr Glu Asn Ser Pro Ile
405 410 415

Glu Arg Arg Ser Leu Met Thr Ser Asp Glu Asn Tyr His Asn Glu Arg
420 425 430

Ala Arg Lys Ser Arg Asn Arg Leu Ser Ser Ser Ser Gln His Ser Arg
435 440 445

Asp His Tyr Pro Leu Val Glu Glu Asp Tyr Pro Asp Ser Tyr Gln Asp
450 455 460

Thr Tyr Lys Pro His Arg Asn Arg Gly Ser Pro Gly Gly Tyr Ser His
465 470 475 480

Asp Ser Arg His Arg Leu
485

<210> 10699
<211> 114

<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CBARP; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta subunit
associated regulatory prt; "

<220>
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<223> /note="ENSP ID: ENSP00000215376"

<400> 10699
Met Gln Pro Thr Ala Thr Met Ala Thr Ala Ala Thr Thr Thr Thr Thr
1 5 10 15

Thr Thr Ala Thr Val Ala Leu Thr Thr Ser Trp Asp Asn Ala Thr Gly
20 25 30

Arg Pro Thr Ala Glu Pro Asp Pro Ile Leu Asp Asn Tyr Val Leu Leu
35 40 45

Val Val Val Met Ser Leu Phe Val Gly Gly Thr Leu Val Val Leu Ser
50 55 60

Gly Val Leu Leu Leu Cys Lys Arg Cys Trp Asp Val His Gln Arg Leu
65 70 75 80

Asn Arg Ala Met Glu Glu Ala Glu Lys Thr Thr Thr Thr Tyr Leu Asp
85 90 95

Asn Gly Thr His Pro Ala Gln Gly Val Gly Gly Pro Arg Arg Val Leu
100 105 110

Ser Glu

<210> 10700
<211> 725
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2129; "

<220>
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<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta subunit
associated regulatory prt; "

<220>
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<223> /note="Uniprot ID: Q8N350; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371917"

<400> 10700

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Met Ala Thr Ala Ala Thr Thr Thr Thr Thr Thr Ala Thr Val Ala
1               5                  10                  15


Leu Thr Thr Ser Trp Asp Asn Ala Thr Gly Arg Pro Thr Ala Glu Pro
            20                  25                  30


Asp Pro Ile Leu Asp Asn Tyr Val Leu Leu Val Val Val Met Ser Leu
        35                  40                  45


Phe Val Gly Gly Thr Leu Val Val Leu Ser Gly Val Leu Leu Leu Cys
    50                  55                  60


Lys Arg Cys Trp Asp Val His Gln Arg Leu Asn Arg Ala Met Glu Glu
65                  70                  75                  80


Ala Glu Lys Thr Thr Thr Thr Tyr Leu Asp Asn Gly Thr His Pro Ala
                85                  90                  95


Gln Asp Pro Asp Phe Arg Gly Glu Asp Pro Glu Cys Gln Asp Ala Glu
            100                 105                 110


Thr Glu Arg Phe Leu Ser Thr Ser Ser Thr Gly Arg Arg Val Ser Phe
        115                 120                 125
```

```
Asn Glu Ala Ala Leu Phe Glu Gln Ser Arg Lys Thr Gln Asp Lys Gly
    130                 135                 140

Arg Gln Gly Gly Trp Gln Ser Thr Ala Ala Gly Ala Ser Gly Met Gly
145                 150                 155                 160

Gly Gly Arg Ala Leu Met Ala Arg Cys Cys Arg Arg Tyr Thr Leu Thr
                165                 170                 175

Glu Gly Asp Phe His His Leu Lys Asn Ala Arg Leu Thr His Leu His
            180                 185                 190

Leu Pro Pro Leu Lys Ile Val Thr Ile His Glu Cys Asp Ser Gly Glu
        195                 200                 205

Ala Ser Ser Ala Thr Thr Pro His Pro Ala Thr Ser Pro Lys Ala Thr
    210                 215                 220

Leu Ala Ile Phe Gln Pro Pro Gly Lys Ala Leu Thr Gly Arg Ser Val
225                 230                 235                 240

Gly Pro Ser Ser Ala Leu Pro Gly Asp Pro Tyr Asn Ser Ala Ala Gly
                245                 250                 255

Ala Thr Asp Phe Ala Glu Ile Ser Pro Ser Ala Ser Ser Asp Ser Gly
            260                 265                 270

Glu Gly Thr Ser Leu Asp Ala Gly Thr Arg Ser Thr Lys Ala Gly Gly
        275                 280                 285

Pro Gly Ala Ala Ala Gly Pro Gly Glu Ala Gly Pro Gly Ser Gly Ala
    290                 295                 300

Gly Thr Val Leu Gln Phe Leu Thr Arg Leu Arg Arg His Ala Ser Leu
305                 310                 315                 320

Asp Gly Ala Ser Pro Tyr Phe Lys Val Lys Lys Trp Lys Leu Glu Pro
                325                 330                 335

Ser Gln Arg Ala Ala Ser Leu Asp Thr Arg Gly Ser Pro Lys Arg His
            340                 345                 350

His Phe Gln Arg Gln Arg Ala Ala Ser Glu Ser Thr Glu Gln Glu Glu
```

```
        355                 360                 365

Gly Asp Ala Pro Gln Glu Asp Phe Ile Gln Tyr Ile Ala Arg Ala Gly
    370                 375                 380

Asp Ala Val Ala Phe Pro His Pro Arg Pro Phe Leu Ala Ser Pro Pro
385                 390                 395                 400

Pro Ala Leu Gly Arg Leu Glu Ala Ala Glu Ala Ala Gly Gly Ala Ser
                405                 410                 415

Pro Asp Ser Pro Pro Glu Arg Gly Ala Gly Ser Ala Gly Pro Glu Gln
            420                 425                 430

Gln Gln Pro Pro Leu Glu Pro Asp Ala Glu Arg Asp Ala Gly Pro Glu
        435                 440                 445

Gln Ala Gln Thr Ser Tyr Arg Asp Leu Trp Ser Leu Arg Ala Ser Leu
    450                 455                 460

Glu Leu His Ala Ala Ala Ser Asp His Ser Ser Ser Gly Asn Asp Arg
465                 470                 475                 480

Asp Ser Val Arg Ser Gly Asp Ser Ser Gly Ser Gly Ser Gly Gly Ala
                485                 490                 495

Ala Pro Ala Phe Pro Pro Pro Ser Pro Pro Ala Pro Arg Pro Lys Asp
            500                 505                 510

Gly Glu Ala Arg Arg Leu Leu Gln Met Asp Ser Gly Tyr Ala Ser Ile
        515                 520                 525

Glu Gly Arg Gly Ala Gly Asp Asp Thr Glu Pro Pro Ala Ala Pro Ala
    530                 535                 540

Arg Pro Arg Ser Pro Arg Ala Trp Pro Arg Arg Pro Arg Arg Asp Tyr
545                 550                 555                 560

Ser Ile Asp Glu Lys Thr Asp Ala Leu Phe His Glu Phe Leu Arg His
                565                 570                 575

Asp Pro His Phe Asp Asp Thr Pro Ala Ala Ala Arg His Arg Ala Arg
            580                 585                 590
```

```
Ala His Pro His Ala Arg Lys Gln Trp Gln Arg Gly Arg Gln His Ser
        595                 600                 605

Asp Pro Gly Ala Arg Ala Ala Pro Ala Leu Ala Gly Thr Pro Ala Pro
    610                 615                 620

Pro Ala Gly Ala Ala Arg Pro Ala Arg Ala Pro Leu Arg Arg Gly Asp
625                 630                 635                 640

Ser Val Asp Gly Pro Pro Asp Gly Arg Thr Leu Gly Gly Ala Gly Asp
                645                 650                 655

Asp Pro Ala Ile Pro Val Ile Glu Glu Glu Pro Gly Gly Gly Gly Cys
            660                 665                 670

Pro Gly Ser Gly Leu Cys Val Leu Pro Ser Gly Ser Val Leu Asp Lys
        675                 680                 685

Leu Ala Ala Gly Leu Asp Glu Arg Leu Phe Pro Pro Arg Leu Ala Glu
    690                 695                 700

Pro Val Val Ala Thr Pro Ala Leu Val Ala Ala Ala Pro Thr Ser Pro
705                 710                 715                 720

Asp His Ser Pro Ala
                725


<210> 10701
<211> 49
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2129; "

<220>
<221> source
<223> /note="Gene Symbol: CBARP; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      beta subunit
      associated regulatory prt; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000464878"

<400> 10701
Met Gln Pro Thr Ala Thr Met Ala Thr Ala Ala Thr Thr Thr Thr Thr
1   5   10   15

Thr Thr Ala Thr Val Ala Leu Thr Thr Ser Trp Asp Asn Ala Thr Gly
            20   25   30

Arg Pro Thr Ser Gln Thr Pro Ser Trp Thr Thr Thr Cys Cys Trp Trp
        35   40   45

Trp

<210> 10702
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2129; "

<220>
<221> source
<223> /note="Gene Symbol: CBARP; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
      beta subunit
      associated regulatory prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465260"

<400> 10702
Met Gln Pro Thr Ala Thr Met Ala Thr Ala Ala Thr Thr Thr Thr Thr
1   5   10   15

Thr Thr Ala Thr Val Ala Leu Thr Thr Ser Trp Asp Asn Ala Thr Gly
            20   25   30

Arg Pro Thr Ala Glu Pro Asp Pro Ile Leu Asp Asn Tyr Val Leu Leu
        35   40   45

```
Val Val Val Met Ser Leu Phe Val Gly Gly Thr Leu Val Val Leu Ser
    50                  55                  60

Gly Val Leu Leu Leu Cys Lys Arg Cys Trp Asp Val His Gln Arg Leu
65                  70                  75                  80

Asn Arg Ala Met Glu Glu Ala Glu Lys Thr Thr Thr Thr Tyr Leu Asp
                85                  90                  95

Asn Gly Thr His Pro Ala Gln Asp Pro Asp Phe Arg Gly Glu Asp Pro
            100                 105                 110

Glu Cys Gln Asp Ala Glu Thr Glu Arg Phe Leu Ser Thr Ser Ser Thr
        115                 120                 125

Gly Arg Arg Val Ser Phe Asn Glu Ala Ala Leu Phe Glu Gln Ser Arg
    130                 135                 140

Lys Thr Gln Asp Lys Gly Arg Arg Tyr Thr Leu Thr Glu Gly Asp Phe
145                 150                 155                 160

His His Leu Lys Asn Ala Arg Leu Thr His Leu His Leu Pro Pro Leu
                165                 170                 175

Lys Ile Val Thr Ile His Glu Cys Asp Ser Gly Glu Ala Ser Ser Ala
            180                 185                 190

Thr Thr Pro His Pro Ala Thr Ser Pro Lys Ala Thr Leu Ala Ile Phe
        195                 200                 205

Gln Pro Pro Gly Lys Ala Leu Thr Gly Arg Ser Val Gly Pro Ser Ser
    210                 215                 220

Ala Leu Pro Gly Asp Pro Tyr Asn Ser Ala Ala Gly Ala Thr Asp Phe
225                 230                 235                 240

Ala Glu Ile Ser Pro Ser Ala Ser Ser Asp Ser Gly Glu Gly Thr Ser
                245                 250                 255

Leu Asp Ala Gly Thr Arg Ser Thr Lys Ala Gly Gly Pro Gly Ala Ala
            260                 265                 270

Ala Gly Pro Gly Glu Ala Gly Pro Gly Ser Gly Ala Gly Thr Val Leu
```

275 280 285

Gln Phe Leu Thr Arg Leu Arg Arg His Ala Ser Leu Asp Gly Ala Ser
290 295 300

Pro Tyr Phe Lys Val Lys Lys Trp Lys Leu Glu Pro Ser Gln Arg Ala
305 310 315 320

Ala Ser Leu Asp Thr Arg Gly Ser Pro Lys Arg His His Phe Gln Arg
325 330 335

Gln Arg Ala Ala Ser Glu Ser Thr Glu Gln Glu Glu Gly Asp Ala Pro
340 345 350

Gln Glu Asp Phe Ile Gln Tyr Ile Ala Arg Ala Gly Asp Ala Val Ala
355 360 365

Phe Pro His Pro Arg Pro Phe Leu Ala Ser Pro Pro Pro Ala Leu Gly
370 375 380

Arg Tyr Phe Ser Val Asp Gly Gly Ala Arg Gly Gly Pro Val Gly Pro
385 390 395 400

Cys Pro Pro Ser Pro Pro Pro Arg Arg Pro Arg Glu Arg Ser Pro Gly
405 410 415

Pro Val Asp Thr Arg Ser Pro Ala Ser Ser Gly Lys Ala Pro Pro Arg
420 425 430

Gly Gly Leu Thr Gly Ala Thr Ser Pro Ala Trp Thr Arg Gly Gly Lys
435 440 445

Gln Gly Glu Thr Gly
450

<210> 10703
<211> 91
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2129; "

<220>

<221> source
<223> /note="Gene Symbol: CBARP; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
beta subunit
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000466109"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10703
Xaa Thr Ser Ser Thr Gly Arg Arg Val Ser Phe Asn Glu Ala Ala Leu
1 5 10 15

Phe Glu Gln Ser Arg Lys Thr Gln Asp Lys Gly Arg Arg Tyr Thr Leu
20 25 30

Thr Glu Gly Asp Phe His His Leu Lys Asn Ala Arg Leu Thr His Leu
35 40 45

His Leu Pro Pro Leu Lys Ile Val Thr Ile His Glu Cys Asp Ser Gly
50 55 60

Glu Ala Ser Ser Ala Thr Thr Pro His Pro Ala Thr Ser Pro Lys Ala
65 70 75 80

Thr Leu Ala Ile Phe Gln Leu Arg Pro Ala Arg
85 90

<210> 10704
<211> 222
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2130; "

<220>
<221> source
<223> /note="Gene Symbol: CACNG1; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
gamma
subunit 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q06432; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000226021"

<400> 10704
Met Ser Gln Thr Lys Met Leu Lys Val Arg Val Thr Leu Phe Cys Ile
1 5 10 15

Leu Ala Gly Ile Val Leu Ala Met Thr Ala Val Val Thr Asp His Trp
20 25 30

Ala Val Leu Ser Pro His Met Glu His His Asn Thr Thr Cys Glu Ala
35 40 45

Ala His Phe Gly Leu Trp Arg Ile Cys Thr Lys Arg Ile Pro Met Asp
50 55 60

Asp Ser Lys Thr Cys Gly Pro Ile Thr Leu Pro Gly Glu Lys Asn Cys
65 70 75 80

Ser Tyr Phe Arg His Phe Asn Pro Gly Glu Ser Ser Glu Ile Phe Glu
85 90 95

Phe Thr Thr Gln Lys Glu Tyr Ser Ile Ser Ala Ala Ala Ile Ala Ile
100 105 110

Phe Ser Leu Gly Phe Ile Ile Leu Gly Ser Leu Cys Val Leu Leu Ser
115 120 125

Leu Gly Lys Lys Arg Asp Tyr Leu Leu Arg Pro Ala Ser Met Phe Tyr
130 135 140

Ala Phe Ala Gly Leu Cys Ile Leu Val Ser Val Glu Val Met Arg Gln
145 150 155 160

Ser Val Lys Arg Met Ile Asp Ser Glu Asp Thr Val Trp Ile Glu Tyr
165 170 175

```
Tyr Tyr Ser Trp Ser Phe Ala Cys Ala Cys Ala Ala Phe Ile Leu Leu
            180                 185                 190


Phe Leu Gly Gly Leu Ala Leu Leu Leu Phe Ser Leu Pro Arg Met Pro
        195                 200                 205


Arg Asn Pro Trp Glu Ser Cys Met Asp Ala Glu Pro Glu His
    210                 215                 220


<210> 10705
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2131; "

<220>
<221> source
<223> /note="Gene Symbol: CACNG2; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
gamma
      subunit 2; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y698; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000300105"

<400> 10705
Met Gly Leu Phe Asp Arg Gly Val Gln Met Leu Leu Thr Thr Val Gly
1               5                   10                  15


Ala Phe Ala Ala Phe Ser Leu Met Thr Ile Ala Val Gly Thr Asp Tyr
            20                  25                  30


Trp Leu Tyr Ser Arg Gly Val Cys Lys Thr Lys Ser Val Ser Glu Asn
        35                  40                  45


Glu Thr Ser Lys Lys Asn Glu Glu Val Met Thr His Ser Gly Leu Trp
    50                  55                  60
```

```
Arg Thr Cys Cys Leu Glu Gly Asn Phe Lys Gly Leu Cys Lys Gln Ile
65                  70                  75                  80

Asp His Phe Pro Glu Asp Ala Asp Tyr Glu Ala Asp Thr Ala Glu Tyr
                85                  90                  95

Phe Leu Arg Ala Val Arg Ala Ser Ser Ile Phe Pro Ile Leu Ser Val
            100                 105                 110

Ile Leu Leu Phe Met Gly Gly Leu Cys Ile Ala Ala Ser Glu Phe Tyr
        115                 120                 125

Lys Thr Arg His Asn Ile Ile Leu Ser Ala Gly Ile Phe Phe Val Ser
    130                 135                 140

Ala Gly Leu Ser Asn Ile Ile Gly Ile Ile Val Tyr Ile Ser Ala Asn
145                 150                 155                 160

Ala Gly Asp Pro Ser Lys Ser Asp Ser Lys Lys Asn Ser Tyr Ser Tyr
                165                 170                 175

Gly Trp Ser Phe Tyr Phe Gly Ala Leu Ser Phe Ile Ile Ala Glu Met
            180                 185                 190

Val Gly Val Leu Ala Val His Met Phe Ile Asp Arg His Lys Gln Leu
        195                 200                 205

Arg Ala Thr Ala Arg Ala Thr Asp Tyr Leu Gln Ala Ser Ala Ile Thr
    210                 215                 220

Arg Ile Pro Ser Tyr Arg Tyr Arg Tyr Gln Arg Arg Ser Arg Ser Ser
225                 230                 235                 240

Ser Arg Ser Thr Glu Pro Ser His Ser Arg Asp Ala Ser Pro Val Gly
                245                 250                 255

Ile Lys Gly Phe Asn Thr Leu Pro Ser Thr Glu Ile Ser Met Tyr Thr
            260                 265                 270

Leu Ser Arg Asp Pro Leu Lys Ala Ala Thr Thr Pro Thr Ala Thr Tyr
        275                 280                 285
```

Asn Ser Asp Arg Asp Asn Ser Phe Leu Gln Val His Asn Cys Ile Gln
290 295 300

Lys Glu Asn Lys Asp Ser Leu His Ser Asn Thr Ala Asn Arg Arg Thr
305 310 315 320

Thr Pro Val

<210> 10706
<211> 315
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CACNG3; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, gamma
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<220>
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<223> /note="Uniprot ID: O60359; "

<220>
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<400> 10706
Met Arg Met Cys Asp Arg Gly Ile Gln Met Leu Ile Thr Thr Val Gly
1 5 10 15

Ala Phe Ala Ala Phe Ser Leu Met Thr Ile Ala Val Gly Thr Asp Tyr
20 25 30

Trp Leu Tyr Ser Arg Gly Val Cys Arg Thr Lys Ser Thr Ser Asp Asn
35 40 45

Glu Thr Ser Arg Lys Asn Glu Glu Val Met Thr His Ser Gly Leu Trp
50 55 60

Arg Thr Cys Cys Leu Glu Gly Ala Phe Arg Gly Val Cys Lys Lys Ile

65 70 75 80

Asp His Phe Pro Glu Asp Ala Asp Tyr Glu Gln Asp Thr Ala Glu Tyr
85 90 95

Leu Leu Arg Ala Val Arg Ala Ser Ser Val Phe Pro Ile Leu Ser Val
100 105 110

Thr Leu Leu Phe Phe Gly Gly Leu Cys Val Ala Ala Ser Glu Phe His
115 120 125

Arg Ser Arg His Asn Val Ile Leu Ser Ala Gly Ile Phe Phe Val Ser
130 135 140

Ala Gly Leu Ser Asn Ile Ile Gly Ile Ile Val Tyr Ile Ser Ala Asn
145 150 155 160

Ala Gly Asp Pro Gly Gln Arg Asp Ser Lys Lys Ser Tyr Ser Tyr Gly
165 170 175

Trp Ser Phe Tyr Phe Gly Ala Phe Ser Phe Ile Ile Ala Glu Ile Val
180 185 190

Gly Val Val Ala Val His Ile Tyr Ile Glu Lys His Gln Gln Leu Arg
195 200 205

Ala Lys Ser His Ser Glu Phe Leu Lys Lys Ser Thr Phe Ala Arg Leu
210 215 220

Pro Pro Tyr Arg Tyr Arg Phe Arg Arg Arg Ser Ser Ser Arg Ser Thr
225 230 235 240

Glu Pro Arg Ser Arg Asp Leu Ser Pro Ile Ser Lys Gly Phe His Thr
245 250 255

Ile Pro Ser Thr Asp Ile Ser Met Phe Thr Leu Ser Arg Asp Pro Ser
260 265 270

Lys Ile Thr Met Gly Thr Leu Leu Asn Ser Asp Arg Asp His Ala Phe
275 280 285

Leu Gln Phe His Asn Ser Thr Pro Lys Glu Phe Lys Glu Ser Leu His
290 295 300

```
Asn Asn Pro Ala Asn Arg Arg Thr Thr Pro Val
305                 310                 315


<210> 10707
<211> 327
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CACNG4; "

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gamma
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<220>
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<223> /note="Uniprot ID:  Q9UBN1; "

<220>
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<223> /note="ENSP ID: ENSP00000262138"

<400> 10707
Met Val Arg Cys Asp Arg Gly Leu Gln Met Leu Leu Thr Thr Ala Gly
1               5                   10                  15


Ala Phe Ala Ala Phe Ser Leu Met Ala Ile Ala Ile Gly Thr Asp Tyr
            20                  25                  30


Trp Leu Tyr Ser Ser Ala His Ile Cys Asn Gly Thr Asn Leu Thr Met
        35                  40                  45


Asp Asp Gly Pro Pro Pro Arg Arg Ala Arg Gly Asp Leu Thr His Ser
    50                  55                  60


Gly Leu Trp Arg Val Cys Cys Ile Glu Gly Ile Tyr Lys Gly His Cys
65                  70                  75                  80


Phe Arg Ile Asn His Phe Pro Glu Asp Asn Asp Tyr Asp His Asp Ser
                85                  90                  95
```

Ser Glu Tyr Leu Leu Arg Ile Val Arg Ala Ser Ser Val Phe Pro Ile
100 105 110

Leu Ser Thr Ile Leu Leu Leu Leu Gly Gly Leu Cys Ile Gly Ala Gly
115 120 125

Arg Ile Tyr Ser Arg Lys Asn Asn Ile Val Leu Ser Ala Gly Ile Leu
130 135 140

Phe Val Ala Ala Gly Leu Ser Asn Ile Ile Gly Ile Ile Val Tyr Ile
145 150 155 160

Ser Ser Asn Thr Gly Asp Pro Ser Asp Lys Arg Asp Glu Asp Lys Lys
165 170 175

Asn His Tyr Asn Tyr Gly Trp Ser Phe Tyr Phe Gly Ala Leu Ser Phe
180 185 190

Ile Val Ala Glu Thr Val Gly Val Leu Ala Val Asn Ile Tyr Ile Glu
195 200 205

Lys Asn Lys Glu Leu Arg Phe Lys Thr Lys Arg Glu Phe Leu Lys Ala
210 215 220

Ser Ser Ser Ser Pro Tyr Ala Arg Met Pro Ser Tyr Arg Tyr Arg Arg
225 230 235 240

Arg Arg Ser Arg Ser Ser Ser Arg Ser Thr Glu Ala Ser Pro Ser Arg
245 250 255

Asp Val Ser Pro Met Gly Leu Lys Ile Thr Gly Ala Ile Pro Met Gly
260 265 270

Glu Leu Ser Met Tyr Thr Leu Ser Arg Glu Pro Leu Lys Val Thr Thr
275 280 285

Ala Ala Ser Tyr Ser Pro Asp Gln Glu Ala Ser Phe Leu Gln Val His
290 295 300

Asp Phe Phe Gln Gln Asp Leu Lys Glu Gly Phe His Val Ser Met Leu
305 310 315 320

Asn Arg Arg Thr Thr Pro Val
325

<210> 10708
<211> 275
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, gamma
subunit 5; "

<220>
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<223> /note="Uniprot ID: Q9UF02; "

<220>
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<223> /note="ENSP ID: ENSP00000303092"

<400> 10708
Met Ser Ala Cys Gly Arg Lys Ala Leu Thr Leu Leu Ser Ser Val Phe
1 5 10 15

Ala Val Cys Gly Leu Gly Leu Leu Gly Ile Ala Val Ser Thr Asp Tyr
20 25 30

Trp Leu Tyr Leu Glu Glu Gly Val Ile Val Pro Gln Asn Gln Ser Thr
35 40 45

Glu Ile Lys Met Ser Leu His Ser Gly Leu Trp Arg Val Cys Phe Leu
50 55 60

Ala Gly Glu Glu Arg Gly Arg Cys Phe Thr Ile Glu Tyr Val Met Pro
65 70 75 80

Met Asn Thr Gln Leu Thr Ser Glu Ser Thr Val Asn Val Leu Lys Met
85 90 95

Ile Arg Ser Ala Thr Pro Phe Pro Leu Val Ser Leu Phe Phe Met Phe

```
            100                 105                 110

Ile Gly Phe Ile Leu Asn Asn Ile Gly His Ile Arg Pro His Arg Thr
        115                 120                 125

Ile Leu Ala Phe Val Ser Gly Ile Phe Phe Ile Leu Ser Gly Leu Ser
    130                 135                 140

Leu Val Val Gly Leu Val Leu Tyr Ile Ser Ser Ile Asn Asp Glu Met
145                 150                 155                 160

Leu Asn Arg Thr Lys Asp Ala Glu Thr Tyr Phe Asn Tyr Lys Tyr Gly
                165                 170                 175

Trp Ser Phe Ala Phe Ala Ala Ile Ser Phe Leu Leu Thr Glu Ser Ala
            180                 185                 190

Gly Val Met Ser Val Tyr Leu Phe Met Lys Arg Tyr Thr Ala Glu Asp
        195                 200                 205

Met Tyr Arg Pro His Pro Gly Phe Tyr Arg Pro Arg Leu Ser Asn Cys
    210                 215                 220

Ser Asp Tyr Ser Gly Gln Phe Leu His Pro Asp Ala Trp Val Arg Gly
225                 230                 235                 240

Arg Ser Pro Ser Asp Ile Ser Ser Glu Ala Ser Leu Gln Met Asn Ser
                245                 250                 255

Asn Tyr Pro Ala Leu Leu Lys Cys Pro Asp Tyr Asp Gln Met Ser Ser
            260                 265                 270

Ser Pro Cys
        275


<210> 10709
<211> 275
<212> PRT
<213> Homo sapiens

<220>
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<221> source
<223> /note="Gene Symbol: CACNG5; "

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<223> /note="Gene Name: calcium channel, voltage-dependent,
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subunit 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UF02; "

<220>
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<223> /note="ENSP ID: ENSP00000436836"

<400> 10709
Met Ser Ala Cys Gly Arg Lys Ala Leu Thr Leu Leu Ser Ser Val Phe
1 5 10 15

Ala Val Cys Gly Leu Gly Leu Leu Gly Ile Ala Val Ser Thr Asp Tyr
20 25 30

Trp Leu Tyr Leu Glu Glu Gly Val Ile Val Pro Gln Asn Gln Ser Thr
35 40 45

Glu Ile Lys Met Ser Leu His Ser Gly Leu Trp Arg Val Cys Phe Leu
50 55 60

Ala Gly Glu Glu Arg Gly Arg Cys Phe Thr Ile Glu Tyr Val Met Pro
65 70 75 80

Met Asn Thr Gln Leu Thr Ser Glu Ser Thr Val Asn Val Leu Lys Met
85 90 95

Ile Arg Ser Ala Thr Pro Phe Pro Leu Val Ser Leu Phe Phe Met Phe
100 105 110

Ile Gly Phe Ile Leu Asn Asn Ile Gly His Ile Arg Pro His Arg Thr
115 120 125

Ile Leu Ala Phe Val Ser Gly Ile Phe Phe Ile Leu Ser Gly Leu Ser
130 135 140

Leu Val Val Gly Leu Val Leu Tyr Ile Ser Ser Ile Asn Asp Glu Met
145 150 155 160

```
Leu Asn Arg Thr Lys Asp Ala Glu Thr Tyr Phe Asn Tyr Lys Tyr Gly
                165                 170                 175

Trp Ser Phe Ala Phe Ala Ala Ile Ser Phe Leu Leu Thr Glu Ser Ala
            180                 185                 190

Gly Val Met Ser Val Tyr Leu Phe Met Lys Arg Tyr Thr Ala Glu Asp
        195                 200                 205

Met Tyr Arg Pro His Pro Gly Phe Tyr Arg Pro Arg Leu Ser Asn Cys
    210                 215                 220

Ser Asp Tyr Ser Gly Gln Phe Leu His Pro Asp Ala Trp Val Arg Gly
225                 230                 235                 240

Arg Ser Pro Ser Asp Ile Ser Ser Glu Ala Ser Leu Gln Met Asn Ser
                245                 250                 255

Asn Tyr Pro Ala Leu Leu Lys Cys Pro Asp Tyr Asp Gln Met Ser Ser
            260                 265                 270

Ser Pro Cys
        275


<210> 10710
<211> 260
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2135; "

<220>
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<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
gamma
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<223> /note="Uniprot ID:  Q9BXT2; "

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<221> source
<223> /note="ENSP ID: ENSP00000252729"

<400> 10710
Met Met Trp Ser Asn Phe Phe Leu Gln Glu Glu Asn Arg Arg Arg Gly
1 5 10 15

Ala Ala Gly Arg Arg Arg Ala His Gly Gln Gly Arg Ser Gly Leu Thr
20 25 30

Pro Glu Arg Glu Gly Lys Val Lys Leu Ala Leu Leu Leu Ala Ala Val
35 40 45

Gly Ala Thr Leu Ala Val Leu Ser Val Gly Thr Glu Phe Trp Val Glu
50 55 60

Leu Asn Thr Tyr Lys Ala Asn Gly Ser Ala Val Cys Glu Ala Ala His
65 70 75 80

Leu Gly Leu Trp Lys Ala Cys Thr Lys Arg Leu Trp Gln Ala Asp Val
85 90 95

Pro Val Asp Arg Asp Thr Cys Gly Pro Ala Glu Leu Pro Gly Glu Ala
100 105 110

Asn Cys Thr Tyr Phe Lys Phe Phe Thr Thr Gly Glu Asn Ala Arg Ile
115 120 125

Phe Gln Arg Thr Thr Lys Lys Glu Val Asn Leu Ala Ala Ala Val Ile
130 135 140

Ala Val Leu Gly Leu Ala Val Met Ala Leu Gly Cys Leu Cys Ile Ile
145 150 155 160

Met Val Leu Ser Lys Gly Ala Glu Phe Leu Leu Arg Val Gly Ala Val
165 170 175

Cys Phe Gly Leu Ser Gly Leu Leu Leu Leu Val Ser Leu Glu Val Phe
180 185 190

Arg His Ser Val Arg Ala Leu Leu Gln Arg Val Ser Pro Glu Pro Pro
195 200 205

Pro Ala Pro Arg Leu Thr Tyr Glu Tyr Ser Trp Ser Leu Gly Cys Gly

```
    210                 215                 220

Val Gly Ala Gly Leu Ile Leu Leu Leu Gly Ala Gly Cys Phe Leu Leu
225                 230                 235                 240

Leu Thr Leu Pro Ser Trp Pro Trp Gly Ser Leu Cys Pro Lys Arg Gly
                245                 250                 255

His Arg Ala Thr
            260


<210> 10711
<211> 214
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2135; "

<220>
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<223> /note="Gene Symbol: CACNG6; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
gamma
      subunit 6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000319097"

<400> 10711
Met Met Trp Ser Asn Phe Phe Leu Gln Glu Glu Asn Arg Arg Arg Gly
1               5                   10                  15

Ala Ala Gly Arg Arg Arg Ala His Gly Gln Gly Arg Ser Gly Leu Thr
            20                  25                  30

Pro Glu Arg Glu Gly Lys Val Lys Leu Ala Leu Leu Leu Ala Ala Val
        35                  40                  45

Gly Ala Thr Leu Ala Val Leu Ser Val Gly Thr Glu Phe Trp Val Glu
    50                  55                  60

Leu Asn Thr Tyr Lys Ala Asn Gly Ser Ala Val Cys Glu Ala Ala His
65                  70                  75                  80
```

```
Leu Gly Leu Trp Lys Ala Cys Thr Lys Arg Leu Trp Gln Ala Asp Val
                85                  90                  95

Pro Val Asp Arg Asp Thr Cys Gly Pro Ala Glu Leu Pro Gly Glu Ala
            100                 105                 110

Asn Cys Thr Tyr Phe Lys Phe Phe Thr Thr Gly Glu Asn Ala Arg Ile
        115                 120                 125

Phe Gln Arg Thr Thr Lys Lys Gly Leu Leu Leu Leu Val Ser Leu Glu
    130                 135                 140

Val Phe Arg His Ser Val Arg Ala Leu Leu Gln Arg Val Ser Pro Glu
145                 150                 155                 160

Pro Pro Pro Ala Pro Arg Leu Thr Tyr Glu Tyr Ser Trp Ser Leu Gly
                165                 170                 175

Cys Gly Val Gly Ala Gly Leu Ile Leu Leu Leu Gly Ala Gly Cys Phe
            180                 185                 190

Leu Leu Leu Thr Leu Pro Ser Trp Pro Trp Gly Ser Leu Cys Pro Lys
        195                 200                 205

Arg Gly His Arg Ala Thr
    210
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<210> 10712
<211> 189
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, gamma
subunit 6; "

<220>
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<223> /note="ENSP ID: ENSP00000319135"

<400> 10712
Met Met Trp Ser Asn Phe Phe Leu Gln Glu Glu Asn Arg Arg Arg Gly
1 5 10 15

Ala Ala Gly Arg Arg Arg Ala His Gly Gln Gly Arg Ser Gly Leu Thr
20 25 30

Pro Glu Arg Glu Gly Lys Val Lys Leu Ala Leu Leu Leu Ala Ala Val
35 40 45

Gly Ala Thr Leu Ala Val Leu Ser Val Gly Thr Glu Phe Trp Val Glu
50 55 60

Leu Asn Thr Tyr Lys Ala Asn Gly Ser Ala Val Cys Glu Ala Ala His
65 70 75 80

Leu Gly Leu Trp Lys Ala Cys Thr Lys Arg Leu Trp Gln Ala Asp Val
85 90 95

Pro Val Asp Arg Asp Thr Cys Gly Pro Ala Glu Leu Pro Gly Gly Leu
100 105 110

Leu Leu Leu Val Ser Leu Glu Val Phe Arg His Ser Val Arg Ala Leu
115 120 125

Leu Gln Arg Val Ser Pro Glu Pro Pro Pro Ala Pro Arg Leu Thr Tyr
130 135 140

Glu Tyr Ser Trp Ser Leu Gly Cys Gly Val Gly Ala Gly Leu Ile Leu
145 150 155 160

Leu Leu Gly Ala Gly Cys Phe Leu Leu Leu Thr Leu Pro Ser Trp Pro
165 170 175

Trp Gly Ser Leu Cys Pro Lys Arg Gly His Arg Ala Thr
180 185

<210> 10713
<211> 275
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2136; "

<220>
<221> source
<223> /note="Gene Symbol: CACNG7; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
gamma
subunit 7; "

<220>
<221> source
<223> /note="Uniprot ID: P62955; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000222212"

<400> 10713
Met Ser His Cys Ser Ser Arg Ala Leu Thr Leu Leu Ser Ser Val Phe
1 5 10 15

Gly Ala Cys Gly Leu Leu Leu Val Gly Ile Ala Val Ser Thr Asp Tyr
20 25 30

Trp Leu Tyr Met Glu Glu Gly Thr Val Leu Pro Gln Asn Gln Thr Thr
35 40 45

Glu Val Lys Met Ala Leu His Ala Gly Leu Trp Arg Val Cys Phe Phe
50 55 60

Ala Gly Arg Glu Lys Gly Arg Cys Val Ala Ser Glu Tyr Phe Leu Glu
65 70 75 80

Pro Glu Ile Asn Leu Val Thr Glu Asn Thr Glu Asn Ile Leu Lys Thr
85 90 95

Val Arg Thr Ala Thr Pro Phe Pro Met Val Ser Leu Phe Leu Val Phe
100 105 110

Thr Ala Phe Val Ile Ser Asn Ile Gly His Ile Arg Pro Gln Arg Thr
115 120 125

Ile Leu Ala Phe Val Ser Gly Ile Phe Phe Ile Leu Ser Gly Leu Ser

```
    130                 135                 140

Leu Val Val Gly Leu Val Leu Tyr Ile Ser Ser Ile Asn Asp Glu Val
145                 150                 155                 160

Met Asn Arg Pro Ser Ser Ser Glu Gln Tyr Phe His Tyr Arg Tyr Gly
                165                 170                 175

Trp Ser Phe Ala Phe Ala Ala Ser Ser Phe Leu Leu Lys Glu Gly Ala
            180                 185                 190

Gly Val Met Ser Val Tyr Leu Phe Thr Lys Arg Tyr Ala Glu Glu Glu
        195                 200                 205

Met Tyr Arg Pro His Pro Ala Phe Tyr Arg Pro Arg Leu Ser Asp Cys
    210                 215                 220

Ser Asp Tyr Ser Gly Gln Phe Leu Gln Pro Glu Ala Trp Arg Arg Gly
225                 230                 235                 240

Arg Ser Pro Ser Asp Ile Ser Ser Asp Val Ser Ile Gln Met Thr Gln
                245                 250                 255

Asn Tyr Pro Pro Ala Ile Lys Tyr Pro Asp His Leu His Ile Ser Thr
            260                 265                 270

Ser Pro Cys
        275


<210> 10714
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2136; "

<220>
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<223> /note="Gene Symbol: CACNG7; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent,
gamma
      subunit 7; "
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<220>
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<223> /note="ENSP ID: ENSP00000375646"

<400> 10714
Met Ser His Cys Ser Ser Arg Ala Leu Thr Leu Leu Ser Ser Val Phe
1 5 10 15

Gly Ala Cys Gly Leu Leu Leu Val Gly Ile Ala Val Ser Thr Asp Tyr
20 25 30

Trp Leu Tyr Met Glu Glu Gly Thr Val Leu Pro Gln Asn Gln Thr Thr
35 40 45

Glu Val Lys Met Ala Leu His Ala Gly Leu Trp Arg Val Cys Phe Phe
50 55 60

Ala Gly Arg Glu Lys Gly Arg Cys Val Ala Ser Glu Tyr Phe Leu Glu
65 70 75 80

Pro Glu Ile Asn Leu Val Thr Glu Asn Thr Glu Asn Ile Leu Lys Thr
85 90 95

Val Arg Thr Ala Thr Pro Phe Pro Met Val Ser Leu Phe Leu Val Phe
100 105 110

Thr Ala Phe Val Ile Ser Asn Ile Gly His Ile Arg Pro Gln Arg Thr
115 120 125

Ile Leu Ala Phe Val Ser Gly Ile Phe Phe Ile Leu Ser Gly Leu Ser
130 135 140

Leu Val Val Gly Leu Val Leu Tyr Ile Ser Ser Ile Asn Asp Glu Val
145 150 155 160

Met Asn Arg Pro Ser Ser Ser Glu Gln Tyr Phe His Tyr Arg Tyr Gly
165 170 175

Trp Ser Phe Ala Phe Ala Ala Ser Ser Phe Leu Leu Lys Glu Val Thr
180 185 190

Ser Val Gly Pro Arg Leu
195

<210> 10715
<211> 275
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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gamma
subunit 7; "

<220>
<221> source
<223> /note="Uniprot ID: P62955; "

<220>
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<223> /note="ENSP ID: ENSP00000375647"

<400> 10715
Met Ser His Cys Ser Ser Arg Ala Leu Thr Leu Leu Ser Ser Val Phe
1 5 10 15

Gly Ala Cys Gly Leu Leu Leu Val Gly Ile Ala Val Ser Thr Asp Tyr
20 25 30

Trp Leu Tyr Met Glu Glu Gly Thr Val Leu Pro Gln Asn Gln Thr Thr
35 40 45

Glu Val Lys Met Ala Leu His Ala Gly Leu Trp Arg Val Cys Phe Phe
50 55 60

Ala Gly Arg Glu Lys Gly Arg Cys Val Ala Ser Glu Tyr Phe Leu Glu
65 70 75 80

Pro Glu Ile Asn Leu Val Thr Glu Asn Thr Glu Asn Ile Leu Lys Thr
85 90 95

Val Arg Thr Ala Thr Pro Phe Pro Met Val Ser Leu Phe Leu Val Phe
100 105 110

```
Thr Ala Phe Val Ile Ser Asn Ile Gly His Ile Arg Pro Gln Arg Thr
        115                 120                 125

Ile Leu Ala Phe Val Ser Gly Ile Phe Phe Ile Leu Ser Gly Leu Ser
    130                 135                 140

Leu Val Val Gly Leu Val Leu Tyr Ile Ser Ser Ile Asn Asp Glu Val
145                 150                 155                 160

Met Asn Arg Pro Ser Ser Ser Glu Gln Tyr Phe His Tyr Arg Tyr Gly
                165                 170                 175

Trp Ser Phe Ala Phe Ala Ala Ser Ser Phe Leu Leu Lys Glu Gly Ala
            180                 185                 190

Gly Val Met Ser Val Tyr Leu Phe Thr Lys Arg Tyr Ala Glu Glu Glu
        195                 200                 205

Met Tyr Arg Pro His Pro Ala Phe Tyr Arg Pro Arg Leu Ser Asp Cys
    210                 215                 220

Ser Asp Tyr Ser Gly Gln Phe Leu Gln Pro Glu Ala Trp Arg Arg Gly
225                 230                 235                 240

Arg Ser Pro Ser Asp Ile Ser Ser Asp Val Ser Ile Gln Met Thr Gln
                245                 250                 255

Asn Tyr Pro Pro Ala Ile Lys Tyr Pro Asp His Leu His Ile Ser Thr
            260                 265                 270

Ser Pro Cys
        275


<210> 10716
<211> 425
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
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<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent,
gamma
subunit 8; "

<220>
<221> source
<223> /note="Uniprot ID: Q8WXS5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000270458"

<400> 10716
Leu Glu Ser Leu Lys Arg Trp Asn Glu Glu Arg Gly Leu Trp Cys Glu
1 5 10 15

Lys Gly Val Gln Val Leu Leu Thr Thr Val Gly Ala Phe Ala Ala Phe
20 25 30

Gly Leu Met Thr Ile Ala Ile Ser Thr Asp Tyr Trp Leu Tyr Thr Arg
35 40 45

Ala Leu Ile Cys Asn Thr Thr Asn Leu Thr Ala Gly Gly Asp Asp Gly
50 55 60

Thr Pro His Arg Gly Gly Gly Gly Ala Ser Glu Lys Lys Asp Pro Gly
65 70 75 80

Gly Leu Thr His Ser Gly Leu Trp Arg Ile Cys Cys Leu Glu Gly Leu
85 90 95

Lys Arg Gly Val Cys Val Lys Ile Asn His Phe Pro Glu Asp Thr Asp
100 105 110

Tyr Asp His Asp Ser Ala Glu Tyr Leu Leu Arg Val Val Arg Ala Ser
115 120 125

Ser Ile Phe Pro Ile Leu Ser Ala Ile Leu Leu Leu Leu Gly Gly Val
130 135 140

Cys Val Ala Ala Ser Arg Val Tyr Lys Ser Lys Arg Asn Ile Ile Leu
145 150 155 160

Gly Ala Gly Ile Leu Phe Val Ala Ala Gly Leu Ser Asn Ile Ile Gly
165 170 175

```
Val Ile Val Tyr Ile Ser Ala Asn Ala Gly Glu Pro Gly Pro Lys Arg
            180                 185                 190

Asp Glu Glu Lys Lys Asn His Tyr Ser Tyr Gly Trp Ser Phe Tyr Phe
        195                 200                 205

Gly Gly Leu Ser Phe Ile Leu Ala Glu Val Ile Gly Val Leu Ala Val
    210                 215                 220

Asn Ile Tyr Ile Glu Arg Ser Arg Glu Ala His Cys Gln Ser Arg Ser
225                 230                 235                 240

Asp Leu Leu Lys Ala Gly Gly Gly Ala Gly Gly Ser Gly Gly Ser Gly
                245                 250                 255

Pro Ser Ala Ile Leu Arg Leu Pro Ser Tyr Arg Phe Arg Tyr Arg Arg
            260                 265                 270

Arg Ser Arg Ser Ser Ser Arg Ser Ser Glu Pro Ser Pro Ser Arg Asp
        275                 280                 285

Ala Ser Pro Gly Gly Pro Gly Gly Pro Gly Phe Ala Ser Thr Asp Ile
    290                 295                 300

Ser Met Tyr Thr Leu Ser Arg Asp Pro Ser Lys Gly Ser Val Ala Ala
305                 310                 315                 320

Gly Leu Ala Gly Ala Gly Gly Gly Gly Gly Gly Ala Val Gly Ala Phe
                325                 330                 335

Gly Gly Ala Ala Gly Gly Ala Gly Gly Gly Gly Gly Gly Gly Gly Gly
            340                 345                 350

Ala Gly Ala Glu Arg Asp Arg Gly Gly Ala Ser Gly Phe Leu Thr Leu
        355                 360                 365

His Asn Ala Phe Pro Lys Glu Ala Gly Gly Gly Val Thr Val Thr Val
    370                 375                 380

Thr Gly Pro Pro Ala Pro Pro Ala Pro Ala Pro Pro Ala Pro Ser Ala
385                 390                 395                 400
```

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Pro Ala Pro Gly Thr Leu Ala Lys Glu Ala Ala Ala Ser Asn Thr Asn
                405                 410                 415


Thr Leu Asn Arg Lys Thr Thr Pro Val
            420                 425


<210> 10717
<211> 2186
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2138; "

<220>
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<223> /note="Gene Symbol: CACNA1C; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, L
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      subunit; "

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
1               5                   10                  15


Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30


Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45


Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60


Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80
```

```
Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
```

305 310 315 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
325 330 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
340 345 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
355 360 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
370 375 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385 390 395 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
405 410 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
420 425 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
435 440 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
450 455 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465 470 475 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
485 490 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
500 505 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
515 520 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
530 535 540

```
His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765
```

```
Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Ile Leu Gly Asn Ala Asp Tyr Val Phe
945                 950                 955                 960

Thr Ser Ile Phe Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly
                965                 970                 975

Ala Phe Leu His Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu
            980                 985                 990
```

```
Asp Leu Leu Val Val Ser Val Ser  Leu Ile Ser Phe Gly  Ile Gln
Ser
        995                 1000                1005

Ser Ala  Ile Asn Val Val Lys  Ile Leu Arg Val Leu  Arg Val Leu
    1010                1015                1020

Arg Pro  Leu Arg Ala Ile Asn  Arg Ala Lys Gly Leu  Lys His Val
    1025                1030                1035

Val Gln  Cys Val Phe Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val
    1040                1045                1050

Ile Val  Thr Thr Leu Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val
    1055                1060                1065

Gln Leu  Phe Lys Gly Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys
    1070                1075                1080

Gln Thr  Glu Ala Glu Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp
    1085                1090                1095

Gly Glu  Val Asp His Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn
    1100                1105                1110

Ser Lys  Phe Asp Phe Asp Asn  Val Leu Ala Ala Met  Met Ala Leu
    1115                1120                1125

Phe Thr  Val Ser Thr Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg
    1130                1135                1140

Ser Ile  Asp Ser His Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr
    1145                1150                1155

Arg Val  Glu Ile Ser Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile
    1160                1165                1170

Ala Phe  Phe Met Met Asn Ile  Phe Val Gly Phe Val  Ile Val Thr
    1175                1180                1185

Phe Gln  Glu Gln Gly Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp
    1190                1195                1200
```

```
Lys Asn  Gln Arg Gln Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro
    1205                 1210                 1215

Leu Arg  Arg Tyr Ile Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp
    1220                 1225                 1230

Tyr Val  Val Asn Ser Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu
    1235                 1240                 1245

Ile Leu  Leu Asn Thr Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln
    1250                 1255                 1260

Ser Cys  Leu Phe Lys Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe
    1265                 1270                 1275

Thr Gly  Leu Phe Thr Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe
    1280                 1285                 1290

Lys Pro  Lys Gly Tyr Phe Ser  Asp Pro Trp Asn Val  Phe Asp Phe
    1295                 1300                 1305

Leu Ile  Val Ile Gly Ser Ile  Ile Asp Val Ile Leu  Ser Glu Thr
    1310                 1315                 1320

Asn His  Tyr Phe Cys Asp Ala  Trp Asn Thr Phe Asp  Ala Leu Ile
    1325                 1330                 1335

Val Val  Gly Ser Ile Val Asp  Ile Ala Ile Thr Glu  Val Asn Pro
    1340                 1345                 1350

Ala Glu  His Thr Gln Cys Ser  Pro Ser Met Asn Ala  Glu Glu Asn
    1355                 1360                 1365

Ser Arg  Ile Ser Ile Thr Phe  Phe Arg Leu Phe Arg  Val Met Arg
    1370                 1375                 1380

Leu Val  Lys Leu Leu Ser Arg  Gly Glu Gly Ile Arg  Thr Leu Leu
    1385                 1390                 1395

Trp Thr  Phe Ile Lys Ser Phe  Gln Ala Leu Pro Tyr  Val Ala Leu
    1400                 1405                 1410

Leu Ile  Val Met Leu Phe Phe  Ile Tyr Ala Val Ile  Gly Met Gln
```

1415 1420 1425

Val Phe Gly Lys Ile Ala Leu Asn Asp Thr Thr Glu Ile Asn Arg
1430 1435 1440

Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala Val Leu Leu Leu Phe
1445 1450 1455

Arg Cys Ala Thr Gly Glu Ala Trp Gln Asp Ile Met Leu Ala Cys
1460 1465 1470

Met Pro Gly Lys Lys Cys Ala Pro Glu Ser Glu Pro Ser Asn Ser
1475 1480 1485

Thr Glu Gly Glu Thr Pro Cys Gly Ser Ser Phe Ala Val Phe Tyr
1490 1495 1500

Phe Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn Leu
1505 1510 1515

Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp
1520 1525 1530

Trp Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile
1535 1540 1545

Trp Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu
1550 1555 1560

Asp Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe
1565 1570 1575

Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser
1580 1585 1590

Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala
1595 1600 1605

Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu
1610 1615 1620

Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys
1625 1630 1635

```
Lys Ile  Trp Lys Arg Thr Ser  Met Lys Leu Leu Asp  Gln Val Val
    1640                1645                1650

Pro Pro  Ala Gly Asp Asp Glu  Val Thr Val Gly Lys  Phe Tyr Ala
    1655                1660                1665

Thr Phe  Leu Ile Gln Glu Tyr  Phe Arg Lys Phe Lys  Lys Arg Lys
    1670                1675                1680

Glu Gln  Gly Leu Val Gly Lys  Pro Ser Gln Arg Asn  Ala Leu Ser
    1685                1690                1695

Leu Gln  Ala Gly Leu Arg Thr  Leu His Asp Ile Gly  Pro Glu Ile
    1700                1705                1710

Arg Arg  Ala Ile Ser Gly Asp  Leu Thr Ala Glu Glu  Glu Leu Asp
    1715                1720                1725

Lys Ala  Met Lys Glu Ala Val  Ser Ala Ala Ser Glu  Asp Asp Ile
    1730                1735                1740

Phe Arg  Arg Ala Gly Gly Leu  Phe Gly Asn His Val  Ser Tyr Tyr
    1745                1750                1755

Gln Ser  Asp Gly Arg Ser Ala  Phe Pro Gln Thr Phe  Thr Thr Gln
    1760                1765                1770

Arg Pro  Leu His Ile Asn Lys  Ala Gly Ser Ser Gln  Gly Asp Thr
    1775                1780                1785

Glu Ser  Pro Ser His Glu Lys  Leu Val Asp Ser Thr  Phe Thr Pro
    1790                1795                1800

Ser Ser  Tyr Ser Ser Thr Gly  Ser Asn Ala Asn Ile  Asn Asn Ala
    1805                1810                1815

Asn Asn  Thr Ala Leu Gly Arg  Leu Pro Arg Pro Ala  Gly Tyr Pro
    1820                1825                1830

Ser Thr  Val Ser Thr Val Glu  Gly His Gly Pro Pro  Leu Ser Pro
    1835                1840                1845
```

```
Ala Ile  Arg Val Gln Glu Val  Ala Trp Lys Leu Ser  Ser Asn Arg
    1850                1855                1860

Cys His  Ser Arg Glu Ser Gln  Ala Ala Met Ala Gly  Gln Glu Glu
    1865                1870                1875

Thr Ser  Gln Asp Glu Thr Tyr  Glu Val Lys Met Asn  His Asp Thr
    1880                1885                1890

Glu Ala  Cys Ser Glu Pro Ser  Leu Leu Ser Thr Glu  Met Leu Ser
    1895                1900                1905

Tyr Gln  Asp Asp Glu Asn Arg  Gln Leu Thr Leu Pro  Glu Glu Asp
    1910                1915                1920

Lys Arg  Asp Ile Arg Gln Ser  Pro Lys Arg Gly Phe  Leu Arg Ser
    1925                1930                1935

Ala Ser  Leu Gly Arg Arg Ala  Ser Phe His Leu Glu  Cys Leu Lys
    1940                1945                1950

Arg Gln  Lys Asp Arg Gly Gly  Asp Ile Ser Gln Lys  Thr Val Leu
    1955                1960                1965

Pro Leu  His Leu Val His His  Gln Ala Leu Ala Val  Ala Gly Leu
    1970                1975                1980

Ser Pro  Leu Leu Gln Arg Ser  His Ser Pro Ala Ser  Phe Pro Arg
    1985                1990                1995

Pro Phe  Ala Thr Pro Pro Ala  Thr Pro Gly Ser Arg  Gly Trp Pro
    2000                2005                2010

Pro Gln  Pro Val Pro Thr Leu  Arg Leu Glu Gly Val  Glu Ser Ser
    2015                2020                2025

Glu Lys  Leu Asn Ser Ser Phe  Pro Ser Ile His Cys  Gly Ser Trp
    2030                2035                2040

Ala Glu  Thr Thr Pro Gly Gly  Gly Gly Ser Ser Ala  Ala Arg Arg
    2045                2050                2055
```

```
Val Arg  Pro Val Ser Leu Met  Val Pro Ser Gln Ala  Gly Ala Pro
    2060                2065                2070

Gly Arg  Gln Phe His Gly Ser  Ala Ser Ser Leu Val  Glu Ala Val
    2075                2080                2085

Leu Ile  Ser Glu Gly Leu Gly  Gln Phe Ala Gln Asp  Pro Lys Phe
    2090                2095                2100

Ile Glu  Val Thr Thr Gln Glu  Leu Ala Asp Ala Cys  Asp Met Thr
    2105                2110                2115

Ile Glu  Glu Met Glu Ser Ala  Ala Asp Asn Ile Leu  Ser Gly Gly
    2120                2125                2130

Ala Pro  Gln Ser Pro Asn Gly  Ala Leu Leu Pro Phe  Val Asn Cys
    2135                2140                2145

Arg Asp  Ala Gly Gln Asp Arg  Ala Gly Gly Glu Glu  Asp Ala Gly
    2150                2155                2160

Cys Val  Arg Ala Arg Gly Arg  Pro Ser Glu Glu Glu  Leu Gln Asp
    2165                2170                2175

Ser Arg  Val Tyr Val Ser Ser  Leu
    2180                2185


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<212> PRT
<213> Homo sapiens

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      subunit; "

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<223> /note="ENSP ID: ENSP00000329877"

<400> 10718

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
1               5                  10                  15

Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220
```

```
Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445
```

```
Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670
```

```
Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
```

900 905 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
915 920 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
930 935 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945 950 955 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His

1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met
1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln
1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys His Tyr
1265 1270 1275

Phe Cys Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly
1280 1285 1290

Ser Ile Val Asp Ile Ala Ile Thr Glu Val Asn Pro Ala Glu His
1295 1300 1305

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys
1325 1330 1335

```
Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe
    1340                1345                1350

Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500

Tyr Asp  Pro Glu Ala Lys Gly  Arg Ile Lys His Leu  Asp Val Val
    1505                1510                1515

Thr Leu  Leu Arg Arg Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu
    1520                1525                1530

Cys Pro  His Arg Val Ala Cys  Lys Arg Leu Val Ser  Met Asn Met
    1535                1540                1545
```

```
Pro Leu  Asn Ser Asp Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe
    1550                1555                1560

Ala Leu  Val Arg Thr Ala Leu  Arg Ile Lys Thr Glu  Gly Asn Leu
    1565                1570                1575

Glu Gln  Ala Asn Glu Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp
    1580                1585                1590

Lys Arg  Thr Ser Met Lys Leu  Leu Asp Gln Val Val  Pro Pro Ala
    1595                1600                1605

Gly Asp  Asp Glu Val Thr Val  Gly Lys Phe Tyr Ala  Thr Phe Leu
    1610                1615                1620

Ile Gln  Glu Tyr Phe Arg Lys  Phe Lys Lys Arg Lys  Glu Gln Gly
    1625                1630                1635

Leu Val  Gly Lys Pro Ser Gln  Arg Asn Ala Leu Ser  Leu Gln Ala
    1640                1645                1650

Gly Leu  Arg Thr Leu His Asp  Ile Gly Pro Glu Ile  Arg Arg Ala
    1655                1660                1665

Ile Ser  Gly Asp Leu Thr Ala  Glu Glu Glu Leu Asp  Lys Ala Met
    1670                1675                1680

Lys Glu  Ala Val Ser Ala Ala  Ser Glu Asp Asp Ile  Phe Arg Arg
    1685                1690                1695

Ala Gly  Gly Leu Phe Gly Asn  His Val Ser Tyr Tyr  Gln Ser Asp
    1700                1705                1710

Gly Arg  Ser Ala Phe Pro Gln  Thr Phe Thr Thr Gln  Arg Pro Leu
    1715                1720                1725

His Ile  Asn Lys Ala Gly Ser  Ser Gln Gly Asp Thr  Glu Ser Pro
    1730                1735                1740

Ser His  Glu Lys Leu Val Asp  Ser Thr Phe Thr Pro  Ser Ser Tyr
    1745                1750                1755
```

```
Ser Ser  Thr Gly Ser Asn Ala  Asn Ile Asn Asn Ala  Asn Asn Thr
    1760                1765                1770

Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val
    1775                1780                1785

Ser Thr  Val Glu Gly His Gly  Pro Pro Leu Ser Pro  Ala Ile Arg
    1790                1795                1800

Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser Asn Arg  Glu Arg His
    1805                1810                1815

Val Pro  Met Cys Glu Asp Leu  Glu Leu Arg Arg Asp  Ser Gly Ser
    1820                1825                1830

Ala Gly  Thr Gln Ala His Cys  Leu Leu Leu Arg Arg  Ala Asn Pro
    1835                1840                1845

Ser Arg  Cys His Ser Arg Glu  Ser Gln Ala Ala Met  Ala Gly Gln
    1850                1855                1860

Glu Glu  Thr Ser Gln Asp Glu  Thr Tyr Glu Val Lys  Met Asn His
    1865                1870                1875

Asp Thr  Glu Ala Cys Ser Glu  Pro Ser Leu Leu Ser  Thr Glu Met
    1880                1885                1890

Leu Ser  Tyr Gln Asp Asp Glu  Asn Arg Gln Leu Thr  Leu Pro Glu
    1895                1900                1905

Glu Asp  Lys Arg Asp Ile Arg  Gln Ser Pro Lys Arg  Gly Phe Leu
    1910                1915                1920

Arg Ser  Ala Ser Leu Gly Arg  Arg Ala Ser Phe His  Leu Glu Cys
    1925                1930                1935

Leu Lys  Arg Gln Lys Asp Arg  Gly Gly Asp Ile Ser  Gln Lys Thr
    1940                1945                1950

Val Leu  Pro Leu His Leu Val  His His Gln Ala Leu  Ala Val Ala
    1955                1960                1965

Gly Leu  Ser Pro Leu Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe
```

1970 1975 1980

Pro Arg Pro Phe Ala Thr Pro Pro Ala Thr Pro Gly Ser Arg Gly
1985 1990 1995

Trp Pro Pro Gln Pro Val Pro Thr Leu Arg Leu Glu Gly Val Glu
2000 2005 2010

Ser Ser Glu Lys Leu Asn Ser Ser Phe Pro Ser Ile His Cys Gly
2015 2020 2025

Ser Trp Ala Glu Thr Thr Pro Gly Gly Gly Gly Ser Ser Ala Ala
2030 2035 2040

Arg Arg Val Arg Pro Val Ser Leu Met Val Pro Ser Gln Ala Gly
2045 2050 2055

Ala Pro Gly Arg Gln Phe His Gly Ser Ala Ser Ser Leu Val Glu
2060 2065 2070

Ala Val Leu Ile Ser Glu Gly Leu Gly Gln Phe Ala Gln Asp Pro
2075 2080 2085

Lys Phe Ile Glu Val Thr Thr Gln Glu Leu Ala Asp Ala Cys Asp
2090 2095 2100

Met Thr Ile Glu Glu Met Glu Ser Ala Ala Asp Asn Ile Leu Ser
2105 2110 2115

Gly Gly Ala Pro Gln Ser Pro Asn Gly Ala Leu Leu Pro Phe Val
2120 2125 2130

Asn Cys Arg Asp Ala Gly Gln Asp Arg Ala Gly Gly Glu Glu Asp
2135 2140 2145

Ala Gly Cys Val Arg Ala Arg Gly Arg Pro Ser Glu Glu Glu Leu
2150 2155 2160

Gln Asp Ser Arg Val Tyr Val Ser Ser Leu
2165 2170

<210> 10719
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<212> PRT
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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
20 25 30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
35 40 45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
50 55 60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65 70 75 80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
85 90 95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
100 105 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
115 120 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
130 135 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145 150 155 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
165 170 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
180 185 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
195 200 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
210 215 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225 230 235 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
245 250 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
260 265 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
275 280 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
290 295 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305 310 315 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
325 330 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
340 345 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
355 360 365

```
Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Arg
    450                 455                 460

Gly Thr Pro Ala Gly Met Leu Asp Gln Lys Lys Gly Lys Phe Ala Trp
465                 470                 475                 480

Phe Ser His Ser Thr Glu Thr His Val Ser Met Pro Thr Ser Glu Thr
                485                 490                 495

Glu Ser Val Asn Thr Glu Asn Val Ala Gly Gly Asp Ile Glu Gly Glu
            500                 505                 510

Asn Cys Gly Ala Arg Leu Ala His Arg Ile Ser Lys Ser Lys Phe Ser
        515                 520                 525

Arg Tyr Trp Arg Arg Trp Asn Arg Phe Cys Arg Arg Lys Cys Arg Ala
    530                 535                 540

Ala Val Lys Ser Asn Val Phe Tyr Trp Leu Val Ile Phe Leu Val Phe
545                 550                 555                 560

Leu Asn Thr Leu Thr Ile Ala Ser Glu His Tyr Asn Gln Pro Asn Trp
                565                 570                 575

Leu Thr Glu Val Gln Asp Thr Ala Asn Lys Ala Leu Leu Ala Leu Phe
            580                 585                 590

Thr Ala Glu Met Leu Leu Lys Met Tyr Ser Leu Gly Leu Gln Ala Tyr
```

595 600 605

Phe Val Ser Leu Phe Asn Arg Phe Asp Cys Phe Val Val Cys Gly Gly
610 615 620

Ile Leu Glu Thr Ile Leu Val Glu Thr Lys Ile Met Ser Pro Leu Gly
625 630 635 640

Ile Ser Val Leu Arg Cys Val Arg Leu Leu Arg Ile Phe Lys Ile Thr
645 650 655

Arg Tyr Trp Asn Ser Leu Ser Asn Leu Val Ala Ser Leu Leu Asn Ser
660 665 670

Val Arg Ser Ile Ala Ser Leu Leu Leu Leu Leu Phe Leu Phe Ile Ile
675 680 685

Ile Phe Ser Leu Leu Gly Met Gln Leu Phe Gly Gly Lys Phe Asn Phe
690 695 700

Asp Glu Met Gln Thr Arg Arg Ser Thr Phe Asp Asn Phe Pro Gln Ser
705 710 715 720

Leu Leu Thr Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ser Val
725 730 735

Met Tyr Asp Gly Ile Met Ala Tyr Gly Gly Pro Ser Phe Pro Gly Met
740 745 750

Leu Val Cys Ile Tyr Phe Ile Ile Leu Phe Ile Cys Gly Asn Tyr Ile
755 760 765

Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Asp Ala
770 775 780

Glu Ser Leu Thr Ser Ala Gln Lys Glu Glu Glu Glu Glu Lys Glu Arg
785 790 795 800

Lys Lys Leu Ala Arg Thr Ala Ser Pro Glu Lys Lys Gln Glu Leu Val
805 810 815

Glu Lys Pro Ala Val Gly Glu Ser Lys Glu Glu Lys Ile Glu Leu Lys
820 825 830

```
Ser Ile Thr Ala Asp Gly Glu Ser Pro Pro Ala Thr Lys Ile Asn Met
        835                 840                 845

Asp Asp Leu Gln Pro Asn Glu Asn Glu Asp Lys Ser Pro Tyr Pro Asn
    850                 855                 860

Pro Glu Thr Thr Gly Glu Glu Asp Glu Glu Glu Pro Glu Met Pro Val
865                 870                 875                 880

Gly Pro Arg Pro Arg Pro Leu Ser Glu Leu His Leu Lys Glu Lys Ala
                885                 890                 895

Val Pro Met Pro Glu Ala Ser Ala Phe Phe Ile Phe Ser Ser Asn Asn
            900                 905                 910

Arg Phe Arg Leu Gln Cys His Arg Ile Val Asn Asp Thr Ile Phe Thr
        915                 920                 925

Asn Leu Ile Leu Phe Phe Ile Leu Leu Ser Ser Ile Ser Leu Ala Ala
    930                 935                 940

Glu Asp Pro Val Gln His Thr Ser Phe Arg Asn His Ile Leu Phe Tyr
945                 950                 955                 960

Phe Asp Ile Val Phe Thr Thr Ile Phe Thr Ile Glu Ile Ala Leu Lys
                965                 970                 975

Met Thr Ala Tyr Gly Ala Phe Leu His Lys Gly Ser Phe Cys Arg Asn
            980                 985                 990

Tyr Phe Asn Ile Leu Asp Leu Leu  Val Val Ser Val Ser  Leu Ile
Ser
        995                 1000                1005

Phe Gly  Ile Gln Ser Ser Ala  Ile Asn Val Val Lys  Ile Leu Arg
    1010                1015                1020

Val Leu  Arg Val Leu Arg Pro  Leu Arg Ala Ile Asn  Arg Ala Lys
    1025                1030                1035

Gly Leu  Lys His Val Val Gln  Cys Val Phe Val Ala  Ile Arg Thr
    1040                1045                1050
```

```
Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu Leu Gln  Phe Met Phe
    1055                1060                1065

Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly Lys Leu  Tyr Thr Cys
    1070                1075                1080

Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu Cys Lys  Gly Asn Tyr
    1085                1090                1095

Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His Pro Ile  Ile Gln Pro
    1100                1105                1110

Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe Asp Asn  Val Leu Ala
    1115                1120                1125

Ala Met  Met Ala Leu Phe Thr  Val Ser Thr Phe Glu  Gly Trp Pro
    1130                1135                1140

Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His Thr Glu  Asp Lys Gly
    1145                1150                1155

Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser Ile Phe  Phe Ile Ile
    1160                1165                1170

Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met Asn Ile  Phe Val Gly
    1175                1180                1185

Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly Glu Gln  Glu Tyr Lys
    1190                1195                1200

Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln Cys Val  Glu Tyr Ala
    1205                1210                1215

Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile Pro Lys  Asn Gln His
    1220                1225                1230

Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser Thr Tyr  Phe Glu Tyr
    1235                1240                1245

Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr Ile Cys  Leu Ala Met
    1250                1255                1260
```

```
Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys Ile Ala  Met Asn Ile
    1265                1270                1275

Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr Val Glu  Met Ile Leu
    1280                1285                1290

Lys Leu  Ile Ala Phe Lys Pro  Lys His Tyr Phe Cys  Asp Ala Trp
    1295                1300                1305

Asn Thr  Phe Asp Ala Leu Ile  Val Val Gly Ser Ile  Val Asp Ile
    1310                1315                1320

Ala Ile  Thr Glu Val Asn Pro  Ala Glu His Thr Gln  Cys Ser Pro
    1325                1330                1335

Ser Met  Asn Ala Glu Glu Asn  Ser Arg Ile Ser Ile  Thr Phe Phe
    1340                1345                1350

Arg Leu  Phe Arg Val Met Arg  Leu Val Lys Leu Leu  Ser Arg Gly
    1355                1360                1365

Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe Ile Lys  Ser Phe Gln
    1370                1375                1380

Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val Met Leu  Phe Phe Ile
    1385                1390                1395

Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly Lys Ile  Ala Leu Asn
    1400                1405                1410

Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn Phe Gln  Thr Phe Pro
    1415                1420                1425

Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala Thr Gly  Glu Ala Trp
    1430                1435                1440

Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly Lys Lys  Cys Ala Pro
    1445                1450                1455

Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly Glu Thr  Pro Cys Gly
    1460                1465                1470
```

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Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser Phe Tyr  Met Leu Cys
    1475                 1480                 1485

Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala Val Ile  Met Asp Asn
    1490                 1495                 1500

Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile Leu Gly  Pro His His
    1505                 1510                 1515

Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu Tyr Asp  Pro Glu Ala
    1520                 1525                 1530

Lys Gly  Arg Ile Lys His Leu  Asp Val Val Thr Leu  Leu Arg Arg
    1535                 1540                 1545

Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu Cys Pro  His Arg Val
    1550                 1555                 1560

Ala Cys  Lys Arg Leu Val Ser  Met Asn Met Pro Leu  Asn Ser Asp
    1565                 1570                 1575

Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe Ala Leu  Val Arg Thr
    1580                 1585                 1590

Ala Leu  Arg Ile Lys Thr Glu  Gly Asn Leu Glu Gln  Ala Asn Glu
    1595                 1600                 1605

Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp Lys Arg  Thr Ser Met
    1610                 1615                 1620

Lys Leu  Leu Asp Gln Val Val  Pro Pro Ala Gly Asp  Asp Glu Val
    1625                 1630                 1635

Thr Val  Gly Lys Phe Tyr Ala  Thr Phe Leu Ile Gln  Glu Tyr Phe
    1640                 1645                 1650

Arg Lys  Phe Lys Lys Arg Lys  Glu Gln Gly Leu Val  Gly Lys Pro
    1655                 1660                 1665

Ser Gln  Arg Asn Ala Leu Ser  Leu Gln Ala Gly Leu  Arg Thr Leu
    1670                 1675                 1680

His Asp  Ile Gly Pro Glu Ile  Arg Arg Ala Ile Ser  Gly Asp Leu
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1685 1690 1695

Thr Ala Glu Glu Glu Leu Asp Lys Ala Met Lys Glu Ala Val Ser
1700 1705 1710

Ala Ala Ser Glu Asp Asp Ile Phe Arg Arg Ala Gly Gly Leu Phe
1715 1720 1725

Gly Asn His Val Ser Tyr Tyr Gln Ser Asp Gly Arg Ser Ala Phe
1730 1735 1740

Pro Gln Thr Phe Thr Thr Gln Arg Pro Leu His Ile Asn Lys Ala
1745 1750 1755

Gly Ser Ser Gln Gly Asp Thr Glu Ser Pro Ser His Glu Lys Leu
1760 1765 1770

Val Asp Ser Thr Phe Thr Pro Ser Ser Tyr Ser Ser Thr Gly Ser
1775 1780 1785

Asn Ala Asn Ile Asn Asn Ala Asn Asn Thr Ala Leu Gly Arg Leu
1790 1795 1800

Pro Arg Pro Ala Gly Tyr Pro Ser Thr Val Ser Thr Val Glu Gly
1805 1810 1815

His Gly Pro Pro Leu Ser Pro Ala Ile Arg Val Gln Glu Val Ala
1820 1825 1830

Trp Lys Leu Ser Ser Asn Arg Cys His Ser Arg Glu Ser Gln Ala
1835 1840 1845

Ala Met Ala Gly Gln Glu Glu Thr Ser Gln Asp Glu Thr Tyr Glu
1850 1855 1860

Val Lys Met Asn His Asp Thr Glu Ala Cys Ser Glu Pro Ser Leu
1865 1870 1875

Leu Ser Thr Glu Met Leu Ser Tyr Gln Asp Asp Glu Asn Arg Gln
1880 1885 1890

Leu Thr Leu Pro Glu Glu Asp Lys Arg Asp Ile Arg Gln Ser Pro
1895 1900 1905

```
Lys Arg  Gly Phe Leu Arg Ser  Ala Ser Leu Gly Arg  Arg Ala Ser
    1910                1915                1920

Phe His  Leu Glu Cys Leu Lys  Arg Gln Lys Asp Arg  Gly Gly Asp
    1925                1930                1935

Ile Ser  Gln Lys Thr Val Leu  Pro Leu His Leu Val  His His Gln
    1940                1945                1950

Ala Leu  Ala Val Ala Gly Leu  Ser Pro Leu Leu Gln  Arg Ser His
    1955                1960                1965

Ser Pro  Ala Ser Phe Pro Arg  Pro Phe Ala Thr Pro  Pro Ala Thr
    1970                1975                1980

Pro Gly  Ser Arg Gly Trp Pro  Pro Gln Pro Val Pro  Thr Leu Arg
    1985                1990                1995

Leu Glu  Gly Val Glu Ser Ser  Glu Lys Leu Asn Ser  Ser Phe Pro
    2000                2005                2010

Ser Ile  His Cys Gly Ser Trp  Ala Glu Thr Thr Pro  Gly Gly Gly
    2015                2020                2025

Gly Ser  Ser Ala Ala Arg Arg  Val Arg Pro Val Ser  Leu Met Val
    2030                2035                2040

Pro Ser  Gln Ala Gly Ala Pro  Gly Arg Gln Phe His  Gly Ser Ala
    2045                2050                2055

Ser Ser  Leu Val Glu Ala Val  Leu Ile Ser Glu Gly  Leu Gly Gln
    2060                2065                2070

Phe Ala  Gln Asp Pro Lys Phe  Ile Glu Val Thr Thr  Gln Glu Leu
    2075                2080                2085

Ala Asp  Ala Cys Asp Met Thr  Ile Glu Glu Met Glu  Ser Ala Ala
    2090                2095                2100

Asp Asn  Ile Leu Ser Gly Gly  Ala Pro Gln Ser Pro  Asn Gly Ala
    2105                2110                2115
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Leu Leu Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg Ala
2120 2125 2130

Gly Gly Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg Pro
2135 2140 2145

Ser Glu Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser Leu
2150 2155 2160

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
20 25 30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
35 40 45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
50 55 60

```
Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
```

```
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525
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```
Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750
```

```
Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975
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```
Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185
```

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Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys His Tyr
    1265                1270                1275

Phe Cys  Asp Ala Trp Asn Thr  Phe Asp Ala Leu Ile  Val Val Gly
    1280                1285                1290

Ser Ile  Val Asp Ile Ala Ile  Thr Glu Val Asn Pro  Ala Glu His
    1295                1300                1305

Thr Gln  Cys Ser Pro Ser Met  Gly Pro Ser Cys Ser  His Pro Pro
    1310                1315                1320

Leu Ala  Val Leu Thr Ala Pro  Pro Val Ala Asp Gly  Phe Gln Asn
    1325                1330                1335

Ala Glu  Glu Asn Ser Arg Ile  Ser Ile Thr Phe Phe  Arg Leu Phe
    1340                1345                1350

Arg Val  Met Arg Leu Val Lys  Leu Leu Ser Arg Gly  Glu Gly Ile
    1355                1360                1365

Arg Thr  Leu Leu Trp Thr Phe  Ile Lys Ser Phe Gln  Ala Leu Pro
    1370                1375                1380

Tyr Val  Ala Leu Leu Ile Val  Met Leu Phe Phe Ile  Tyr Ala Val
    1385                1390                1395

Ile Gly  Met Gln Val Phe Gly  Lys Ile Ala Leu Asn  Asp Thr Thr
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1400 1405 1410

Glu Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala Val
1415 1420 1425

Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln Asp Ile
1430 1435 1440

Met Leu Ala Cys Met Pro Gly Lys Lys Cys Ala Pro Glu Ser Glu
1445 1450 1455

Pro Ser Asn Ser Thr Glu Gly Glu Thr Pro Cys Gly Ser Ser Phe
1460 1465 1470

Ala Val Phe Tyr Phe Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu
1475 1480 1485

Ile Ile Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr
1490 1495 1500

Leu Thr Arg Asp Trp Ser Ile Leu Gly Pro His His Leu Asp Glu
1505 1510 1515

Phe Lys Arg Ile Trp Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg
1520 1525 1530

Ile Lys His Leu Asp Val Val Thr Leu Leu Arg Arg Ile Gln Pro
1535 1540 1545

Pro Leu Gly Phe Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys
1550 1555 1560

Arg Leu Val Ser Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val
1565 1570 1575

Met Phe Asn Ala Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Arg
1580 1585 1590

Ile Lys Thr Glu Glu Gly Pro Ser Pro Ser Glu Ala His Gln Gly
1595 1600 1605

Ala Glu Asp Pro Phe Arg Pro Ala Gly Asn Leu Glu Gln Ala Asn
1610 1615 1620

```
Glu Glu  Leu Arg Ala Ile Ile  Lys Lys Ile Trp Lys  Arg Thr Ser
    1625                1630                1635

Met Lys  Leu Leu Asp Gln Val  Val Pro Pro Ala Gly  Asp Asp Glu
    1640                1645                1650

Val Thr  Val Gly Lys Phe Tyr  Ala Thr Phe Leu Ile  Gln Glu Tyr
    1655                1660                1665

Phe Arg  Lys Phe Lys Lys Arg  Lys Glu Gln Gly Leu  Val Gly Lys
    1670                1675                1680

Pro Ser  Gln Arg Asn Ala Leu  Ser Leu Gln Ala Gly  Leu Arg Thr
    1685                1690                1695

Leu His  Asp Ile Gly Pro Glu  Ile Arg Arg Ala Ile  Ser Gly Asp
    1700                1705                1710

Leu Thr  Ala Glu Glu Glu Leu  Asp Lys Ala Met Lys  Glu Ala Val
    1715                1720                1725

Ser Ala  Ala Ser Glu Asp Asp  Ile Phe Arg Arg Ala  Gly Gly Leu
    1730                1735                1740

Phe Gly  Asn His Val Ser Tyr  Tyr Gln Ser Asp Gly  Arg Ser Ala
    1745                1750                1755

Phe Pro  Gln Thr Phe Thr Thr  Gln Arg Pro Leu His  Ile Asn Lys
    1760                1765                1770

Ala Gly  Ser Ser Gln Gly Asp  Thr Glu Ser Pro Ser  His Glu Lys
    1775                1780                1785

Leu Val  Asp Ser Thr Phe Thr  Pro Ser Ser Tyr Ser  Ser Thr Gly
    1790                1795                1800

Ser Asn  Ala Asn Ile Asn Asn  Ala Asn Asn Thr Ala  Leu Gly Arg
    1805                1810                1815

Leu Pro  Arg Pro Ala Gly Tyr  Pro Ser Thr Val Ser  Thr Val Glu
    1820                1825                1830
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```
Gly His  Gly Pro Pro Leu Ser  Pro Ala Ile Arg Val  Gln Glu Val
    1835                 1840                 1845

Ala Trp  Lys Leu Ser Ser Asn  Arg Cys His Ser Arg  Glu Ser Gln
    1850                 1855                 1860

Ala Ala  Met Ala Gly Gln Glu  Glu Thr Ser Gln Asp  Glu Thr Tyr
    1865                 1870                 1875

Glu Val  Lys Met Asn His Asp  Thr Glu Ala Cys Ser  Glu Pro Ser
    1880                 1885                 1890

Leu Leu  Ser Thr Glu Met Leu  Ser Tyr Gln Asp Asp  Glu Asn Arg
    1895                 1900                 1905

Gln Leu  Thr Leu Pro Glu Glu  Asp Lys Arg Asp Ile  Arg Gln Ser
    1910                 1915                 1920

Pro Lys  Arg Gly Phe Leu Arg  Ser Ala Ser Leu Gly  Arg Arg Ala
    1925                 1930                 1935

Ser Phe  His Leu Glu Cys Leu  Lys Arg Gln Lys Asp  Arg Gly Gly
    1940                 1945                 1950

Asp Ile  Ser Gln Lys Thr Val  Leu Pro Leu His Leu  Val His His
    1955                 1960                 1965

Gln Ala  Leu Ala Val Ala Gly  Leu Ser Pro Leu Leu  Gln Arg Ser
    1970                 1975                 1980

His Ser  Pro Ala Ser Phe Pro  Arg Pro Phe Ala Thr  Pro Pro Ala
    1985                 1990                 1995

Thr Pro  Gly Ser Arg Gly Trp  Pro Pro Gln Pro Val  Pro Thr Leu
    2000                 2005                 2010

Arg Leu  Glu Gly Val Glu Ser  Ser Glu Lys Leu Asn  Ser Ser Phe
    2015                 2020                 2025

Pro Ser  Ile His Cys Gly Ser  Trp Ala Glu Thr Thr  Pro Gly Gly
    2030                 2035                 2040
```

```
Gly Gly  Ser Ser Ala Ala Arg  Arg Val Arg Pro Val  Ser Leu Met
    2045                2050                2055

Val Pro  Ser Gln Ala Gly Ala  Pro Gly Arg Gln Phe  His Gly Ser
    2060                2065                2070

Ala Ser  Ser Leu Val Glu Ala  Val Leu Ile Ser Glu  Gly Leu Gly
    2075                2080                2085

Gln Phe  Ala Gln Asp Pro Lys  Phe Ile Glu Val Thr  Thr Gln Glu
    2090                2095                2100

Leu Ala  Asp Ala Cys Asp Met  Thr Ile Glu Glu Met  Glu Ser Ala
    2105                2110                2115

Ala Asp  Asn Ile Leu Ser Gly  Gly Ala Pro Gln Ser  Pro Asn Gly
    2120                2125                2130

Ala Leu  Leu Pro Phe Val Asn  Cys Arg Asp Ala Gly  Gln Asp Arg
    2135                2140                2145

Ala Gly  Gly Glu Glu Asp Ala  Gly Cys Val Arg Ala  Arg Gly Arg
    2150                2155                2160

Pro Ser  Glu Glu Glu Leu Gln  Asp Ser Arg Val Tyr  Val Ser Ser
    2165                2170                2175

Leu
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type, alpha 1C

subunit; "

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20   25   30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35   40   45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50   55   60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65   70   75   80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85   90   95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100   105   110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115   120   125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130   135   140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145   150   155   160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165   170   175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180   185   190

```
Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415
```

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Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640
```

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
645 650 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
820 825 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
835 840 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
850 855 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe

865 870 875 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
885 890 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
900 905 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
915 920 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
930 935 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945 950 955 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe

1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met
1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln
1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys His Tyr
1265 1270 1275

Phe Cys Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly
1280 1285 1290

Ser Ile Val Asp Ile Ala Ile Thr Glu Val Asn Asn Ala Glu Glu
1295 1300 1305

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Asn Ser  Arg Ile Ser Ile Thr  Phe Phe Arg Leu Phe  Arg Val Met
    1310                1315                1320

Arg Leu  Val Lys Leu Leu Ser  Arg Gly Glu Gly Ile  Arg Thr Leu
    1325                1330                1335

Leu Trp  Thr Phe Ile Lys Ser  Phe Gln Ala Leu Pro  Tyr Val Ala
    1340                1345                1350

Leu Leu  Ile Val Met Leu Phe  Phe Ile Tyr Ala Val  Ile Gly Met
    1355                1360                1365

Gln Val  Phe Gly Lys Ile Ala  Leu Asn Asp Thr Thr  Glu Ile Asn
    1370                1375                1380

Arg Asn  Asn Asn Phe Gln Thr  Phe Pro Gln Ala Val  Leu Leu Leu
    1385                1390                1395

Phe Arg  Cys Ala Thr Gly Glu  Ala Trp Gln Asp Ile  Met Leu Ala
    1400                1405                1410

Cys Met  Pro Gly Lys Lys Cys  Ala Pro Glu Ser Glu  Pro Ser Asn
    1415                1420                1425

Ser Thr  Glu Gly Glu Thr Pro  Cys Gly Ser Ser Phe  Ala Val Phe
    1430                1435                1440

Tyr Phe  Ile Ser Phe Tyr Met  Leu Cys Ala Phe Leu  Ile Ile Asn
    1445                1450                1455

Leu Phe  Val Ala Val Ile Met  Asp Asn Phe Asp Tyr  Leu Thr Arg
    1460                1465                1470

Asp Trp  Ser Ile Leu Gly Pro  His His Leu Asp Glu  Phe Lys Arg
    1475                1480                1485

Ile Trp  Ala Glu Tyr Asp Pro  Glu Ala Lys Gly Arg  Ile Lys His
    1490                1495                1500

Leu Asp  Val Val Thr Leu Leu  Arg Arg Ile Gln Pro  Pro Leu Gly
    1505                1510                1515
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Phe Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu Val
1520 1525 1530

Ser Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn
1535 1540 1545

Ala Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr
1550 1555 1560

Glu Glu Gly Pro Ser Pro Ser Glu Ala His Gln Gly Ala Glu Asp
1565 1570 1575

Pro Phe Arg Pro Ala Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu
1580 1585 1590

Arg Ala Ile Ile Lys Lys Ile Trp Lys Arg Thr Ser Met Lys Leu
1595 1600 1605

Leu Asp Gln Val Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val
1610 1615 1620

Gly Lys Phe Tyr Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg Lys
1625 1630 1635

Phe Lys Lys Arg Lys Glu Gln Gly Leu Val Gly Lys Pro Ser Gln
1640 1645 1650

Arg Asn Ala Leu Ser Leu Gln Ala Gly Leu Arg Thr Leu His Asp
1655 1660 1665

Ile Gly Pro Glu Ile Arg Arg Ala Ile Ser Gly Asp Leu Thr Ala
1670 1675 1680

Glu Glu Glu Leu Asp Lys Ala Met Lys Glu Ala Val Ser Ala Ala
1685 1690 1695

Ser Glu Asp Asp Ile Phe Arg Arg Ala Gly Gly Leu Phe Gly Asn
1700 1705 1710

His Val Ser Tyr Tyr Gln Ser Asp Gly Arg Ser Ala Phe Pro Gln
1715 1720 1725

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Thr Phe  Thr Thr Gln Arg Pro  Leu His Ile Asn Lys  Ala Gly Ser
    1730                1735                1740

Ser Gln  Gly Asp Thr Glu Ser  Pro Ser His Glu Lys  Leu Val Asp
    1745                1750                1755

Ser Thr  Phe Thr Pro Ser Ser  Tyr Ser Ser Thr Gly  Ser Asn Ala
    1760                1765                1770

Asn Ile  Asn Asn Ala Asn Asn  Thr Ala Leu Gly Arg  Leu Pro Arg
    1775                1780                1785

Pro Ala  Gly Tyr Pro Ser Thr  Val Ser Thr Val Glu  Gly His Gly
    1790                1795                1800

Pro Pro  Leu Ser Pro Ala Ile  Arg Val Gln Glu Val  Ala Trp Lys
    1805                1810                1815

Leu Ser  Ser Asn Arg Cys His  Ser Arg Glu Ser Gln  Ala Ala Met
    1820                1825                1830

Ala Gly  Gln Glu Glu Thr Ser  Gln Asp Glu Thr Tyr  Glu Val Lys
    1835                1840                1845

Met Asn  His Asp Thr Glu Ala  Cys Ser Glu Pro Ser  Leu Leu Ser
    1850                1855                1860

Thr Glu  Met Leu Ser Tyr Gln  Asp Asp Glu Asn Arg  Gln Leu Thr
    1865                1870                1875

Leu Pro  Glu Glu Asp Lys Arg  Asp Ile Arg Gln Ser  Pro Lys Arg
    1880                1885                1890

Gly Phe  Leu Arg Ser Ala Ser  Leu Gly Arg Arg Ala  Ser Phe His
    1895                1900                1905

Leu Glu  Cys Leu Lys Arg Gln  Lys Asp Arg Gly Gly  Asp Ile Ser
    1910                1915                1920

Gln Lys  Thr Val Leu Pro Leu  His Leu Val His His  Gln Ala Leu
    1925                1930                1935

Ala Val  Ala Gly Leu Ser Pro  Leu Leu Gln Arg Ser  His Ser Pro
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1940 1945 1950

Ala Ser Phe Pro Arg Pro Phe Ala Thr Pro Pro Ala Thr Pro Gly
1955 1960 1965

Ser Arg Gly Trp Pro Pro Gln Pro Val Pro Thr Leu Arg Leu Glu
1970 1975 1980

Gly Val Glu Ser Ser Glu Lys Leu Asn Ser Ser Phe Pro Ser Ile
1985 1990 1995

His Cys Gly Ser Trp Ala Glu Thr Thr Pro Gly Gly Gly Gly Ser
2000 2005 2010

Ser Ala Ala Arg Arg Val Arg Pro Val Ser Leu Met Val Pro Ser
2015 2020 2025

Gln Ala Gly Ala Pro Gly Arg Gln Phe His Gly Ser Ala Ser Ser
2030 2035 2040

Leu Val Glu Ala Val Leu Ile Ser Glu Gly Leu Gly Gln Phe Ala
2045 2050 2055

Gln Asp Pro Lys Phe Ile Glu Val Thr Thr Gln Glu Leu Ala Asp
2060 2065 2070

Ala Cys Asp Met Thr Ile Glu Glu Met Glu Ser Ala Ala Asp Asn
2075 2080 2085

Ile Leu Ser Gly Gly Ala Pro Gln Ser Pro Asn Gly Ala Leu Leu
2090 2095 2100

Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg Ala Gly Gly
2105 2110 2115

Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg Pro Ser Glu
2120 2125 2130

Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser Leu
2135 2140 2145

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20   25   30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35   40   45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50   55   60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65   70   75   80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85   90   95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100   105   110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115   120   125

```
Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350
```

```
Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
```

```
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815
```

```
Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035
```

```
Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245
```

```
Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                 1255                 1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys His Tyr
    1265                 1270                 1275

Phe Cys  Asp Ala Trp Asn Thr  Phe Asp Ala Leu Ile  Val Val Gly
    1280                 1285                 1290

Ser Ile  Val Asp Ile Ala Ile  Thr Glu Val Asn Asn  Ala Glu Glu
    1295                 1300                 1305

Asn Ser  Arg Ile Ser Ile Thr  Phe Phe Arg Leu Phe  Arg Val Met
    1310                 1315                 1320

Arg Leu  Val Lys Leu Leu Ser  Arg Gly Glu Gly Ile  Arg Thr Leu
    1325                 1330                 1335

Leu Trp  Thr Phe Ile Lys Ser  Phe Gln Ala Leu Pro  Tyr Val Ala
    1340                 1345                 1350

Leu Leu  Ile Val Met Leu Phe  Phe Ile Tyr Ala Val  Ile Gly Met
    1355                 1360                 1365

Gln Val  Phe Gly Lys Ile Ala  Leu Asn Asp Thr Thr  Glu Ile Asn
    1370                 1375                 1380

Arg Asn  Asn Asn Phe Gln Thr  Phe Pro Gln Ala Val  Leu Leu Leu
    1385                 1390                 1395

Phe Arg  Cys Ala Thr Gly Glu  Ala Trp Gln Asp Ile  Met Leu Ala
    1400                 1405                 1410

Cys Met  Pro Gly Lys Lys Cys  Ala Pro Glu Ser Glu  Pro Ser Asn
    1415                 1420                 1425

Ser Thr  Glu Gly Glu Thr Pro  Cys Gly Ser Ser Phe  Ala Val Phe
    1430                 1435                 1440

Tyr Phe  Ile Ser Phe Tyr Met  Leu Cys Ala Phe Leu  Ile Ile Asn
    1445                 1450                 1455
```

```
Leu Phe  Val Ala Val Ile Met  Asp Asn Phe Asp Tyr  Leu Thr Arg
    1460                1465                1470

Asp Trp  Ser Ile Leu Gly Pro  His His Leu Asp Glu  Phe Lys Arg
    1475                1480                1485

Ile Trp  Ala Glu Tyr Asp Pro  Glu Ala Lys Gly Arg  Ile Lys His
    1490                1495                1500

Leu Asp  Val Val Thr Leu Leu  Arg Arg Ile Gln Pro  Pro Leu Gly
    1505                1510                1515

Phe Gly  Lys Leu Cys Pro His  Arg Val Ala Cys Lys  Arg Leu Val
    1520                1525                1530

Ser Met  Asn Met Pro Leu Asn  Ser Asp Gly Thr Val  Met Phe Asn
    1535                1540                1545

Ala Thr  Leu Phe Ala Leu Val  Arg Thr Ala Leu Arg  Ile Lys Thr
    1550                1555                1560

Glu Glu  Gly Pro Ser Pro Ser  Glu Ala His Gln Gly  Ala Glu Asp
    1565                1570                1575

Pro Phe  Arg Pro Ala Gly Asn  Leu Glu Gln Ala Asn  Glu Glu Leu
    1580                1585                1590

Arg Ala  Ile Ile Lys Lys Ile  Trp Lys Arg Thr Ser  Met Lys Leu
    1595                1600                1605

Leu Asp  Gln Val Val Pro Pro  Ala Gly Asp Asp Glu  Val Thr Val
    1610                1615                1620

Gly Lys  Phe Tyr Ala Thr Phe  Leu Ile Gln Glu Tyr  Phe Arg Lys
    1625                1630                1635

Phe Lys  Lys Arg Lys Glu Gln  Gly Leu Val Gly Lys  Pro Ser Gln
    1640                1645                1650

Arg Asn  Ala Leu Ser Leu Gln  Ala Gly Leu Arg Thr  Leu His Asp
    1655                1660                1665

Ile Gly  Pro Glu Ile Arg Arg  Ala Ile Ser Gly Asp  Leu Thr Ala
```

1670 1675 1680

Glu Glu Glu Leu Asp Lys Ala Met Lys Glu Ala Val Ser Ala Ala
1685 1690 1695

Ser Glu Asp Asp Ile Phe Arg Arg Ala Gly Gly Leu Phe Gly Asn
1700 1705 1710

His Val Ser Tyr Tyr Gln Ser Asp Gly Arg Ser Ala Phe Pro Gln
1715 1720 1725

Thr Phe Thr Thr Gln Arg Pro Leu His Ile Asn Lys Ala Gly Ser
1730 1735 1740

Ser Gln Gly Asp Thr Glu Ser Pro Ser His Glu Lys Leu Val Asp
1745 1750 1755

Ser Thr Phe Thr Pro Ser Ser Tyr Ser Ser Thr Gly Ser Asn Ala
1760 1765 1770

Asn Ile Asn Asn Ala Asn Asn Thr Ala Leu Gly Arg Leu Pro Arg
1775 1780 1785

Pro Ala Gly Tyr Pro Ser Thr Val Ser Thr Val Glu Gly His Gly
1790 1795 1800

Pro Pro Leu Ser Pro Ala Ile Arg Val Gln Glu Val Ala Trp Lys
1805 1810 1815

Leu Ser Ser Asn Arg Cys His Ser Arg Glu Ser Gln Ala Ala Met
1820 1825 1830

Ala Gly Gln Glu Glu Thr Ser Gln Asp Glu Thr Tyr Glu Val Lys
1835 1840 1845

Met Asn His Asp Thr Glu Ala Cys Ser Glu Pro Ser Leu Leu Ser
1850 1855 1860

Thr Glu Met Leu Ser Tyr Gln Asp Asp Glu Asn Arg Gln Leu Thr
1865 1870 1875

Leu Pro Glu Glu Asp Lys Arg Asp Ile Arg Gln Ser Pro Lys Arg
1880 1885 1890

```
Gly Phe  Leu Arg Ser Ala Ser  Leu Gly Arg Arg Ala  Ser Phe His
    1895                 1900                 1905

Leu Glu  Cys Leu Lys Arg Gln  Lys Asp Arg Gly Gly  Asp Ile Ser
    1910                 1915                 1920

Gln Lys  Thr Val Leu Pro Leu  His Leu Val His His  Gln Ala Leu
    1925                 1930                 1935

Ala Val  Ala Gly Leu Ser Pro  Leu Leu Gln Arg Ser  His Ser Pro
    1940                 1945                 1950

Ala Ser  Phe Pro Arg Pro Phe  Ala Thr Pro Pro Ala  Thr Pro Gly
    1955                 1960                 1965

Ser Arg  Gly Trp Pro Pro Gln  Pro Val Pro Thr Leu  Arg Leu Glu
    1970                 1975                 1980

Gly Val  Glu Ser Ser Glu Lys  Leu Asn Ser Ser Phe  Pro Ser Ile
    1985                 1990                 1995

His Cys  Gly Ser Trp Ala Glu  Thr Thr Pro Gly Gly  Gly Gly Ser
    2000                 2005                 2010

Ser Ala  Ala Arg Arg Val Arg  Pro Val Ser Leu Met  Val Pro Ser
    2015                 2020                 2025

Gln Ala  Gly Ala Pro Gly Arg  Gln Phe His Gly Ser  Ala Ser Ser
    2030                 2035                 2040

Leu Val  Glu Ala Val Leu Ile  Ser Glu Gly Leu Gly  Gln Phe Ala
    2045                 2050                 2055

Gln Asp  Pro Lys Phe Ile Glu  Val Thr Thr Gln Glu  Leu Ala Asp
    2060                 2065                 2070

Ala Cys  Asp Met Thr Ile Glu  Glu Met Glu Ser Ala  Ala Asp Asn
    2075                 2080                 2085

Ile Leu  Ser Gly Gly Ala Pro  Gln Ser Pro Asn Gly  Ala Leu Leu
    2090                 2095                 2100
```

Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg Ala Gly Gly
2105 2110 2115

Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg Pro Ser Glu
2120 2125 2130

Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser Leu
2135 2140 2145

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
20 25 30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
35 40 45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
50 55 60

```
Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
```

290 295 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305 310 315 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
325 330 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
340 345 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
355 360 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
370 375 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385 390 395 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
405 410 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
420 425 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
435 440 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
450 455 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465 470 475 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
485 490 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
500 505 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
515 520 525

```
Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750
```

```
Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975
```

```
Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185
```

```
Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys Gly Tyr
    1265                1270                1275

Phe Ser  Asp Pro Trp Asn Val  Phe Asp Phe Leu Ile  Val Ile Gly
    1280                1285                1290

Ser Ile  Ile Asp Val Ile Leu  Ser Glu Thr Asn Pro  Ala Glu His
    1295                1300                1305

Thr Gln  Cys Ser Pro Ser Met  Asn Ala Glu Glu Asn  Ser Arg Ile
    1310                1315                1320

Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val Met Arg  Leu Val Lys
    1325                1330                1335

Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe
    1340                1345                1350

Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
```

1400 1405 1410

Thr Gly Glu Ala Trp Gln Asp Ile Met Leu Ala Cys Met Pro Gly
1415 1420 1425

Lys Lys Cys Ala Pro Glu Ser Glu Pro Ser Asn Ser Thr Glu Gly
1430 1435 1440

Glu Thr Pro Cys Gly Ser Ser Phe Ala Val Phe Tyr Phe Ile Ser
1445 1450 1455

Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn Leu Phe Val Ala
1460 1465 1470

Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp Ser Ile
1475 1480 1485

Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp Ala Glu
1490 1495 1500

Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val Val
1505 1510 1515

Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
1520 1525 1530

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met
1535 1540 1545

Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe
1550 1555 1560

Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly Asn Leu
1565 1570 1575

Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp
1580 1585 1590

Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val Val Pro Pro Ala
1595 1600 1605

Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu
1610 1615 1620

```
Ile Gln  Glu Tyr Phe Arg Lys  Phe Lys Lys Arg Lys  Glu Gln Gly
    1625                1630                1635

Leu Val  Gly Lys Pro Ser Gln  Arg Asn Ala Leu Ser  Leu Gln Ala
    1640                1645                1650

Gly Leu  Arg Thr Leu His Asp  Ile Gly Pro Glu Ile  Arg Arg Ala
    1655                1660                1665

Ile Ser  Gly Asp Leu Thr Ala  Glu Glu Glu Leu Asp  Lys Ala Met
    1670                1675                1680

Lys Glu  Ala Val Ser Ala Ala  Ser Glu Asp Asp Ile  Phe Arg Arg
    1685                1690                1695

Ala Gly  Gly Leu Phe Gly Asn  His Val Ser Tyr Tyr  Gln Ser Asp
    1700                1705                1710

Gly Arg  Ser Ala Phe Pro Gln  Thr Phe Thr Thr Gln  Arg Pro Leu
    1715                1720                1725

His Ile  Asn Lys Ala Gly Ser  Ser Gln Gly Asp Thr  Glu Ser Pro
    1730                1735                1740

Ser His  Glu Lys Leu Val Asp  Ser Thr Phe Thr Pro  Ser Ser Tyr
    1745                1750                1755

Ser Ser  Thr Gly Ser Asn Ala  Asn Ile Asn Asn Ala  Asn Asn Thr
    1760                1765                1770

Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val
    1775                1780                1785

Ser Thr  Val Glu Gly His Gly  Pro Pro Leu Ser Pro  Ala Ile Arg
    1790                1795                1800

Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser Asn Arg  Cys His Ser
    1805                1810                1815

Arg Glu  Ser Gln Ala Ala Met  Ala Gly Gln Glu Glu  Thr Ser Gln
    1820                1825                1830
```

```
Asp Glu  Thr Tyr Glu Val Lys  Met Asn His Asp Thr  Glu Ala Cys
    1835                 1840                 1845

Ser Glu  Pro Ser Leu Leu Ser  Thr Glu Met Leu Ser  Tyr Gln Asp
    1850                 1855                 1860

Asp Glu  Asn Arg Gln Leu Thr  Leu Pro Glu Glu Asp  Lys Arg Asp
    1865                 1870                 1875

Ile Arg  Gln Ser Pro Lys Arg  Gly Phe Leu Arg Ser  Ala Ser Leu
    1880                 1885                 1890

Gly Arg  Arg Ala Ser Phe His  Leu Glu Cys Leu Lys  Arg Gln Lys
    1895                 1900                 1905

Asp Arg  Gly Gly Asp Ile Ser  Gln Lys Thr Val Leu  Pro Leu His
    1910                 1915                 1920

Leu Val  His His Gln Ala Leu  Ala Val Ala Gly Leu  Ser Pro Leu
    1925                 1930                 1935

Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe Pro Arg  Pro Phe Ala
    1940                 1945                 1950

Thr Pro  Pro Ala Thr Pro Gly  Ser Arg Gly Trp Pro  Pro Gln Pro
    1955                 1960                 1965

Val Pro  Thr Leu Arg Leu Glu  Gly Val Glu Ser Ser  Glu Lys Leu
    1970                 1975                 1980

Asn Ser  Ser Phe Pro Ser Ile  His Cys Gly Ser Trp  Ala Glu Thr
    1985                 1990                 1995

Thr Pro  Gly Gly Gly Gly Ser  Ser Ala Ala Arg Arg  Val Arg Pro
    2000                 2005                 2010

Val Ser  Leu Met Val Pro Ser  Gln Ala Gly Ala Pro  Gly Arg Gln
    2015                 2020                 2025

Phe His  Gly Ser Ala Ser Ser  Leu Val Glu Ala Val  Leu Ile Ser
    2030                 2035                 2040
```

```
Glu Gly  Leu Gly Gln Phe Ala  Gln Asp Pro Lys Phe  Ile Glu Val
    2045                2050                2055

Thr Thr  Gln Glu Leu Ala Asp  Ala Cys Asp Met Thr  Ile Glu Glu
    2060                2065                2070

Met Glu  Ser Ala Ala Asp Asn  Ile Leu Ser Gly Gly  Ala Pro Gln
    2075                2080                2085

Ser Pro  Asn Gly Ala Leu Leu  Pro Phe Val Asn Cys  Arg Asp Ala
    2090                2095                2100

Gly Gln  Asp Arg Ala Gly Gly  Glu Glu Asp Ala Gly  Cys Val Arg
    2105                2110                2115

Ala Arg  Gly Arg Pro Ser Glu  Glu Glu Leu Gln Asp  Ser Arg Val
    2120                2125                2130

Tyr Val  Ser Ser Leu
    2135


<210> 10724
<211> 2138
<212> PRT
<213> Homo sapiens

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
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1               5                   10                  15

Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240
```

```
Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460
```

```
Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685
```

```
Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
```

915 920 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
930 935 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945 950 955 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser

1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met
1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln
1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys His Tyr
1265 1270 1275

Phe Cys Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly
1280 1285 1290

Ser Ile Val Asp Ile Ala Ile Thr Glu Val Asn Pro Ala Glu His
1295 1300 1305

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys
1325 1330 1335

Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe
1340 1345 1350

```
Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500

Tyr Asp  Pro Glu Ala Lys Gly  Arg Ile Lys His Leu  Asp Val Val
    1505                1510                1515

Thr Leu  Leu Arg Arg Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu
    1520                1525                1530

Cys Pro  His Arg Val Ala Cys  Lys Arg Leu Val Ser  Met Asn Met
    1535                1540                1545

Pro Leu  Asn Ser Asp Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe
    1550                1555                1560
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Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly Asn Leu
1565 1570 1575

Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp
1580 1585 1590

Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val Val Pro Pro Ala
1595 1600 1605

Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu
1610 1615 1620

Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg Lys Glu Gln Gly
1625 1630 1635

Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu Ser Leu Gln Ala
1640 1645 1650

Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu Ile Arg Arg Ala
1655 1660 1665

Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu Asp Lys Ala Met
1670 1675 1680

Lys Glu Ala Val Ser Ala Ala Ser Glu Asp Asp Ile Phe Arg Arg
1685 1690 1695

Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr Tyr Gln Ser Asp
1700 1705 1710

Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr Gln Arg Pro Leu
1715 1720 1725

His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp Thr Glu Ser Pro
1730 1735 1740

Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr Pro Ser Ser Tyr
1745 1750 1755

Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn Ala Asn Asn Thr
1760 1765 1770

```
Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val
    1775                1780                1785

Ser Thr  Val Glu Gly His Gly  Pro Pro Leu Ser Pro  Ala Ile Arg
    1790                1795                1800

Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser Asn Arg  Cys His Ser
    1805                1810                1815

Arg Glu  Ser Gln Ala Ala Met  Ala Gly Gln Glu Glu  Thr Ser Gln
    1820                1825                1830

Asp Glu  Thr Tyr Glu Val Lys  Met Asn His Asp Thr  Glu Ala Cys
    1835                1840                1845

Ser Glu  Pro Ser Leu Leu Ser  Thr Glu Met Leu Ser  Tyr Gln Asp
    1850                1855                1860

Asp Glu  Asn Arg Gln Leu Thr  Leu Pro Glu Glu Asp  Lys Arg Asp
    1865                1870                1875

Ile Arg  Gln Ser Pro Lys Arg  Gly Phe Leu Arg Ser  Ala Ser Leu
    1880                1885                1890

Gly Arg  Arg Ala Ser Phe His  Leu Glu Cys Leu Lys  Arg Gln Lys
    1895                1900                1905

Asp Arg  Gly Gly Asp Ile Ser  Gln Lys Thr Val Leu  Pro Leu His
    1910                1915                1920

Leu Val  His His Gln Ala Leu  Ala Val Ala Gly Leu  Ser Pro Leu
    1925                1930                1935

Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe Pro Arg  Pro Phe Ala
    1940                1945                1950

Thr Pro  Pro Ala Thr Pro Gly  Ser Arg Gly Trp Pro  Pro Gln Pro
    1955                1960                1965

Val Pro  Thr Leu Arg Leu Glu  Gly Val Glu Ser Ser  Glu Lys Leu
    1970                1975                1980

Asn Ser  Ser Phe Pro Ser Ile  His Cys Gly Ser Trp  Ala Glu Thr
```

```
    1985                1990                1995

Thr Pro  Gly Gly Gly Gly Ser  Ser Ala Ala Arg Arg  Val Arg Pro
    2000                2005                2010

Val Ser  Leu Met Val Pro Ser  Gln Ala Gly Ala Pro  Gly Arg Gln
    2015                2020                2025

Phe His  Gly Ser Ala Ser Ser  Leu Val Glu Ala Val  Leu Ile Ser
    2030                2035                2040

Glu Gly  Leu Gly Gln Phe Ala  Gln Asp Pro Lys Phe  Ile Glu Val
    2045                2050                2055

Thr Thr  Gln Glu Leu Ala Asp  Ala Cys Asp Met Thr  Ile Glu Glu
    2060                2065                2070

Met Glu  Ser Ala Ala Asp Asn  Ile Leu Ser Gly Gly  Ala Pro Gln
    2075                2080                2085

Ser Pro  Asn Gly Ala Leu Leu  Pro Phe Val Asn Cys  Arg Asp Ala
    2090                2095                2100

Gly Gln  Asp Arg Ala Gly Gly  Glu Glu Asp Ala Gly  Cys Val Arg
    2105                2110                2115

Ala Arg  Gly Arg Pro Ser Glu  Glu Glu Leu Gln Asp  Ser Arg Val
    2120                2125                2130

Tyr Val  Ser Ser Leu
    2135


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<400> 10725

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175
```

```
Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr
    370                 375                 380

Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400
```

```
Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
```

625 630 635 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
645 650 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
820 825 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
835 840 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
850 855 860

```
Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080
```

```
Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys Gly Tyr
    1265                1270                1275

Phe Ser  Asp Pro Trp Asn Val  Phe Asp Phe Leu Ile  Val Ile Gly
    1280                1285                1290
```

```
Ser Ile  Ile Asp Val Ile Leu  Ser Glu Thr Asn Pro  Ala Glu His
    1295                1300                1305

Thr Gln  Cys Ser Pro Ser Met  Asn Ala Glu Glu Asn  Ser Arg Ile
    1310                1315                1320

Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val Met Arg  Leu Val Lys
    1325                1330                1335

Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe
    1340                1345                1350

Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500
```

Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val Val
1505 1510 1515

Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
1520 1525 1530

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met
1535 1540 1545

Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe
1550 1555 1560

Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly Asn Leu
1565 1570 1575

Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp
1580 1585 1590

Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val Val Pro Pro Ala
1595 1600 1605

Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu
1610 1615 1620

Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg Lys Glu Gln Gly
1625 1630 1635

Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu Ser Leu Gln Ala
1640 1645 1650

Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu Ile Arg Arg Ala
1655 1660 1665

Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu Asp Lys Ala Met
1670 1675 1680

Lys Glu Ala Val Ser Ala Ala Ser Glu Asp Asp Ile Phe Arg Arg
1685 1690 1695

Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr Tyr Gln Ser Asp
1700 1705 1710

Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr Gln Arg Pro Leu

1715 1720 1725

His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp Thr Glu Ser Pro
1730 1735 1740

Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr Pro Ser Ser Tyr
1745 1750 1755

Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn Ala Asn Asn Thr
1760 1765 1770

Ala Leu Gly Arg Leu Pro Arg Pro Ala Gly Tyr Pro Ser Thr Val
1775 1780 1785

Ser Thr Val Glu Gly His Gly Pro Pro Leu Ser Pro Ala Ile Arg
1790 1795 1800

Val Gln Glu Val Ala Trp Lys Leu Ser Ser Asn Arg Cys His Ser
1805 1810 1815

Arg Glu Ser Gln Ala Ala Met Ala Gly Gln Glu Glu Thr Ser Gln
1820 1825 1830

Asp Glu Thr Tyr Glu Val Lys Met Asn His Asp Thr Glu Ala Cys
1835 1840 1845

Ser Glu Pro Ser Leu Leu Ser Thr Glu Met Leu Ser Tyr Gln Asp
1850 1855 1860

Asp Glu Asn Arg Gln Leu Thr Leu Pro Glu Glu Asp Lys Arg Asp
1865 1870 1875

Ile Arg Gln Ser Pro Lys Arg Gly Phe Leu Arg Ser Ala Ser Leu
1880 1885 1890

Gly Arg Arg Ala Ser Phe His Leu Glu Cys Leu Lys Arg Gln Lys
1895 1900 1905

Asp Arg Gly Gly Asp Ile Ser Gln Lys Thr Val Leu Pro Leu His
1910 1915 1920

Leu Val His His Gln Ala Leu Ala Val Ala Gly Leu Ser Pro Leu
1925 1930 1935

```
Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe Pro Arg  Pro Phe Ala
    1940                1945                1950

Thr Pro  Pro Ala Thr Pro Gly  Ser Arg Gly Trp Pro  Pro Gln Pro
    1955                1960                1965

Val Pro  Thr Leu Arg Leu Glu  Gly Val Glu Ser Ser  Glu Lys Leu
    1970                1975                1980

Asn Ser  Ser Phe Pro Ser Ile  His Cys Gly Ser Trp  Ala Glu Thr
    1985                1990                1995

Thr Pro  Gly Gly Gly Gly Ser  Ser Ala Ala Arg Arg  Val Arg Pro
    2000                2005                2010

Val Ser  Leu Met Val Pro Ser  Gln Ala Gly Ala Pro  Gly Arg Gln
    2015                2020                2025

Phe His  Gly Ser Ala Ser Ser  Leu Val Glu Ala Val  Leu Ile Ser
    2030                2035                2040

Glu Gly  Leu Gly Gln Phe Ala  Gln Asp Pro Lys Phe  Ile Glu Val
    2045                2050                2055

Thr Thr  Gln Glu Leu Ala Asp  Ala Cys Asp Met Thr  Ile Glu Glu
    2060                2065                2070

Met Glu  Ser Ala Ala Asp Asn  Ile Leu Ser Gly Gly  Ala Pro Gln
    2075                2080                2085

Ser Pro  Asn Gly Ala Leu Leu  Pro Phe Val Asn Cys  Arg Asp Ala
    2090                2095                2100

Gly Gln  Asp Arg Ala Gly Gly  Glu Glu Asp Ala Gly  Cys Val Arg
    2105                2110                2115

Ala Arg  Gly Arg Pro Ser Glu  Glu Glu Leu Gln Asp  Ser Arg Val
    2120                2125                2130

Tyr Val  Ser Ser Leu
    2135
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<210> 10726
<211> 2158
<212> PRT
<213> Homo sapiens

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<221> source
<223> /note="Gene Symbol: CACNA1C; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, L
type, alpha 1C
subunit; "

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20   25   30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35   40   45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50   55   60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65   70   75   80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85   90   95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100   105   110

```
Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
```

```
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575
```

```
Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800
```

```
Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Ile Leu Gly Asn Ala Asp Tyr Val Phe
945                 950                 955                 960

Thr Ser Ile Phe Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly
                965                 970                 975

Ala Phe Leu His Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu
            980                 985                 990

Asp Leu Leu Val Val Ser Val Ser  Leu Ile Ser Phe Gly  Ile Gln
Ser
        995                 1000                1005

Ser Ala  Ile Asn Val Val Lys  Ile Leu Arg Val Leu  Arg Val Leu
    1010                1015                1020
```

```
Arg Pro  Leu Arg Ala Ile Asn  Arg Ala Lys Gly Leu  Lys His Val
    1025                1030                1035

Val Gln  Cys Val Phe Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val
    1040                1045                1050

Ile Val  Thr Thr Leu Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val
    1055                1060                1065

Gln Leu  Phe Lys Gly Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys
    1070                1075                1080

Gln Thr  Glu Ala Glu Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp
    1085                1090                1095

Gly Glu  Val Asp His Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn
    1100                1105                1110

Ser Lys  Phe Asp Phe Asp Asn  Val Leu Ala Ala Met  Met Ala Leu
    1115                1120                1125

Phe Thr  Val Ser Thr Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg
    1130                1135                1140

Ser Ile  Asp Ser His Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr
    1145                1150                1155

Arg Val  Glu Ile Ser Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile
    1160                1165                1170

Ala Phe  Phe Met Met Asn Ile  Phe Val Gly Phe Val  Ile Val Thr
    1175                1180                1185

Phe Gln  Glu Gln Gly Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp
    1190                1195                1200

Lys Asn  Gln Arg Gln Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro
    1205                1210                1215

Leu Arg  Arg Tyr Ile Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp
    1220                1225                1230
```

Tyr Val Val Asn Ser Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu
1235 1240 1245

Ile Leu Leu Asn Thr Ile Cys Leu Ala Met Gln His Tyr Gly Gln
1250 1255 1260

Ser Cys Leu Phe Lys Ile Ala Met Asn Ile Leu Asn Met Leu Phe
1265 1270 1275

Thr Gly Leu Phe Thr Val Glu Met Ile Leu Lys Leu Ile Ala Phe
1280 1285 1290

Lys Pro Lys His Tyr Phe Cys Asp Ala Trp Asn Thr Phe Asp Ala
1295 1300 1305

Leu Ile Val Val Gly Ser Ile Val Asp Ile Ala Ile Thr Glu Val
1310 1315 1320

Asn Pro Ala Glu His Thr Gln Cys Ser Pro Ser Met Asn Ala Glu
1325 1330 1335

Glu Asn Ser Arg Ile Ser Ile Thr Phe Phe Arg Leu Phe Arg Val
1340 1345 1350

Met Arg Leu Val Lys Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr
1355 1360 1365

Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val
1370 1375 1380

Ala Leu Leu Ile Val Met Leu Phe Phe Ile Tyr Ala Val Ile Gly
1385 1390 1395

Met Gln Val Phe Gly Lys Ile Ala Leu Asn Asp Thr Thr Glu Ile
1400 1405 1410

Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala Val Leu Leu
1415 1420 1425

Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln Asp Ile Met Leu
1430 1435 1440

Ala Cys Met Pro Gly Lys Lys Cys Ala Pro Glu Ser Glu Pro Ser

1445 1450 1455

Asn Ser Thr Glu Gly Glu Thr Pro Cys Gly Ser Ser Phe Ala Val
1460 1465 1470

Phe Tyr Phe Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile
1475 1480 1485

Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu Thr
1490 1495 1500

Arg Asp Trp Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys
1505 1510 1515

Arg Ile Trp Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys
1520 1525 1530

His Leu Asp Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu
1535 1540 1545

Gly Phe Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu
1550 1555 1560

Val Ser Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe
1565 1570 1575

Asn Ala Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Arg Ile Lys
1580 1585 1590

Thr Glu Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile
1595 1600 1605

Ile Lys Lys Ile Trp Lys Arg Thr Ser Met Lys Leu Leu Asp Gln
1610 1615 1620

Val Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe
1625 1630 1635

Tyr Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys
1640 1645 1650

Arg Lys Glu Gln Gly Leu Val Gly Lys Pro Ser Gln Arg Asn Ala
1655 1660 1665

```
Leu Ser  Leu Gln Ala Gly Leu  Arg Thr Leu His Asp  Ile Gly Pro
    1670                1675                1680

Glu Ile  Arg Arg Ala Ile Ser  Gly Asp Leu Thr Ala  Glu Glu Glu
    1685                1690                1695

Leu Asp  Lys Ala Met Lys Glu  Ala Val Ser Ala Ala  Ser Glu Asp
    1700                1705                1710

Asp Ile  Phe Arg Arg Ala Gly  Gly Leu Phe Gly Asn  His Val Ser
    1715                1720                1725

Tyr Tyr  Gln Ser Asp Gly Arg  Ser Ala Phe Pro Gln  Thr Phe Thr
    1730                1735                1740

Thr Gln  Arg Pro Leu His Ile  Asn Lys Ala Gly Ser  Ser Gln Gly
    1745                1750                1755

Asp Thr  Glu Ser Pro Ser His  Glu Lys Leu Val Asp  Ser Thr Phe
    1760                1765                1770

Thr Pro  Ser Ser Tyr Ser Ser  Thr Gly Ser Asn Ala  Asn Ile Asn
    1775                1780                1785

Asn Ala  Asn Asn Thr Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly
    1790                1795                1800

Tyr Pro  Ser Thr Val Ser Thr  Val Glu Gly His Gly  Pro Pro Leu
    1805                1810                1815

Ser Pro  Ala Ile Arg Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser
    1820                1825                1830

Asn Arg  Cys His Ser Arg Glu  Ser Gln Ala Ala Met  Ala Gly Gln
    1835                1840                1845

Glu Glu  Thr Ser Gln Asp Glu  Thr Tyr Glu Val Lys  Met Asn His
    1850                1855                1860

Asp Thr  Glu Ala Cys Ser Glu  Pro Ser Leu Leu Ser  Thr Glu Met
    1865                1870                1875
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```
Leu Ser  Tyr Gln Asp Asp Glu  Asn Arg Gln Leu Thr  Leu Pro Glu
    1880                1885                1890

Glu Asp  Lys Arg Asp Ile Arg  Gln Ser Pro Lys Arg  Gly Phe Leu
    1895                1900                1905

Arg Ser  Ala Ser Leu Gly Arg  Arg Ala Ser Phe His  Leu Glu Cys
    1910                1915                1920

Leu Lys  Arg Gln Lys Asp Arg  Gly Gly Asp Ile Ser  Gln Lys Thr
    1925                1930                1935

Val Leu  Pro Leu His Leu Val  His His Gln Ala Leu  Ala Val Ala
    1940                1945                1950

Gly Leu  Ser Pro Leu Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe
    1955                1960                1965

Pro Arg  Pro Phe Ala Thr Pro  Pro Ala Thr Pro Gly  Ser Arg Gly
    1970                1975                1980

Trp Pro  Pro Gln Pro Val Pro  Thr Leu Arg Leu Glu  Gly Val Glu
    1985                1990                1995

Ser Ser  Glu Lys Leu Asn Ser  Ser Phe Pro Ser Ile  His Cys Gly
    2000                2005                2010

Ser Trp  Ala Glu Thr Thr Pro  Gly Gly Gly Gly Ser  Ser Ala Ala
    2015                2020                2025

Arg Arg  Val Arg Pro Val Ser  Leu Met Val Pro Ser  Gln Ala Gly
    2030                2035                2040

Ala Pro  Gly Arg Gln Phe His  Gly Ser Ala Ser Ser  Leu Val Glu
    2045                2050                2055

Ala Val  Leu Ile Ser Glu Gly  Leu Gly Gln Phe Ala  Gln Asp Pro
    2060                2065                2070

Lys Phe  Ile Glu Val Thr Thr  Gln Glu Leu Ala Asp  Ala Cys Asp
    2075                2080                2085
```

```
Met Thr  Ile Glu Glu Met Glu  Ser Ala Ala Asp Asn  Ile Leu Ser
    2090                2095                2100

Gly Gly  Ala Pro Gln Ser Pro  Asn Gly Ala Leu Leu  Pro Phe Val
    2105                2110                2115

Asn Cys  Arg Asp Ala Gly Gln  Asp Arg Ala Gly Gly  Glu Glu Asp
    2120                2125                2130

Ala Gly  Cys Val Arg Ala Arg  Gly Arg Pro Ser Glu  Glu Glu Leu
    2135                2140                2145

Gln Asp  Ser Arg Val Tyr Val  Ser Ser Leu
    2150                2155


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<213> Homo sapiens

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      subunit; "

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
```

```
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285
```

```
Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr
    370                 375                 380

Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510
```

```
Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735
```

```
Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
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965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met
1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln

1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys Gly Tyr
1265 1270 1275

Phe Ser Asp Pro Trp Asn Val Phe Asp Phe Leu Ile Val Ile Gly
1280 1285 1290

Ser Ile Ile Asp Val Ile Leu Ser Glu Thr Asn Pro Ala Glu His
1295 1300 1305

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys
1325 1330 1335

Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe
1340 1345 1350

Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val
1355 1360 1365

Met Leu Phe Phe Ile Tyr Ala Val Ile Gly Met Gln Val Phe Gly
1370 1375 1380

Lys Ile Ala Leu Asn Asp Thr Thr Glu Ile Asn Arg Asn Asn Asn
1385 1390 1395

```
Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500

Tyr Asp  Pro Glu Ala Lys Gly  Arg Ile Lys His Leu  Asp Val Val
    1505                1510                1515

Thr Leu  Leu Arg Arg Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu
    1520                1525                1530

Cys Pro  His Arg Val Ala Cys  Lys Arg Leu Val Ser  Met Asn Met
    1535                1540                1545

Pro Leu  Asn Ser Asp Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe
    1550                1555                1560

Ala Leu  Val Arg Thr Ala Leu  Arg Ile Lys Thr Glu  Gly Asn Leu
    1565                1570                1575

Glu Gln  Ala Asn Glu Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp
    1580                1585                1590

Lys Arg  Thr Ser Met Lys Leu  Leu Asp Gln Val Val  Pro Pro Ala
    1595                1600                1605
```

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Gly Asp  Asp Glu Val Thr Val  Gly Lys Phe Tyr Ala  Thr Phe Leu
    1610                1615                1620

Ile Gln  Glu Tyr Phe Arg Lys  Phe Lys Lys Arg Lys  Glu Gln Gly
    1625                1630                1635

Leu Val  Gly Lys Pro Ser Gln  Arg Asn Ala Leu Ser  Leu Gln Ala
    1640                1645                1650

Gly Leu  Arg Thr Leu His Asp  Ile Gly Pro Glu Ile  Arg Arg Ala
    1655                1660                1665

Ile Ser  Gly Asp Leu Thr Ala  Glu Glu Glu Leu Asp  Lys Ala Met
    1670                1675                1680

Lys Glu  Ala Val Ser Ala Ala  Ser Glu Asp Asp Ile  Phe Arg Arg
    1685                1690                1695

Ala Gly  Gly Leu Phe Gly Asn  His Val Ser Tyr Tyr  Gln Ser Asp
    1700                1705                1710

Gly Arg  Ser Ala Phe Pro Gln  Thr Phe Thr Thr Gln  Arg Pro Leu
    1715                1720                1725

His Ile  Asn Lys Ala Gly Ser  Ser Gln Gly Asp Thr  Glu Ser Pro
    1730                1735                1740

Ser His  Glu Lys Leu Val Asp  Ser Thr Phe Thr Pro  Ser Ser Tyr
    1745                1750                1755

Ser Ser  Thr Gly Ser Asn Ala  Asn Ile Asn Asn Ala  Asn Asn Thr
    1760                1765                1770

Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val
    1775                1780                1785

Ser Thr  Val Glu Gly His Gly  Pro Pro Leu Ser Pro  Ala Ile Arg
    1790                1795                1800

Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser Asn Arg  Glu Arg His
    1805                1810                1815
```

Val Pro Met Cys Glu Asp Leu Glu Leu Arg Arg Asp Ser Gly Ser
1820 1825 1830

Ala Gly Thr Gln Ala His Cys Leu Leu Leu Arg Arg Ala Asn Pro
1835 1840 1845

Ser Arg Cys His Ser Arg Glu Ser Gln Ala Ala Met Ala Gly Gln
1850 1855 1860

Glu Glu Thr Ser Gln Asp Glu Thr Tyr Glu Val Lys Met Asn His
1865 1870 1875

Asp Thr Glu Ala Cys Ser Glu Pro Ser Leu Leu Ser Thr Glu Met
1880 1885 1890

Leu Ser Tyr Gln Asp Asp Glu Asn Arg Gln Leu Thr Leu Pro Glu
1895 1900 1905

Glu Asp Lys Arg Asp Ile Arg Gln Ser Pro Lys Arg Gly Phe Leu
1910 1915 1920

Arg Ser Ala Ser Leu Gly Arg Arg Ala Ser Phe His Leu Glu Cys
1925 1930 1935

Leu Lys Arg Gln Lys Asp Arg Gly Gly Asp Ile Ser Gln Lys Thr
1940 1945 1950

Val Leu Pro Leu His Leu Val His His Gln Ala Leu Ala Val Ala
1955 1960 1965

Gly Leu Ser Pro Leu Leu Gln Arg Ser His Ser Pro Ala Ser Phe
1970 1975 1980

Pro Arg Pro Phe Ala Thr Pro Pro Ala Thr Pro Gly Ser Arg Gly
1985 1990 1995

Trp Pro Pro Gln Pro Val Pro Thr Leu Arg Leu Glu Gly Val Glu
2000 2005 2010

Ser Ser Glu Lys Leu Asn Ser Ser Phe Pro Ser Ile His Cys Gly
2015 2020 2025

Ser Trp Ala Glu Thr Thr Pro Gly Gly Gly Gly Ser Ser Ala Ala

```
    2030                2035                2040

Arg Arg  Val Arg Pro Val Ser  Leu Met Val Pro Ser  Gln Ala Gly
    2045                2050                2055

Ala Pro  Gly Arg Gln Phe His  Gly Ser Ala Ser Ser  Leu Val Glu
    2060                2065                2070

Ala Val  Leu Ile Ser Glu Gly  Leu Gly Gln Phe Ala  Gln Asp Pro
    2075                2080                2085

Lys Phe  Ile Glu Val Thr Thr  Gln Glu Leu Ala Asp  Ala Cys Asp
    2090                2095                2100

Met Thr  Ile Glu Glu Met Glu  Ser Ala Ala Asp Asn  Ile Leu Ser
    2105                2110                2115

Gly Gly  Ala Pro Gln Ser Pro  Asn Gly Ala Leu Leu  Pro Phe Val
    2120                2125                2130

Asn Cys  Arg Asp Ala Gly Gln  Asp Arg Ala Gly Gly  Glu Glu Asp
    2135                2140                2145

Ala Gly  Cys Val Arg Ala Arg  Gly Arg Pro Ser Glu  Glu Glu Leu
    2150                2155                2160

Gln Asp  Ser Arg Val Tyr Val  Ser Ser Leu
    2165                2170


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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20   25   30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35   40   45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50   55   60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65   70   75   80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85   90   95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100   105   110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115   120   125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130   135   140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145   150   155   160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165   170   175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180   185   190

```
Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415
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Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
```

645 650 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
820 825 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
835 840 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
850 855 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865 870 875 880

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Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095
```

```
Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys His Tyr
    1265                1270                1275

Phe Cys  Asp Ala Trp Asn Thr  Phe Asp Ala Leu Ile  Val Val Gly
    1280                1285                1290

Ser Ile  Val Asp Ile Ala Ile  Thr Glu Val Asn Pro  Ala Glu His
    1295                1300                1305
```

```
Thr Gln  Cys Ser Pro Ser Met  Asn Ala Glu Glu Asn  Ser Arg Ile
    1310                1315                1320

Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val Met Arg  Leu Val Lys
    1325                1330                1335

Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe
    1340                1345                1350

Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500

Tyr Asp  Pro Glu Ala Lys Gly  Arg Ile Lys His Leu  Asp Val Val
    1505                1510                1515
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Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
1520 1525 1530

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met
1535 1540 1545

Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe
1550 1555 1560

Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Glu Gly Pro
1565 1570 1575

Ser Pro Ser Glu Ala His Gln Gly Ala Glu Asp Pro Phe Arg Pro
1580 1585 1590

Ala Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile
1595 1600 1605

Lys Lys Ile Trp Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val
1610 1615 1620

Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr
1625 1630 1635

Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg
1640 1645 1650

Lys Glu Gln Gly Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu
1655 1660 1665

Ser Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu
1670 1675 1680

Ile Arg Arg Ala Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu
1685 1690 1695

Asp Lys Ala Met Lys Glu Ala Val Ser Ala Ala Ser Glu Asp Asp
1700 1705 1710

Ile Phe Arg Arg Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr
1715 1720 1725

Tyr Gln Ser Asp Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr

1730 1735 1740

Gln Arg Pro Leu His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp
1745 1750 1755

Thr Glu Ser Pro Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr
1760 1765 1770

Pro Ser Ser Tyr Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn
1775 1780 1785

Ala Asn Asn Thr Ala Leu Gly Arg Leu Pro Arg Pro Ala Gly Tyr
1790 1795 1800

Pro Ser Thr Val Ser Thr Val Glu Gly His Gly Pro Pro Leu Ser
1805 1810 1815

Pro Ala Ile Arg Val Gln Glu Val Ala Trp Lys Leu Ser Ser Asn
1820 1825 1830

Arg Cys His Ser Arg Glu Ser Gln Ala Ala Met Ala Gly Gln Glu
1835 1840 1845

Glu Thr Ser Gln Asp Glu Thr Tyr Glu Val Lys Met Asn His Asp
1850 1855 1860

Thr Glu Ala Cys Ser Glu Pro Ser Leu Leu Ser Thr Glu Met Leu
1865 1870 1875

Ser Tyr Gln Asp Asp Glu Asn Arg Gln Leu Thr Leu Pro Glu Glu
1880 1885 1890

Asp Lys Arg Asp Ile Arg Gln Ser Pro Lys Arg Gly Phe Leu Arg
1895 1900 1905

Ser Ala Ser Leu Gly Arg Arg Ala Ser Phe His Leu Glu Cys Leu
1910 1915 1920

Lys Arg Gln Lys Asp Arg Gly Gly Asp Ile Ser Gln Lys Thr Val
1925 1930 1935

Leu Pro Leu His Leu Val His His Gln Ala Leu Ala Val Ala Gly
1940 1945 1950

Leu Ser Pro Leu Leu Gln Arg Ser His Ser Pro Ala Ser Phe Pro
1955 1960 1965

Arg Pro Phe Ala Thr Pro Pro Ala Thr Pro Gly Ser Arg Gly Trp
1970 1975 1980

Pro Pro Gln Pro Val Pro Thr Leu Arg Leu Glu Gly Val Glu Ser
1985 1990 1995

Ser Glu Lys Leu Asn Ser Ser Phe Pro Ser Ile His Cys Gly Ser
2000 2005 2010

Trp Ala Glu Thr Thr Pro Gly Gly Gly Gly Ser Ser Ala Ala Arg
2015 2020 2025

Arg Val Arg Pro Val Ser Leu Met Val Pro Ser Gln Ala Gly Ala
2030 2035 2040

Pro Gly Arg Gln Phe His Gly Ser Ala Ser Ser Leu Val Glu Ala
2045 2050 2055

Val Leu Ile Ser Glu Gly Leu Gly Gln Phe Ala Gln Asp Pro Lys
2060 2065 2070

Phe Ile Glu Val Thr Thr Gln Glu Leu Ala Asp Ala Cys Asp Met
2075 2080 2085

Thr Ile Glu Glu Met Glu Ser Ala Ala Asp Asn Ile Leu Ser Gly
2090 2095 2100

Gly Ala Pro Gln Ser Pro Asn Gly Ala Leu Leu Pro Phe Val Asn
2105 2110 2115

Cys Arg Asp Ala Gly Gln Asp Arg Ala Gly Gly Glu Glu Asp Ala
2120 2125 2130

Gly Cys Val Arg Ala Arg Gly Arg Pro Ser Glu Glu Glu Leu Gln
2135 2140 2145

Asp Ser Arg Val Tyr Val Ser Ser Leu
2150 2155

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type, alpha 1C
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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20   25   30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35   40   45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50   55   60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65   70   75   80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85   90   95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100   105   110

```
Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
```

```
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575
```

```
Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800
```

```
Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
    930                 935                 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020
```

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met
1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln
1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys Gly Tyr
1265 1270 1275

Phe Ser Asp Pro Trp Asn Val Phe Asp Phe Leu Ile Val Ile Gly
1280 1285 1290

Ser Ile Ile Asp Val Ile Leu Ser Glu Thr Asn His Tyr Phe Cys
1295 1300 1305

Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly Ser Ile
1310 1315 1320

Val Asp Ile Ala Ile Thr Glu Val Asn Asn Ala Glu Glu Asn Ser
1325 1330 1335

Arg Ile Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu
1340 1345 1350

Val Lys Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp
1355 1360 1365

Thr Phe Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu
1370 1375 1380

Ile Val Met Leu Phe Phe Ile Tyr Ala Val Ile Gly Met Gln Val
1385 1390 1395

Phe Gly Lys Ile Ala Leu Asn Asp Thr Thr Glu Ile Asn Arg Asn
1400 1405 1410

Asn Asn Phe Gln Thr Phe Pro Gln Ala Val Leu Leu Leu Phe Arg
1415 1420 1425

Cys Ala Thr Gly Glu Ala Trp Gln Asp Ile Met Leu Ala Cys Met
1430 1435 1440

Pro Gly Lys Lys Cys Ala Pro Glu Ser Glu Pro Ser Asn Ser Thr

1445 1450 1455

Glu Gly Glu Thr Pro Cys Gly Ser Ser Phe Ala Val Phe Tyr Phe
1460 1465 1470

Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn Leu Phe
1475 1480 1485

Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp
1490 1495 1500

Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp
1505 1510 1515

Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp
1520 1525 1530

Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly
1535 1540 1545

Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met
1550 1555 1560

Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr
1565 1570 1575

Leu Phe Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly
1580 1585 1590

Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys
1595 1600 1605

Ile Trp Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val Val Pro
1610 1615 1620

Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr
1625 1630 1635

Phe Leu Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg Lys Glu
1640 1645 1650

Gln Gly Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu Ser Leu
1655 1660 1665

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Gln Ala  Gly Leu Arg Thr Leu  His Asp Ile Gly Pro  Glu Ile Arg
    1670                 1675                 1680

Arg Ala  Ile Ser Gly Asp Leu  Thr Ala Glu Glu Glu  Leu Asp Lys
    1685                 1690                 1695

Ala Met  Lys Glu Ala Val Ser  Ala Ala Ser Glu Asp  Asp Ile Phe
    1700                 1705                 1710

Arg Arg  Ala Gly Gly Leu Phe  Gly Asn His Val Ser  Tyr Tyr Gln
    1715                 1720                 1725

Ser Asp  Gly Arg Ser Ala Phe  Pro Gln Thr Phe Thr  Thr Gln Arg
    1730                 1735                 1740

Pro Leu  His Ile Asn Lys Ala  Gly Ser Ser Gln Gly  Asp Thr Glu
    1745                 1750                 1755

Ser Pro  Ser His Glu Lys Leu  Val Asp Ser Thr Phe  Thr Pro Ser
    1760                 1765                 1770

Ser Tyr  Ser Ser Thr Gly Ser  Asn Ala Asn Ile Asn  Asn Ala Asn
    1775                 1780                 1785

Asn Thr  Ala Leu Gly Arg Leu  Pro Arg Pro Ala Gly  Tyr Pro Ser
    1790                 1795                 1800

Thr Val  Ser Thr Val Glu Gly  His Gly Pro Pro Leu  Ser Pro Ala
    1805                 1810                 1815

Ile Arg  Val Gln Glu Val Ala  Trp Lys Leu Ser Ser  Asn Arg Cys
    1820                 1825                 1830

His Ser  Arg Glu Ser Gln Ala  Ala Met Ala Gly Gln  Glu Glu Thr
    1835                 1840                 1845

Ser Gln  Asp Glu Thr Tyr Glu  Val Lys Met Asn His  Asp Thr Glu
    1850                 1855                 1860

Ala Cys  Ser Glu Pro Ser Leu  Leu Ser Thr Glu Met  Leu Ser Tyr
    1865                 1870                 1875
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Gln Asp  Asp Glu Asn Arg Gln  Leu Thr Leu Pro Glu  Glu Asp Lys
    1880                1885                1890

Arg Asp  Ile Arg Gln Ser Pro  Lys Arg Gly Phe Leu  Arg Ser Ala
    1895                1900                1905

Ser Leu  Gly Arg Arg Ala Ser  Phe His Leu Glu Cys  Leu Lys Arg
    1910                1915                1920

Gln Lys  Asp Arg Gly Gly Asp  Ile Ser Gln Lys Thr  Val Leu Pro
    1925                1930                1935

Leu His  Leu Val His His Gln  Ala Leu Ala Val Ala  Gly Leu Ser
    1940                1945                1950

Pro Leu  Leu Gln Arg Ser His  Ser Pro Ala Ser Phe  Pro Arg Pro
    1955                1960                1965

Phe Ala  Thr Pro Pro Ala Thr  Pro Gly Ser Arg Gly  Trp Pro Pro
    1970                1975                1980

Gln Pro  Val Pro Thr Leu Arg  Leu Glu Gly Val Glu  Ser Ser Glu
    1985                1990                1995

Lys Leu  Asn Ser Ser Phe Pro  Ser Ile His Cys Gly  Ser Trp Ala
    2000                2005                2010

Glu Thr  Thr Pro Gly Gly Gly  Gly Ser Ser Ala Ala  Arg Arg Val
    2015                2020                2025

Arg Pro  Val Ser Leu Met Val  Pro Ser Gln Ala Gly  Ala Pro Gly
    2030                2035                2040

Arg Gln  Phe His Gly Ser Ala  Ser Ser Leu Val Glu  Ala Val Leu
    2045                2050                2055

Ile Ser  Glu Gly Leu Gly Gln  Phe Ala Gln Asp Pro  Lys Phe Ile
    2060                2065                2070

Glu Val  Thr Thr Gln Glu Leu  Ala Asp Ala Cys Asp  Met Thr Ile
    2075                2080                2085
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Glu Glu  Met Glu Ser Ala Ala  Asp Asn Ile Leu Ser  Gly Gly Ala
    2090                2095                2100


Pro Gln  Ser Pro Asn Gly Ala  Leu Leu Pro Phe Val  Asn Cys Arg
    2105                2110                2115


Asp Ala  Gly Gln Asp Arg Ala  Gly Gly Glu Glu Asp  Ala Gly Cys
    2120                2125                2130


Val Arg  Ala Arg Gly Arg Pro  Ser Glu Glu Glu Leu  Gln Asp Ser
    2135                2140                2145


Arg Val  Tyr Val Ser Ser Leu
    2150                2155


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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30


Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45


Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
```

50 55 60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65 70 75 80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
85 90 95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
100 105 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
115 120 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
130 135 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145 150 155 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
165 170 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
180 185 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
195 200 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
210 215 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225 230 235 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
245 250 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
260 265 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
275 280 285

```
Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr
    370                 375                 380

Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510
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```
Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735
```

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Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
```

965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met
1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln

1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys His Tyr
1265 1270 1275

Phe Cys Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly
1280 1285 1290

Ser Ile Val Asp Ile Ala Ile Thr Glu Val Asn Pro Ala Glu His
1295 1300 1305

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys
1325 1330 1335

Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe
1340 1345 1350

Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val
1355 1360 1365

Met Leu Phe Phe Ile Tyr Ala Val Ile Gly Met Gln Val Phe Gly
1370 1375 1380

Lys Ile Ala Leu Asn Asp Thr Thr Glu Ile Asn Arg Asn Asn Asn
1385 1390 1395

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Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500

Tyr Asp  Pro Glu Ala Lys Gly  Arg Ile Lys His Leu  Asp Val Val
    1505                1510                1515

Thr Leu  Leu Arg Arg Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu
    1520                1525                1530

Cys Pro  His Arg Val Ala Cys  Lys Arg Leu Val Ser  Met Asn Met
    1535                1540                1545

Pro Leu  Asn Ser Asp Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe
    1550                1555                1560

Ala Leu  Val Arg Thr Ala Leu  Arg Ile Lys Thr Glu  Gly Asn Leu
    1565                1570                1575

Glu Gln  Ala Asn Glu Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp
    1580                1585                1590

Lys Arg  Thr Ser Met Lys Leu  Leu Asp Gln Val Val  Pro Pro Ala
    1595                1600                1605
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Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu
1610 1615 1620

Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg Lys Glu Gln Gly
1625 1630 1635

Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu Ser Leu Gln Ala
1640 1645 1650

Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu Ile Arg Arg Ala
1655 1660 1665

Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu Asp Lys Ala Met
1670 1675 1680

Lys Glu Ala Val Ser Ala Ala Ser Glu Asp Asp Ile Phe Arg Arg
1685 1690 1695

Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr Tyr Gln Ser Asp
1700 1705 1710

Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr Gln Arg Pro Leu
1715 1720 1725

His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp Thr Glu Ser Pro
1730 1735 1740

Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr Pro Ser Ser Tyr
1745 1750 1755

Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn Ala Asn Asn Thr
1760 1765 1770

Ala Leu Gly Arg Leu Pro Arg Pro Ala Gly Tyr Pro Ser Thr Val
1775 1780 1785

Ser Thr Val Glu Gly His Gly Pro Pro Leu Ser Pro Ala Ile Arg
1790 1795 1800

Val Gln Glu Val Ala Trp Lys Leu Ser Ser Asn Arg Met His Cys
1805 1810 1815

Cys Asp Met Leu Asp Gly Gly Thr Phe Pro Pro Ala Leu Gly Pro
1820 1825 1830

Arg Arg Ala Pro Pro Cys Leu His Gln Gln Leu Gln Gly Ser Leu
1835 1840 1845

Ala Gly Leu Arg Glu Asp Thr Pro Cys Ile Val Pro Gly His Ala
1850 1855 1860

Ser Leu Cys Cys Ser Ser Arg Val Gly Glu Trp Leu Pro Ala Gly
1865 1870 1875

Cys Thr Ala Pro Gln His Ala Arg Cys His Ser Arg Glu Ser Gln
1880 1885 1890

Ala Ala Met Ala Gly Gln Glu Glu Thr Ser Gln Asp Glu Thr Tyr
1895 1900 1905

Glu Val Lys Met Asn His Asp Thr Glu Ala Cys Ser Glu Pro Ser
1910 1915 1920

Leu Leu Ser Thr Glu Met Leu Ser Tyr Gln Asp Asp Glu Asn Arg
1925 1930 1935

Gln Leu Thr Leu Pro Glu Glu Asp Lys Arg Asp Ile Arg Gln Ser
1940 1945 1950

Pro Lys Arg Gly Phe Leu Arg Ser Ala Ser Leu Gly Arg Arg Ala
1955 1960 1965

Ser Phe His Leu Glu Cys Leu Lys Arg Gln Lys Asp Arg Gly Gly
1970 1975 1980

Asp Ile Ser Gln Lys Thr Val Leu Pro Leu His Leu Val His His
1985 1990 1995

Gln Ala Leu Ala Val Ala Gly Leu Ser Pro Leu Leu Gln Arg Ser
2000 2005 2010

His Ser Pro Ala Ser Phe Pro Arg Pro Phe Ala Thr Pro Pro Ala
2015 2020 2025

Thr Pro Gly Ser Arg Gly Trp Pro Pro Gln Pro Val Pro Thr Leu

2030 2035 2040

Arg Leu Glu Gly Val Glu Ser Ser Glu Lys Leu Asn Ser Ser Phe
2045 2050 2055

Pro Ser Ile His Cys Gly Ser Trp Ala Glu Thr Thr Pro Gly Gly
2060 2065 2070

Gly Gly Ser Ser Ala Ala Arg Arg Val Arg Pro Val Ser Leu Met
2075 2080 2085

Val Pro Ser Gln Ala Gly Ala Pro Gly Arg Gln Phe His Gly Ser
2090 2095 2100

Ala Ser Ser Leu Val Glu Ala Val Leu Ile Ser Glu Gly Leu Gly
2105 2110 2115

Gln Phe Ala Gln Asp Pro Lys Phe Ile Glu Val Thr Thr Gln Glu
2120 2125 2130

Leu Ala Asp Ala Cys Asp Met Thr Ile Glu Glu Met Glu Ser Ala
2135 2140 2145

Ala Asp Asn Ile Leu Ser Gly Gly Ala Pro Gln Ser Pro Asn Gly
2150 2155 2160

Ala Leu Leu Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg
2165 2170 2175

Ala Gly Gly Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg
2180 2185 2190

Pro Ser Glu Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser
2195 2200 2205

Leu

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1               5                  10                  15

Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140
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Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145 150 155 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
165 170 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
180 185 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
195 200 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
210 215 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225 230 235 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
245 250 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
260 265 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
275 280 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
290 295 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305 310 315 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
325 330 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
340 345 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
355 360 365

```
Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
```

595 600 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
610 615 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625 630 635 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
645 650 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
820 825 830

```
Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
    930                 935                 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050
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```
Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260
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Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys His Tyr
    1265                1270                1275

Phe Cys  Asp Ala Trp Asn Thr  Phe Asp Ala Leu Ile  Val Val Gly
    1280                1285                1290

Ser Ile  Val Asp Ile Ala Ile  Thr Glu Val Asn Pro  Ala Glu His
    1295                1300                1305

Thr Gln  Cys Ser Pro Ser Met  Asn Ala Glu Glu Asn  Ser Arg Ile
    1310                1315                1320

Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val Met Arg  Leu Val Lys
    1325                1330                1335

Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe
    1340                1345                1350

Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470
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Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp Ser Ile
1475 1480 1485

Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp Ala Glu
1490 1495 1500

Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val Val
1505 1510 1515

Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
1520 1525 1530

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met
1535 1540 1545

Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe
1550 1555 1560

Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Glu Gly Pro
1565 1570 1575

Ser Pro Ser Glu Ala His Gln Gly Ala Glu Asp Pro Phe Arg Pro
1580 1585 1590

Ala Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile
1595 1600 1605

Lys Lys Ile Trp Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val
1610 1615 1620

Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr
1625 1630 1635

Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg
1640 1645 1650

Lys Glu Gln Gly Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu
1655 1660 1665

Ser Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu
1670 1675 1680

Ile Arg Arg Ala Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu

1685 1690 1695

Asp Lys Ala Met Lys Glu Ala Val Ser Ala Ala Ser Glu Asp Asp
1700 1705 1710

Ile Phe Arg Arg Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr
1715 1720 1725

Tyr Gln Ser Asp Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr
1730 1735 1740

Gln Arg Pro Leu His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp
1745 1750 1755

Thr Glu Ser Pro Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr
1760 1765 1770

Pro Ser Ser Tyr Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn
1775 1780 1785

Ala Asn Asn Thr Ala Leu Gly Arg Leu Pro Arg Pro Ala Gly Tyr
1790 1795 1800

Pro Ser Thr Val Ser Thr Val Glu Gly His Gly Pro Pro Leu Ser
1805 1810 1815

Pro Ala Ile Arg Val Gln Glu Val Ala Trp Lys Leu Ser Ser Asn
1820 1825 1830

Arg Cys His Ser Arg Glu Ser Gln Ala Ala Met Ala Gly Gln Glu
1835 1840 1845

Glu Thr Ser Gln Asp Glu Thr Tyr Glu Val Lys Met Asn His Asp
1850 1855 1860

Thr Glu Ala Cys Ser Glu Pro Ser Leu Leu Ser Thr Glu Met Leu
1865 1870 1875

Ser Tyr Gln Asp Asp Glu Asn Arg Gln Leu Thr Leu Pro Glu Glu
1880 1885 1890

Asp Lys Arg Asp Ile Arg Gln Ser Pro Lys Arg Gly Phe Leu Arg
1895 1900 1905

```
Ser Ala  Ser Leu Gly Arg Arg  Ala Ser Phe His Leu  Glu Cys Leu
    1910                 1915                 1920

Lys Arg  Gln Lys Asp Arg Gly  Gly Asp Ile Ser Gln  Lys Thr Val
    1925                 1930                 1935

Leu Pro  Leu His Leu Val His  His Gln Ala Leu Ala  Val Ala Gly
    1940                 1945                 1950

Leu Ser  Pro Leu Leu Gln Arg  Ser His Ser Pro Ala  Ser Phe Pro
    1955                 1960                 1965

Arg Pro  Phe Ala Thr Pro Pro  Ala Thr Pro Gly Ser  Arg Gly Trp
    1970                 1975                 1980

Pro Pro  Gln Pro Val Pro Thr  Leu Arg Leu Glu Gly  Val Glu Ser
    1985                 1990                 1995

Ser Glu  Lys Leu Asn Ser Ser  Phe Pro Ser Ile His  Cys Gly Ser
    2000                 2005                 2010

Trp Ala  Glu Thr Thr Pro Gly  Gly Gly Gly Ser Ser  Ala Ala Arg
    2015                 2020                 2025

Arg Val  Arg Pro Val Ser Leu  Met Val Pro Ser Gln  Ala Gly Ala
    2030                 2035                 2040

Pro Gly  Arg Gln Phe His Gly  Ser Ala Ser Ser Leu  Val Glu Ala
    2045                 2050                 2055

Val Leu  Ile Ser Glu Gly Leu  Gly Gln Phe Ala Gln  Asp Pro Lys
    2060                 2065                 2070

Phe Ile  Glu Val Thr Thr Gln  Glu Leu Ala Asp Ala  Cys Asp Met
    2075                 2080                 2085

Thr Ile  Glu Glu Met Glu Ser  Ala Ala Asp Asn Ile  Leu Ser Gly
    2090                 2095                 2100

Gly Ala  Pro Gln Ser Pro Asn  Gly Ala Leu Leu Pro  Phe Val Asn
    2105                 2110                 2115
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Cys Arg Asp Ala Gly Gln Asp Arg Ala Gly Gly Glu Glu Asp Ala
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Gly Cys Val Arg Ala Arg Gly Arg Pro Ser Glu Glu Glu Leu Gln
2135 2140 2145

Asp Ser Arg Val Tyr Val Ser Ser Leu
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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
20 25 30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
35 40 45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
50 55 60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65 70 75 80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
85 90 95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
100 105 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
115 120 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
130 135 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145 150 155 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
165 170 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
180 185 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
195 200 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
210 215 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225 230 235 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
245 250 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
260 265 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
275 280 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile

```
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525
```

```
Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750
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Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975
```

```
Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185
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```
Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys Gly Tyr
    1265                1270                1275

Phe Ser  Asp Pro Trp Asn Val  Phe Asp Phe Leu Ile  Val Ile Gly
    1280                1285                1290

Ser Ile  Ile Asp Val Ile Leu  Ser Glu Thr Asn His  Tyr Phe Cys
    1295                1300                1305

Asp Ala  Trp Asn Thr Phe Asp  Ala Leu Ile Val Val  Gly Ser Ile
    1310                1315                1320

Val Asp  Ile Ala Ile Thr Glu  Val Asn Pro Ala Glu  His Thr Gln
    1325                1330                1335

Cys Ser  Pro Ser Met Asn Ala  Glu Glu Asn Ser Arg  Ile Ser Ile
    1340                1345                1350

Thr Phe  Phe Arg Leu Phe Arg  Val Met Arg Leu Val  Lys Leu Leu
    1355                1360                1365

Ser Arg  Gly Glu Gly Ile Arg  Thr Leu Leu Trp Thr  Phe Ile Lys
    1370                1375                1380

Ser Phe  Gln Ala Leu Pro Tyr  Val Ala Leu Leu Ile  Val Met Leu
    1385                1390                1395

Phe Phe  Ile Tyr Ala Val Ile  Gly Met Gln Val Phe  Gly Lys Ile
```

1400 1405 1410

Ala Leu Asn Asp Thr Thr Glu Ile Asn Arg Asn Asn Asn Phe Gln
1415 1420 1425

Thr Phe Pro Gln Ala Val Leu Leu Leu Phe Arg Cys Ala Thr Gly
1430 1435 1440

Glu Ala Trp Gln Asp Ile Met Leu Ala Cys Met Pro Gly Lys Lys
1445 1450 1455

Cys Ala Pro Glu Ser Glu Pro Ser Asn Ser Thr Glu Gly Glu Thr
1460 1465 1470

Pro Cys Gly Ser Ser Phe Ala Val Phe Tyr Phe Ile Ser Phe Tyr
1475 1480 1485

Met Leu Cys Ala Phe Leu Ile Ile Asn Leu Phe Val Ala Val Ile
1490 1495 1500

Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp Ser Ile Leu Gly
1505 1510 1515

Pro His His Leu Asp Glu Phe Lys Arg Ile Trp Ala Glu Tyr Asp
1520 1525 1530

Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val Val Thr Leu
1535 1540 1545

Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu Cys Pro
1550 1555 1560

His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met Pro Leu
1565 1570 1575

Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe Ala Leu
1580 1585 1590

Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly Asn Leu Glu Gln
1595 1600 1605

Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp Lys Arg
1610 1615 1620

```
Thr Ser  Met Lys Leu Leu Asp  Gln Val Val Pro Pro  Ala Gly Asp
    1625                1630                1635

Asp Glu  Val Thr Val Gly Lys  Phe Tyr Ala Thr Phe  Leu Ile Gln
    1640                1645                1650

Glu Tyr  Phe Arg Lys Phe Lys  Lys Arg Lys Glu Gln  Gly Leu Val
    1655                1660                1665

Gly Lys  Pro Ser Gln Arg Asn  Ala Leu Ser Leu Gln  Ala Gly Leu
    1670                1675                1680

Arg Thr  Leu His Asp Ile Gly  Pro Glu Ile Arg Arg  Ala Ile Ser
    1685                1690                1695

Gly Asp  Leu Thr Ala Glu Glu  Glu Leu Asp Lys Ala  Met Lys Glu
    1700                1705                1710

Ala Val  Ser Ala Ala Ser Glu  Asp Asp Ile Phe Arg  Arg Ala Gly
    1715                1720                1725

Gly Leu  Phe Gly Asn His Val  Ser Tyr Tyr Gln Ser  Asp Gly Arg
    1730                1735                1740

Ser Ala  Phe Pro Gln Thr Phe  Thr Thr Gln Arg Pro  Leu His Ile
    1745                1750                1755

Asn Lys  Ala Gly Ser Ser Gln  Gly Asp Thr Glu Ser  Pro Ser His
    1760                1765                1770

Glu Lys  Leu Val Asp Ser Thr  Phe Thr Pro Ser Ser  Tyr Ser Ser
    1775                1780                1785

Thr Gly  Ser Asn Ala Asn Ile  Asn Asn Ala Asn Asn  Thr Ala Leu
    1790                1795                1800

Gly Arg  Leu Pro Arg Pro Ala  Gly Tyr Pro Ser Thr  Val Ser Thr
    1805                1810                1815

Val Glu  Gly His Gly Pro Pro  Leu Ser Pro Ala Ile  Arg Val Gln
    1820                1825                1830
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```
Glu Val  Ala Trp Lys Leu Ser  Ser Asn Arg Cys His  Ser Arg Glu
    1835                1840                1845

Ser Gln  Ala Ala Met Ala Gly  Gln Glu Glu Thr Ser  Gln Asp Glu
    1850                1855                1860

Thr Tyr  Glu Val Lys Met Asn  His Asp Thr Glu Ala  Cys Ser Glu
    1865                1870                1875

Pro Ser  Leu Leu Ser Thr Glu  Met Leu Ser Tyr Gln  Asp Asp Glu
    1880                1885                1890

Asn Arg  Gln Leu Thr Leu Pro  Glu Glu Asp Lys Arg  Asp Ile Arg
    1895                1900                1905

Gln Ser  Pro Lys Arg Gly Phe  Leu Arg Ser Ala Ser  Leu Gly Arg
    1910                1915                1920

Arg Ala  Ser Phe His Leu Glu  Cys Leu Lys Arg Gln  Lys Asp Arg
    1925                1930                1935

Gly Gly  Asp Ile Ser Gln Lys  Thr Val Leu Pro Leu  His Leu Val
    1940                1945                1950

His His  Gln Ala Leu Ala Val  Ala Gly Leu Ser Pro  Leu Leu Gln
    1955                1960                1965

Arg Ser  His Ser Pro Ala Ser  Phe Pro Arg Pro Phe  Ala Thr Pro
    1970                1975                1980

Pro Ala  Thr Pro Gly Ser Arg  Gly Trp Pro Pro Gln  Pro Val Pro
    1985                1990                1995

Thr Leu  Arg Leu Glu Gly Val  Glu Ser Ser Glu Lys  Leu Asn Ser
    2000                2005                2010

Ser Phe  Pro Ser Ile His Cys  Gly Ser Trp Ala Glu  Thr Thr Pro
    2015                2020                2025

Gly Gly  Gly Gly Ser Ser Ala  Ala Arg Arg Val Arg  Pro Val Ser
    2030                2035                2040
```

```
Leu Met  Val Pro Ser Gln Ala  Gly Ala Pro Gly Arg  Gln Phe His
    2045                2050                2055

Gly Ser  Ala Ser Ser Leu Val  Glu Ala Val Leu Ile  Ser Glu Gly
    2060                2065                2070

Leu Gly  Gln Phe Ala Gln Asp  Pro Lys Phe Ile Glu  Val Thr Thr
    2075                2080                2085

Gln Glu  Leu Ala Asp Ala Cys  Asp Met Thr Ile Glu  Glu Met Glu
    2090                2095                2100

Ser Ala  Ala Asp Asn Ile Leu  Ser Gly Gly Ala Pro  Gln Ser Pro
    2105                2110                2115

Asn Gly  Ala Leu Leu Pro Phe  Val Asn Cys Arg Asp  Ala Gly Gln
    2120                2125                2130

Asp Arg  Ala Gly Gly Glu Glu  Asp Ala Gly Cys Val  Arg Ala Arg
    2135                2140                2145

Gly Arg  Pro Ser Glu Glu Glu  Leu Gln Asp Ser Arg  Val Tyr Val
    2150                2155                2160

Ser Ser  Leu
    2165


<210> 10733
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<212> PRT
<213> Homo sapiens

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      subunit; "

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
1               5                  10                  15

Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205
```

```
Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr
    370                 375                 380

Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430
```

```
Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655
```

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
820 825 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
835 840 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
850 855 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865 870 875 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile

885 890 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
900 905 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
915 920 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
930 935 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945 950 955 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr

1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met
1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln
1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys His Tyr
1265 1270 1275

Phe Cys Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly
1280 1285 1290

Ser Ile Val Asp Ile Ala Ile Thr Glu Val Asn Pro Ala Glu His
1295 1300 1305

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

```
Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val Met Arg  Leu Val Lys
    1325                1330                1335

Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe
    1340                1345                1350

Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500

Tyr Asp  Pro Glu Ala Lys Gly  Arg Ile Lys His Leu  Asp Val Val
    1505                1510                1515

Thr Leu  Leu Arg Arg Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu
    1520                1525                1530
```

```
Cys Pro  His Arg Val Ala Cys  Lys Arg Leu Val Ser  Met Asn Met
    1535                1540                1545

Pro Leu  Asn Ser Asp Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe
    1550                1555                1560

Ala Leu  Val Arg Thr Ala Leu  Arg Ile Lys Thr Glu  Gly Asn Leu
    1565                1570                1575

Glu Gln  Ala Asn Glu Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp
    1580                1585                1590

Lys Arg  Thr Ser Met Lys Leu  Leu Asp Gln Val Val  Pro Pro Ala
    1595                1600                1605

Gly Asp  Asp Glu Val Thr Val  Gly Lys Phe Tyr Ala  Thr Phe Leu
    1610                1615                1620

Ile Gln  Glu Tyr Phe Arg Lys  Phe Lys Lys Arg Lys  Glu Gln Gly
    1625                1630                1635

Leu Val  Gly Lys Pro Ser Gln  Arg Asn Ala Leu Ser  Leu Gln Ala
    1640                1645                1650

Gly Leu  Arg Thr Leu His Asp  Ile Gly Pro Glu Ile  Arg Arg Ala
    1655                1660                1665

Ile Ser  Gly Asp Leu Thr Ala  Glu Glu Glu Leu Asp  Lys Ala Met
    1670                1675                1680

Lys Glu  Ala Val Ser Ala Ala  Ser Glu Asp Asp Ile  Phe Arg Arg
    1685                1690                1695

Ala Gly  Gly Leu Phe Gly Asn  His Val Ser Tyr Tyr  Gln Ser Asp
    1700                1705                1710

Gly Arg  Ser Ala Phe Pro Gln  Thr Phe Thr Thr Gln  Arg Pro Leu
    1715                1720                1725

His Ile  Asn Lys Ala Gly Ser  Ser Gln Gly Asp Thr  Glu Ser Pro
    1730                1735                1740
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```
Ser His  Glu Lys Leu Val Asp  Ser Thr Phe Thr Pro  Ser Ser Tyr
    1745                1750                1755

Ser Ser  Thr Gly Ser Asn Ala  Asn Ile Asn Asn Ala  Asn Asn Thr
    1760                1765                1770

Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val
    1775                1780                1785

Ser Thr  Val Glu Gly His Gly  Pro Pro Leu Ser Pro  Ala Ile Arg
    1790                1795                1800

Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser Asn Arg  Cys His Ser
    1805                1810                1815

Arg Glu  Ser Gln Ala Ala Met  Ala Gly Gln Glu Glu  Thr Ser Gln
    1820                1825                1830

Asp Glu  Thr Tyr Glu Val Lys  Met Asn His Asp Thr  Glu Ala Cys
    1835                1840                1845

Ser Glu  Pro Ser Leu Leu Ser  Thr Glu Met Leu Ser  Tyr Gln Asp
    1850                1855                1860

Asp Glu  Asn Arg Gln Leu Thr  Leu Pro Glu Glu Asp  Lys Arg Asp
    1865                1870                1875

Ile Arg  Gln Ser Pro Lys Arg  Gly Phe Leu Arg Ser  Ala Ser Leu
    1880                1885                1890

Gly Arg  Arg Ala Ser Phe His  Leu Glu Cys Leu Lys  Arg Gln Lys
    1895                1900                1905

Asp Arg  Gly Gly Asp Ile Ser  Gln Lys Thr Val Leu  Pro Leu His
    1910                1915                1920

Leu Val  His His Gln Ala Leu  Ala Val Ala Gly Leu  Ser Pro Leu
    1925                1930                1935

Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe Pro Arg  Pro Phe Ala
    1940                1945                1950

Thr Pro  Pro Ala Thr Pro Gly  Ser Arg Gly Trp Pro  Pro Gln Pro
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1955 1960 1965

Val Pro Thr Leu Arg Leu Glu Gly Val Glu Ser Ser Glu Lys Leu
1970 1975 1980

Asn Ser Ser Phe Pro Ser Ile His Cys Gly Ser Trp Ala Glu Thr
1985 1990 1995

Thr Pro Gly Gly Gly Gly Ser Ser Ala Ala Arg Arg Val Arg Pro
2000 2005 2010

Val Ser Leu Met Val Pro Ser Gln Ala Gly Ala Pro Gly Arg Gln
2015 2020 2025

Phe His Gly Ser Ala Ser Ser Leu Val Glu Ala Val Leu Ile Ser
2030 2035 2040

Glu Gly Leu Gly Gln Phe Ala Gln Asp Pro Lys Phe Ile Glu Val
2045 2050 2055

Thr Thr Gln Glu Leu Ala Asp Ala Cys Asp Met Thr Ile Glu Glu
2060 2065 2070

Met Glu Ser Ala Ala Asp Asn Ile Leu Ser Gly Gly Ala Pro Gln
2075 2080 2085

Ser Pro Asn Gly Ala Leu Leu Pro Phe Val Asn Cys Arg Asp Ala
2090 2095 2100

Gly Gln Asp Arg Ala Gly Gly Glu Glu Asp Ala Gly Cys Val Arg
2105 2110 2115

Ala Arg Gly Arg Pro Ser Glu Glu Glu Leu Gln Asp Ser Arg Val
2120 2125 2130

Tyr Val Ser Ser Leu
2135

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20   25   30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35   40   45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50   55   60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65   70   75   80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85   90   95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100   105   110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115   120   125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130   135   140

```
Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365
```

```
Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
```

595 600 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
610 615 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625 630 635 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
645 650 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
820 825 830

```
Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
    930                 935                 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050
```

```
Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260
```

```
Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys Gly Tyr
    1265                1270                1275

Phe Ser  Asp Pro Trp Asn Val  Phe Asp Phe Leu Ile  Val Ile Gly
    1280                1285                1290

Ser Ile  Ile Asp Val Ile Leu  Ser Glu Thr Asn Pro  Ala Glu His
    1295                1300                1305

Thr Gln  Cys Ser Pro Ser Met  Asn Ala Glu Glu Asn  Ser Arg Ile
    1310                1315                1320

Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val Met Arg  Leu Val Lys
    1325                1330                1335

Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe
    1340                1345                1350

Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val
    1355                1360                1365

Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470
```

Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp Ser Ile
1475 1480 1485

Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp Ala Glu
1490 1495 1500

Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val Val
1505 1510 1515

Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
1520 1525 1530

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met
1535 1540 1545

Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe
1550 1555 1560

Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly Asn Leu
1565 1570 1575

Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp
1580 1585 1590

Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val Val Pro Pro Ala
1595 1600 1605

Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu
1610 1615 1620

Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg Lys Glu Gln Gly
1625 1630 1635

Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu Ser Leu Gln Ala
1640 1645 1650

Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu Ile Arg Arg Ala
1655 1660 1665

Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu Asp Lys Ala Met
1670 1675 1680

Lys Glu Ala Val Ser Ala Ala Ser Glu Asp Asp Ile Phe Arg Arg

1685 1690 1695

Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr Tyr Gln Ser Asp
1700 1705 1710

Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr Gln Arg Pro Leu
1715 1720 1725

His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp Thr Glu Ser Pro
1730 1735 1740

Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr Pro Ser Ser Tyr
1745 1750 1755

Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn Ala Asn Asn Thr
1760 1765 1770

Ala Leu Gly Arg Leu Pro Arg Pro Ala Gly Tyr Pro Ser Thr Val
1775 1780 1785

Ser Thr Val Glu Gly His Gly Pro Pro Leu Ser Pro Ala Ile Arg
1790 1795 1800

Val Gln Glu Val Ala Trp Lys Leu Ser Ser Asn Arg Cys His Ser
1805 1810 1815

Arg Glu Ser Gln Ala Ala Met Ala Gly Gln Glu Glu Thr Ser Gln
1820 1825 1830

Asp Glu Thr Tyr Glu Val Lys Met Asn His Asp Thr Glu Ala Cys
1835 1840 1845

Ser Glu Pro Ser Leu Leu Ser Thr Glu Met Leu Ser Tyr Gln Asp
1850 1855 1860

Asp Glu Asn Arg Gln Leu Thr Leu Pro Glu Glu Asp Lys Arg Asp
1865 1870 1875

Ile Arg Gln Ser Pro Lys Arg Gly Phe Leu Arg Ser Ala Ser Leu
1880 1885 1890

Gly Arg Arg Ala Ser Phe His Leu Glu Cys Leu Lys Arg Gln Lys
1895 1900 1905

```
Asp Arg  Gly Gly Asp Ile Ser  Gln Lys Thr Val Leu  Pro Leu His
    1910                1915                1920

Leu Val  His His Gln Ala Leu  Ala Val Ala Gly Leu  Ser Pro Leu
    1925                1930                1935

Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe Pro Arg  Pro Phe Ala
    1940                1945                1950

Thr Pro  Pro Ala Thr Pro Gly  Ser Arg Gly Trp Pro  Pro Gln Pro
    1955                1960                1965

Val Pro  Thr Leu Arg Leu Glu  Gly Val Glu Ser Ser  Glu Lys Leu
    1970                1975                1980

Asn Ser  Ser Phe Pro Ser Ile  His Cys Gly Ser Trp  Ala Glu Thr
    1985                1990                1995

Thr Pro  Gly Gly Gly Gly Ser  Ser Ala Ala Arg Arg  Val Arg Pro
    2000                2005                2010

Val Ser  Leu Met Val Pro Ser  Gln Ala Gly Ala Pro  Gly Arg Gln
    2015                2020                2025

Phe His  Gly Ser Ala Ser Ser  Leu Val Glu Ala Val  Leu Ile Ser
    2030                2035                2040

Glu Gly  Leu Gly Gln Phe Ala  Gln Asp Pro Lys Phe  Ile Glu Val
    2045                2050                2055

Thr Thr  Gln Glu Leu Ala Asp  Ala Cys Asp Met Thr  Ile Glu Glu
    2060                2065                2070

Met Glu  Ser Ala Ala Asp Asn  Ile Leu Ser Gly Gly  Ala Pro Gln
    2075                2080                2085

Ser Pro  Asn Gly Ala Leu Leu  Pro Phe Val Asn Cys  Arg Asp Ala
    2090                2095                2100

Gly Gln  Asp Arg Ala Gly Gly  Glu Glu Asp Ala Gly  Cys Val Arg
    2105                2110                2115
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Ala Arg Gly Arg Pro Ser Glu Glu Glu Leu Gln Asp Ser Arg Val
2120 2125 2130

Tyr Val Ser Ser Leu
2135

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20 25 30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
35 40 45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
50 55 60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65 70 75 80

```
Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
```

305 310 315 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
325 330 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
340 345 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
355 360 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
370 375 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385 390 395 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
405 410 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
420 425 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
435 440 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
450 455 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465 470 475 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
485 490 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
500 505 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
515 520 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
530 535 540

```
His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765
```

```
Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990
```

```
Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200
```

```
Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys His Tyr
    1265                1270                1275

Phe Cys  Asp Ala Trp Asn Thr  Phe Asp Ala Leu Ile  Val Val Gly
    1280                1285                1290

Ser Ile  Val Asp Ile Ala Ile  Thr Glu Asn Ala Glu  Glu Asn Ser
    1295                1300                1305

Arg Ile  Ser Ile Thr Phe Phe  Arg Leu Phe Arg Val  Met Arg Leu
    1310                1315                1320

Val Lys  Leu Leu Ser Arg Gly  Glu Gly Ile Arg Thr  Leu Leu Trp
    1325                1330                1335

Thr Phe  Ile Lys Ser Phe Gln  Ala Leu Pro Tyr Val  Ala Leu Leu
    1340                1345                1350

Ile Val  Met Leu Phe Phe Ile  Tyr Ala Val Ile Gly  Met Gln Val
    1355                1360                1365

Phe Gly  Lys Ile Ala Leu Asn  Asp Thr Thr Glu Ile  Asn Arg Asn
    1370                1375                1380

Asn Asn  Phe Gln Thr Phe Pro  Gln Ala Val Leu Leu  Leu Phe Arg
    1385                1390                1395

Cys Ala  Thr Gly Glu Ala Trp  Gln Asp Ile Met Leu  Ala Cys Met
    1400                1405                1410

Pro Gly  Lys Lys Cys Ala Pro  Glu Ser Glu Pro Ser  Asn Ser Thr
```

1415 1420 1425

Glu Gly Glu Thr Pro Cys Gly Ser Ser Phe Ala Val Phe Tyr Phe
1430 1435 1440

Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn Leu Phe
1445 1450 1455

Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp
1460 1465 1470

Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp
1475 1480 1485

Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp
1490 1495 1500

Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly
1505 1510 1515

Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met
1520 1525 1530

Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr
1535 1540 1545

Leu Phe Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Glu
1550 1555 1560

Gly Pro Ser Pro Ser Glu Ala His Gln Gly Ala Glu Asp Pro Phe
1565 1570 1575

Arg Pro Ala Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala
1580 1585 1590

Ile Ile Lys Lys Ile Trp Lys Arg Thr Ser Met Lys Leu Leu Asp
1595 1600 1605

Gln Val Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys
1610 1615 1620

Phe Tyr Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg Lys Phe Lys
1625 1630 1635

```
Lys Arg  Lys Glu Gln Gly Leu  Val Gly Lys Pro Ser  Gln Arg Asn
    1640                1645                1650

Ala Leu  Ser Leu Gln Ala Gly  Leu Arg Thr Leu His  Asp Ile Gly
    1655                1660                1665

Pro Glu  Ile Arg Arg Ala Ile  Ser Gly Asp Leu Thr  Ala Glu Glu
    1670                1675                1680

Glu Leu  Asp Lys Ala Met Lys  Glu Ala Val Ser Ala  Ala Ser Glu
    1685                1690                1695

Asp Asp  Ile Phe Arg Arg Ala  Gly Gly Leu Phe Gly  Asn His Val
    1700                1705                1710

Ser Tyr  Tyr Gln Ser Asp Gly  Arg Ser Ala Phe Pro  Gln Thr Phe
    1715                1720                1725

Thr Thr  Gln Arg Pro Leu His  Ile Asn Lys Ala Gly  Ser Ser Gln
    1730                1735                1740

Gly Asp  Thr Glu Ser Pro Ser  His Glu Lys Leu Val  Asp Ser Thr
    1745                1750                1755

Phe Thr  Pro Ser Ser Tyr Ser  Ser Thr Gly Ser Asn  Ala Asn Ile
    1760                1765                1770

Asn Asn  Ala Asn Asn Thr Ala  Leu Gly Arg Leu Pro  Arg Pro Ala
    1775                1780                1785

Gly Tyr  Pro Ser Thr Val Ser  Thr Val Glu Gly His  Gly Pro Pro
    1790                1795                1800

Leu Ser  Pro Ala Ile Arg Val  Gln Glu Val Ala Trp  Lys Leu Ser
    1805                1810                1815

Ser Asn  Arg Cys His Ser Arg  Glu Ser Gln Ala Ala  Met Ala Gly
    1820                1825                1830

Gln Glu  Glu Thr Ser Gln Asp  Glu Thr Tyr Glu Val  Lys Met Asn
    1835                1840                1845
```

```
His Asp  Thr Glu Ala Cys Ser  Glu Pro Ser Leu Leu  Ser Thr Glu
    1850                 1855                 1860

Met Leu  Ser Tyr Gln Asp Asp  Glu Asn Arg Gln Leu  Thr Leu Pro
    1865                 1870                 1875

Glu Glu  Asp Lys Arg Asp Ile  Arg Gln Ser Pro Lys  Arg Gly Phe
    1880                 1885                 1890

Leu Arg  Ser Ala Ser Leu Gly  Arg Arg Ala Ser Phe  His Leu Glu
    1895                 1900                 1905

Cys Leu  Lys Arg Gln Lys Asp  Arg Gly Gly Asp Ile  Ser Gln Lys
    1910                 1915                 1920

Thr Val  Leu Pro Leu His Leu  Val His His Gln Ala  Leu Ala Val
    1925                 1930                 1935

Ala Gly  Leu Ser Pro Leu Leu  Gln Arg Ser His Ser  Pro Ala Ser
    1940                 1945                 1950

Phe Pro  Arg Pro Phe Ala Thr  Pro Pro Ala Thr Pro  Gly Ser Arg
    1955                 1960                 1965

Gly Trp  Pro Pro Gln Pro Val  Pro Thr Leu Arg Leu  Glu Gly Val
    1970                 1975                 1980

Glu Ser  Ser Glu Lys Leu Asn  Ser Ser Phe Pro Ser  Ile His Cys
    1985                 1990                 1995

Gly Ser  Trp Ala Glu Thr Thr  Pro Gly Gly Gly Gly  Ser Ser Ala
    2000                 2005                 2010

Ala Arg  Arg Val Arg Pro Val  Ser Leu Met Val Pro  Ser Gln Ala
    2015                 2020                 2025

Gly Ala  Pro Gly Arg Gln Phe  His Gly Ser Ala Ser  Ser Leu Val
    2030                 2035                 2040

Glu Ala  Val Leu Ile Ser Glu  Gly Leu Gly Gln Phe  Ala Gln Asp
    2045                 2050                 2055
```

Pro Lys Phe Ile Glu Val Thr Thr Gln Glu Leu Ala Asp Ala Cys
2060 2065 2070

Asp Met Thr Ile Glu Glu Met Glu Ser Ala Ala Asp Asn Ile Leu
2075 2080 2085

Ser Gly Gly Ala Pro Gln Ser Pro Asn Gly Ala Leu Leu Pro Phe
2090 2095 2100

Val Asn Cys Arg Asp Ala Gly Gln Asp Arg Ala Gly Gly Glu Glu
2105 2110 2115

Asp Ala Gly Cys Val Arg Ala Arg Gly Arg Pro Ser Glu Glu Glu
2120 2125 2130

Leu Gln Asp Ser Arg Val Tyr Val Ser Ser Leu
2135 2140

<210> 10736
<211> 2138
<212> PRT
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<221> source
<223> /note="Gene Symbol: CACNA1C; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, L
type, alpha 1C
subunit; "

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
1 5 10 15

Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala

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            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255
```

```
Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480
```

```
Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700
```

```
Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
```

930 935 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945 950 955 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
1130 1135 1140

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met

1145 1150 1155

Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly
1160 1165 1170

Glu Gln Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln
1175 1180 1185

Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
1190 1195 1200

Pro Lys Asn Gln His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser
1205 1210 1215

Thr Tyr Phe Glu Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr
1220 1225 1230

Ile Cys Leu Ala Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys
1235 1240 1245

Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys His Tyr
1265 1270 1275

Phe Cys Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly
1280 1285 1290

Ser Ile Val Asp Ile Ala Ile Thr Glu Val Asn Pro Ala Glu His
1295 1300 1305

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys
1325 1330 1335

Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe
1340 1345 1350

Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val
1355 1360 1365

```
Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly
    1370                1375                1380

Lys Ile  Ala Leu Asn Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn
    1385                1390                1395

Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala
    1400                1405                1410

Thr Gly  Glu Ala Trp Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly
    1415                1420                1425

Lys Lys  Cys Ala Pro Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly
    1430                1435                1440

Glu Thr  Pro Cys Gly Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser
    1445                1450                1455

Phe Tyr  Met Leu Cys Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala
    1460                1465                1470

Val Ile  Met Asp Asn Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile
    1475                1480                1485

Leu Gly  Pro His His Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu
    1490                1495                1500

Tyr Asp  Pro Glu Ala Lys Gly  Arg Ile Lys His Leu  Asp Val Val
    1505                1510                1515

Thr Leu  Leu Arg Arg Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu
    1520                1525                1530

Cys Pro  His Arg Val Ala Cys  Lys Arg Leu Val Ser  Met Asn Met
    1535                1540                1545

Pro Leu  Asn Ser Asp Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe
    1550                1555                1560

Ala Leu  Val Arg Thr Ala Leu  Arg Ile Lys Thr Glu  Gly Asn Leu
    1565                1570                1575
```

```
Glu Gln  Ala Asn Glu Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp
    1580                1585                1590

Lys Arg  Thr Ser Met Lys Leu  Leu Asp Gln Val Val  Pro Pro Ala
    1595                1600                1605

Gly Asp  Asp Glu Val Thr Val  Gly Lys Phe Tyr Ala  Thr Phe Leu
    1610                1615                1620

Ile Gln  Glu Tyr Phe Arg Lys  Phe Lys Lys Arg Lys  Glu Gln Gly
    1625                1630                1635

Leu Val  Gly Lys Pro Ser Gln  Arg Asn Ala Leu Ser  Leu Gln Ala
    1640                1645                1650

Gly Leu  Arg Thr Leu His Asp  Ile Gly Pro Glu Ile  Arg Arg Ala
    1655                1660                1665

Ile Ser  Gly Asp Leu Thr Ala  Glu Glu Glu Leu Asp  Lys Ala Met
    1670                1675                1680

Lys Glu  Ala Val Ser Ala Ala  Ser Glu Asp Asp Ile  Phe Arg Arg
    1685                1690                1695

Ala Gly  Gly Leu Phe Gly Asn  His Val Ser Tyr Tyr  Gln Ser Asp
    1700                1705                1710

Gly Arg  Ser Ala Phe Pro Gln  Thr Phe Thr Thr Gln  Arg Pro Leu
    1715                1720                1725

His Ile  Asn Lys Ala Gly Ser  Ser Gln Gly Asp Thr  Glu Ser Pro
    1730                1735                1740

Ser His  Glu Lys Leu Val Asp  Ser Thr Phe Thr Pro  Ser Ser Tyr
    1745                1750                1755

Ser Ser  Thr Gly Ser Asn Ala  Asn Ile Asn Asn Ala  Asn Asn Thr
    1760                1765                1770

Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val
    1775                1780                1785
```

```
Ser Thr  Val Glu Gly His Gly  Pro Pro Leu Ser Pro  Ala Ile Arg
    1790                 1795                 1800

Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser Asn Arg  Cys His Ser
    1805                 1810                 1815

Arg Glu  Ser Gln Ala Ala Met  Ala Gly Gln Glu Glu  Thr Ser Gln
    1820                 1825                 1830

Asp Glu  Thr Tyr Glu Val Lys  Met Asn His Asp Thr  Glu Ala Cys
    1835                 1840                 1845

Ser Glu  Pro Ser Leu Leu Ser  Thr Glu Met Leu Ser  Tyr Gln Asp
    1850                 1855                 1860

Asp Glu  Asn Arg Gln Leu Thr  Leu Pro Glu Glu Asp  Lys Arg Asp
    1865                 1870                 1875

Ile Arg  Gln Ser Pro Lys Arg  Gly Phe Leu Arg Ser  Ala Ser Leu
    1880                 1885                 1890

Gly Arg  Arg Ala Ser Phe His  Leu Glu Cys Leu Lys  Arg Gln Lys
    1895                 1900                 1905

Asp Arg  Gly Gly Asp Ile Ser  Gln Lys Thr Val Leu  Pro Leu His
    1910                 1915                 1920

Leu Val  His His Gln Ala Leu  Ala Val Ala Gly Leu  Ser Pro Leu
    1925                 1930                 1935

Leu Gln  Arg Ser His Ser Pro  Ala Ser Phe Pro Arg  Pro Phe Ala
    1940                 1945                 1950

Thr Pro  Pro Ala Thr Pro Gly  Ser Arg Gly Trp Pro  Pro Gln Pro
    1955                 1960                 1965

Val Pro  Thr Leu Arg Leu Glu  Gly Val Glu Ser Ser  Glu Lys Leu
    1970                 1975                 1980

Asn Ser  Ser Phe Pro Ser Ile  His Cys Gly Ser Trp  Ala Glu Thr
    1985                 1990                 1995

Thr Pro  Gly Gly Gly Gly Ser  Ser Ala Ala Arg Arg  Val Arg Pro
```

```
    2000                2005                2010

Val Ser  Leu Met Val Pro Ser  Gln Ala Gly Ala Pro  Gly Arg Gln
    2015                2020                2025

Phe His  Gly Ser Ala Ser Ser  Leu Val Glu Ala Val  Leu Ile Ser
    2030                2035                2040

Glu Gly  Leu Gly Gln Phe Ala  Gln Asp Pro Lys Phe  Ile Glu Val
    2045                2050                2055

Thr Thr  Gln Glu Leu Ala Asp  Ala Cys Asp Met Thr  Ile Glu Glu
    2060                2065                2070

Met Glu  Ser Ala Ala Asp Asn  Ile Leu Ser Gly Gly  Ala Pro Gln
    2075                2080                2085

Ser Pro  Asn Gly Ala Leu Leu  Pro Phe Val Asn Cys  Arg Asp Ala
    2090                2095                2100

Gly Gln  Asp Arg Ala Gly Gly  Glu Glu Asp Ala Gly  Cys Val Arg
    2105                2110                2115

Ala Arg  Gly Arg Pro Ser Glu  Glu Glu Leu Gln Asp  Ser Arg Val
    2120                2125                2130

Tyr Val  Ser Ser Leu
    2135


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<212> PRT
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<223> /note="Gene Symbol: CACNA1C; "

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20   25   30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35   40   45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50   55   60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65   70   75   80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85   90   95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100   105   110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115   120   125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130   135   140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145   150   155   160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165   170   175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180   185   190

```
Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
        355                 360                 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
    370                 375                 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415
```

```
Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
```

645 650 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
820 825 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
835 840 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
850 855 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865 870 875 880

```
Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035

Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095
```

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Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys Gly Tyr
    1265                1270                1275

Phe Ser  Asp Pro Trp Asn Val  Phe Asp Phe Leu Ile  Val Ile Gly
    1280                1285                1290

Ser Ile  Ile Asp Val Ile Leu  Ser Glu Thr Asn Pro  Ala Glu His
    1295                1300                1305
```

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys
1325 1330 1335

Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe
1340 1345 1350

Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val
1355 1360 1365

Met Leu Phe Phe Ile Tyr Ala Val Ile Gly Met Gln Val Phe Gly
1370 1375 1380

Lys Ile Ala Leu Asn Asp Thr Thr Glu Ile Asn Arg Asn Asn Asn
1385 1390 1395

Phe Gln Thr Phe Pro Gln Ala Val Leu Leu Leu Phe Arg Cys Ala
1400 1405 1410

Thr Gly Glu Ala Trp Gln Asp Ile Met Leu Ala Cys Met Pro Gly
1415 1420 1425

Lys Lys Cys Ala Pro Glu Ser Glu Pro Ser Asn Ser Thr Glu Gly
1430 1435 1440

Glu Thr Pro Cys Gly Ser Ser Phe Ala Val Phe Tyr Phe Ile Ser
1445 1450 1455

Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn Leu Phe Val Ala
1460 1465 1470

Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp Ser Ile
1475 1480 1485

Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp Ala Glu
1490 1495 1500

Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val Val
1505 1510 1515

Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
1520 1525 1530

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met
1535 1540 1545

Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe
1550 1555 1560

Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Glu Gly Pro
1565 1570 1575

Ser Pro Ser Glu Ala His Gln Gly Ala Glu Asp Pro Phe Arg Pro
1580 1585 1590

Ala Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile
1595 1600 1605

Lys Lys Ile Trp Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val
1610 1615 1620

Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr
1625 1630 1635

Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg
1640 1645 1650

Lys Glu Gln Gly Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu
1655 1660 1665

Ser Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu
1670 1675 1680

Ile Arg Arg Ala Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu
1685 1690 1695

Asp Lys Ala Met Lys Glu Ala Val Ser Ala Ala Ser Glu Asp Asp
1700 1705 1710

Ile Phe Arg Arg Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr
1715 1720 1725

Tyr Gln Ser Asp Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr

1730 1735 1740

Gln Arg Pro Leu His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp
1745 1750 1755

Thr Glu Ser Pro Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr
1760 1765 1770

Pro Ser Ser Tyr Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn
1775 1780 1785

Ala Asn Asn Thr Ala Leu Gly Arg Leu Pro Arg Pro Ala Gly Tyr
1790 1795 1800

Pro Ser Thr Val Ser Thr Val Glu Gly His Gly Pro Pro Leu Ser
1805 1810 1815

Pro Ala Ile Arg Val Gln Glu Val Ala Trp Lys Leu Ser Ser Asn
1820 1825 1830

Arg Cys His Ser Arg Glu Ser Gln Ala Ala Met Ala Gly Gln Glu
1835 1840 1845

Glu Thr Ser Gln Asp Glu Thr Tyr Glu Val Lys Met Asn His Asp
1850 1855 1860

Thr Glu Ala Cys Ser Glu Pro Ser Leu Leu Ser Thr Glu Met Leu
1865 1870 1875

Ser Tyr Gln Asp Asp Glu Asn Arg Gln Leu Thr Leu Pro Glu Glu
1880 1885 1890

Asp Lys Arg Asp Ile Arg Gln Ser Pro Lys Arg Gly Phe Leu Arg
1895 1900 1905

Ser Ala Ser Leu Gly Arg Arg Ala Ser Phe His Leu Glu Cys Leu
1910 1915 1920

Lys Arg Gln Lys Asp Arg Gly Gly Asp Ile Ser Gln Lys Thr Val
1925 1930 1935

Leu Pro Leu His Leu Val His His Gln Ala Leu Ala Val Ala Gly
1940 1945 1950

```
Leu Ser  Pro Leu Leu Gln Arg  Ser His Ser Pro Ala  Ser Phe Pro
    1955                1960                1965

Arg Pro  Phe Ala Thr Pro Pro  Ala Thr Pro Gly Ser  Arg Gly Trp
    1970                1975                1980

Pro Pro  Gln Pro Val Pro Thr  Leu Arg Leu Glu Gly  Val Glu Ser
    1985                1990                1995

Ser Glu  Lys Leu Asn Ser Ser  Phe Pro Ser Ile His  Cys Gly Ser
    2000                2005                2010

Trp Ala  Glu Thr Thr Pro Gly  Gly Gly Gly Ser Ser  Ala Ala Arg
    2015                2020                2025

Arg Val  Arg Pro Val Ser Leu  Met Val Pro Ser Gln  Ala Gly Ala
    2030                2035                2040

Pro Gly  Arg Gln Phe His Gly  Ser Ala Ser Ser Leu  Val Glu Ala
    2045                2050                2055

Val Leu  Ile Ser Glu Gly Leu  Gly Gln Phe Ala Gln  Asp Pro Lys
    2060                2065                2070

Phe Ile  Glu Val Thr Thr Gln  Glu Leu Ala Asp Ala  Cys Asp Met
    2075                2080                2085

Thr Ile  Glu Glu Met Glu Ser  Ala Ala Asp Asn Ile  Leu Ser Gly
    2090                2095                2100

Gly Ala  Pro Gln Ser Pro Asn  Gly Ala Leu Leu Pro  Phe Val Asn
    2105                2110                2115

Cys Arg  Asp Ala Gly Gln Asp  Arg Ala Gly Gly Glu  Glu Asp Ala
    2120                2125                2130

Gly Cys  Val Arg Ala Arg Gly  Arg Pro Ser Glu Glu  Glu Leu Gln
    2135                2140                2145

Asp Ser  Arg Val Tyr Val Ser  Ser Leu
    2150                2155
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<212> PRT
<213> Homo sapiens

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<221> source
<223> /note="Gene Symbol: CACNA1C; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, L
type, alpha 1C
subunit; "

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<400> 10738
Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln
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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
20 25 30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
35 40 45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
50 55 60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65 70 75 80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
85 90 95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
100 105 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
115 120 125

```
Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
                245                 250                 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
            260                 265                 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
        275                 280                 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
    290                 295                 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305                 310                 315                 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
                325                 330                 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
            340                 345                 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
```

```
        355                 360                 365

Leu Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr
    370                 375                 380

Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val
385                 390                 395                 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
                405                 410                 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
            420                 425                 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
        435                 440                 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590
```

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
595 600 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
610 615 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625 630 635 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
645 650 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
660 665 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
675 680 685

Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
690 695 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705 710 715 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
725 730 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
740 745 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
755 760 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
770 775 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785 790 795 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
805 810 815

```
Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
        915                 920                 925

Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile Phe
    930                 935                 940

Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945                 950                 955                 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
                965                 970                 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
            980                 985                 990

Val Val Lys Ile Leu Arg Val Leu  Arg Val Leu Arg Pro  Leu Arg
Ala
        995                 1000                1005

Ile Asn  Arg Ala Lys Gly Leu  Lys His Val Val Gln  Cys Val Phe
    1010                1015                1020

Val Ala  Ile Arg Thr Ile Gly  Asn Ile Val Ile Val  Thr Thr Leu
    1025                1030                1035
```

```
Leu Gln  Phe Met Phe Ala Cys  Ile Gly Val Gln Leu  Phe Lys Gly
    1040                1045                1050

Lys Leu  Tyr Thr Cys Ser Asp  Ser Ser Lys Gln Thr  Glu Ala Glu
    1055                1060                1065

Cys Lys  Gly Asn Tyr Ile Thr  Tyr Lys Asp Gly Glu  Val Asp His
    1070                1075                1080

Pro Ile  Ile Gln Pro Arg Ser  Trp Glu Asn Ser Lys  Phe Asp Phe
    1085                1090                1095

Asp Asn  Val Leu Ala Ala Met  Met Ala Leu Phe Thr  Val Ser Thr
    1100                1105                1110

Phe Glu  Gly Trp Pro Glu Leu  Leu Tyr Arg Ser Ile  Asp Ser His
    1115                1120                1125

Thr Glu  Asp Lys Gly Pro Ile  Tyr Asn Tyr Arg Val  Glu Ile Ser
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245
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Ile Ala Met Asn Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr
1250 1255 1260

Val Glu Met Ile Leu Lys Leu Ile Ala Phe Lys Pro Lys Gly Tyr
1265 1270 1275

Phe Ser Asp Pro Trp Asn Val Phe Asp Phe Leu Ile Val Ile Gly
1280 1285 1290

Ser Ile Ile Asp Val Ile Leu Ser Glu Thr Asn Pro Ala Glu His
1295 1300 1305

Thr Gln Cys Ser Pro Ser Met Asn Ala Glu Glu Asn Ser Arg Ile
1310 1315 1320

Ser Ile Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys
1325 1330 1335

Leu Leu Ser Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe
1340 1345 1350

Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val
1355 1360 1365

Met Leu Phe Phe Ile Tyr Ala Val Ile Gly Met Gln Val Phe Gly
1370 1375 1380

Lys Ile Ala Leu Asn Asp Thr Thr Glu Ile Asn Arg Asn Asn Asn
1385 1390 1395

Phe Gln Thr Phe Pro Gln Ala Val Leu Leu Leu Phe Arg Cys Ala
1400 1405 1410

Thr Gly Glu Ala Trp Gln Asp Ile Met Leu Ala Cys Met Pro Gly
1415 1420 1425

Lys Lys Cys Ala Pro Glu Ser Glu Pro Ser Asn Ser Thr Glu Gly
1430 1435 1440

Glu Thr Pro Cys Gly Ser Ser Phe Ala Val Phe Tyr Phe Ile Ser
1445 1450 1455

Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn Leu Phe Val Ala

1460 1465 1470

Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp Trp Ser Ile
1475 1480 1485

Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp Ala Glu
1490 1495 1500

Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val Val
1505 1510 1515

Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
1520 1525 1530

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met
1535 1540 1545

Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe
1550 1555 1560

Ala Leu Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly Asn Leu
1565 1570 1575

Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp
1580 1585 1590

Lys Arg Thr Ser Met Lys Leu Leu Asp Gln Val Val Pro Pro Ala
1595 1600 1605

Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu
1610 1615 1620

Ile Gln Glu Tyr Phe Arg Lys Phe Lys Lys Arg Lys Glu Gln Gly
1625 1630 1635

Leu Val Gly Lys Pro Ser Gln Arg Asn Ala Leu Ser Leu Gln Ala
1640 1645 1650

Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu Ile Arg Arg Ala
1655 1660 1665

Ile Ser Gly Asp Leu Thr Ala Glu Glu Glu Leu Asp Lys Ala Met
1670 1675 1680

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Lys Glu  Ala Val Ser Ala Ala  Ser Glu Asp Asp Ile  Phe Arg Arg
    1685                 1690                 1695

Ala Gly  Gly Leu Phe Gly Asn  His Val Ser Tyr Tyr  Gln Ser Asp
    1700                 1705                 1710

Gly Arg  Ser Ala Phe Pro Gln  Thr Phe Thr Thr Gln  Arg Pro Leu
    1715                 1720                 1725

His Ile  Asn Lys Ala Gly Ser  Ser Gln Gly Asp Thr  Glu Ser Pro
    1730                 1735                 1740

Ser His  Glu Lys Leu Val Asp  Ser Thr Phe Thr Pro  Ser Ser Tyr
    1745                 1750                 1755

Ser Ser  Thr Gly Ser Asn Ala  Asn Ile Asn Asn Ala  Asn Asn Thr
    1760                 1765                 1770

Ala Leu  Gly Arg Leu Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val
    1775                 1780                 1785

Ser Thr  Val Glu Gly His Gly  Pro Pro Leu Ser Pro  Ala Ile Arg
    1790                 1795                 1800

Val Gln  Glu Val Ala Trp Lys  Leu Ser Ser Asn Arg  Met His Cys
    1805                 1810                 1815

Cys Asp  Met Leu Asp Gly Gly  Thr Phe Pro Pro Ala  Leu Gly Pro
    1820                 1825                 1830

Arg Arg  Ala Pro Pro Cys Leu  His Gln Gln Leu Gln  Gly Ser Leu
    1835                 1840                 1845

Ala Gly  Leu Arg Glu Asp Thr  Pro Cys Ile Val Pro  Gly His Ala
    1850                 1855                 1860

Ser Leu  Cys Cys Ser Ser Arg  Val Gly Glu Trp Leu  Pro Ala Gly
    1865                 1870                 1875

Cys Thr  Ala Pro Gln His Ala  Arg Cys His Ser Arg  Glu Ser Gln
    1880                 1885                 1890
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```
Ala Ala  Met Ala Gly Gln Glu  Glu Thr Ser Gln Asp  Glu Thr Tyr
    1895                1900                1905

Glu Val  Lys Met Asn His Asp  Thr Glu Ala Cys Ser  Glu Pro Ser
    1910                1915                1920

Leu Leu  Ser Thr Glu Met Leu  Ser Tyr Gln Asp Asp  Glu Asn Arg
    1925                1930                1935

Gln Leu  Thr Leu Pro Glu Glu  Asp Lys Arg Asp Ile  Arg Gln Ser
    1940                1945                1950

Pro Lys  Arg Gly Phe Leu Arg  Ser Ala Ser Leu Gly  Arg Arg Ala
    1955                1960                1965

Ser Phe  His Leu Glu Cys Leu  Lys Arg Gln Lys Asp  Arg Gly Gly
    1970                1975                1980

Asp Ile  Ser Gln Lys Thr Val  Leu Pro Leu His Leu  Val His His
    1985                1990                1995

Gln Ala  Leu Ala Val Ala Gly  Leu Ser Pro Leu Leu  Gln Arg Ser
    2000                2005                2010

His Ser  Pro Ala Ser Phe Pro  Arg Pro Phe Ala Thr  Pro Pro Ala
    2015                2020                2025

Thr Pro  Gly Ser Arg Gly Trp  Pro Pro Gln Pro Val  Pro Thr Leu
    2030                2035                2040

Arg Leu  Glu Gly Val Glu Ser  Ser Glu Lys Leu Asn  Ser Ser Phe
    2045                2050                2055

Pro Ser  Ile His Cys Gly Ser  Trp Ala Glu Thr Thr  Pro Gly Gly
    2060                2065                2070

Gly Gly  Ser Ser Ala Ala Arg  Arg Val Arg Pro Val  Ser Leu Met
    2075                2080                2085

Val Pro  Ser Gln Ala Gly Ala  Pro Gly Arg Gln Phe  His Gly Ser
    2090                2095                2100
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Ala Ser Ser Leu Val Glu Ala Val Leu Ile Ser Glu Gly Leu Gly
    2105   2110   2115

Gln Phe Ala Gln Asp Pro Lys Phe Ile Glu Val Thr Thr Gln Glu
    2120   2125   2130

Leu Ala Asp Ala Cys Asp Met Thr Ile Glu Glu Met Glu Ser Ala
    2135   2140   2145

Ala Asp Asn Ile Leu Ser Gly Gly Ala Pro Gln Ser Pro Asn Gly
    2150   2155   2160

Ala Leu Leu Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg
    2165   2170   2175

Ala Gly Gly Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg
    2180   2185   2190

Pro Ser Glu Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser
    2195   2200   2205

Leu

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<212> PRT
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      subunit; "

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Met Val Asn Glu Asn Thr Arg Met Tyr Ile Pro Glu Glu Asn His Gln

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Gly Ser Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala
            20                  25                  30

Asn Ala Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala
        35                  40                  45

Ala Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu
    50                  55                  60

Met Gly Ser Ala Gly Asn Ala Thr Ile Ser Thr Val Ser Ser Thr Gln
65                  70                  75                  80

Arg Lys Arg Gln Gln Tyr Gly Lys Pro Lys Lys Gln Gly Ser Thr Thr
                85                  90                  95

Ala Thr Arg Pro Pro Arg Ala Leu Leu Cys Leu Thr Leu Lys Asn Pro
            100                 105                 110

Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Glu Ile
        115                 120                 125

Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Ala Ile Tyr
    130                 135                 140

Ile Pro Phe Pro Glu Asp Asp Ser Asn Ala Thr Asn Ser Asn Leu Glu
145                 150                 155                 160

Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe Leu
                165                 170                 175

Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu Arg
            180                 185                 190

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
        195                 200                 205

Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala Leu
    210                 215                 220

Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
225                 230                 235                 240
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Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln Val
245 250 255

Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile Ala
260 265 270

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
275 280 285

Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly Ile
290 295 300

Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu Thr
305 310 315 320

Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly Trp
325 330 335

Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala
340 345 350

Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Val
355 360 365

Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile Tyr
370 375 380

Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu Val
385 390 395 400

Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys
405 410 415

Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu
420 425 430

Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp
435 440 445

Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn Met
450 455 460

```
Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ala
465                 470                 475                 480

Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His Arg
                485                 490                 495

Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg Phe
            500                 505                 510

Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr Trp
        515                 520                 525

Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu
    530                 535                 540

His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala Asn
545                 550                 555                 560

Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met Tyr
                565                 570                 575

Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp
            580                 585                 590

Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu Thr
        595                 600                 605

Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg Leu
    610                 615                 620

Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn Leu
625                 630                 635                 640

Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu Leu
                645                 650                 655

Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu
            660                 665                 670

Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser Thr
        675                 680                 685
```

```
Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu Thr
    690                 695                 700

Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr Gly
705                 710                 715                 720

Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu
                725                 730                 735

Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala
            740                 745                 750

Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu
        755                 760                 765

Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro
    770                 775                 780

Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys
785                 790                 795                 800

Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro
                805                 810                 815

Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu
            820                 825                 830

Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu
        835                 840                 845

Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu
    850                 855                 860

Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe
865                 870                 875                 880

Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile
                885                 890                 895

Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu
            900                 905                 910

Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe
```

915 920 925

Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile Phe
930 935 940

Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu His
945 950 955 960

Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val
965 970 975

Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile Asn
980 985 990

Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
Ala
995 1000 1005

Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
1010 1015 1020

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu
1025 1030 1035

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly
1040 1045 1050

Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu
1055 1060 1065

Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
1070 1075 1080

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe
1085 1090 1095

Asp Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr
1100 1105 1110

Phe Glu Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His
1115 1120 1125

Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser

```
    1130                1135                1140

Ile Phe  Phe Ile Ile Tyr Ile  Ile Ile Ile Ala Phe  Phe Met Met
    1145                1150                1155

Asn Ile  Phe Val Gly Phe Val  Ile Val Thr Phe Gln  Glu Gln Gly
    1160                1165                1170

Glu Gln  Glu Tyr Lys Asn Cys  Glu Leu Asp Lys Asn  Gln Arg Gln
    1175                1180                1185

Cys Val  Glu Tyr Ala Leu Lys  Ala Arg Pro Leu Arg  Arg Tyr Ile
    1190                1195                1200

Pro Lys  Asn Gln His Gln Tyr  Lys Val Trp Tyr Val  Val Asn Ser
    1205                1210                1215

Thr Tyr  Phe Glu Tyr Leu Met  Phe Val Leu Ile Leu  Leu Asn Thr
    1220                1225                1230

Ile Cys  Leu Ala Met Gln His  Tyr Gly Gln Ser Cys  Leu Phe Lys
    1235                1240                1245

Ile Ala  Met Asn Ile Leu Asn  Met Leu Phe Thr Gly  Leu Phe Thr
    1250                1255                1260

Val Glu  Met Ile Leu Lys Leu  Ile Ala Phe Lys Pro  Lys Val Gly
    1265                1270                1275

Leu
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<210> 10740
<211> 100
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CACNA1C; "

<220>

<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, L
type, alpha 1C
subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000445849"

<400> 10740
Met Leu Arg Ala Phe Val Gln Pro Gly Thr Pro Ala Tyr Gln Pro Leu
1 5 10 15

Pro Ser His Leu Ser Ala Asn Thr Glu Val Lys Phe Lys Gly Thr Leu
20 25 30

Val His Glu Ala Gln Leu Asn Tyr Phe Tyr Ile Ser Pro Gly Gly Ser
35 40 45

Asn Tyr Gly Ser Pro Arg Pro Ala His Ala Asn Met Asn Ala Asn Ala
50 55 60

Ala Ala Gly Leu Ala Pro Glu His Ile Pro Thr Pro Gly Ala Ala Leu
65 70 75 80

Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys Leu Met Gly
85 90 95

Ser Ala Gly Asn
100

<210> 10741
<211> 243
<212> PRT
<213> Homo sapiens

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10741
Xaa Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile Leu Phe
1 5 10 15

Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala Val
20 25 30

Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys Glu Glu
35 40 45

Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser Pro Glu
50 55 60

Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser Lys Glu
65 70 75 80

Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser Pro Pro
85 90 95

Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn Glu Asp
100 105 110

Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp Glu Glu
115 120 125

Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser Glu Leu
130 135 140

His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala Phe Phe
145 150 155 160

Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg Ile Val
165 170 175

Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu Leu Ser
180 185 190

```
Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser Phe Arg
        195                 200                 205

Asn His Val Cys Ile Ala Cys Val Phe Cys Thr Pro Ser Pro Trp Gly
    210                 215                 220

Cys Ala Arg Pro Thr Ala Ser Val Ala Asp Ile Ile Val Gln Ser Gly
225                 230                 235                 240

Ala Gln Phe
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<210> 10742
<211> 2039
<212> PRT
<213> Homo sapiens

<220>
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type, alpha 1C
subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000479029"

<400> 10742

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Glu Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe
1               5                  10                  15

Leu Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu
            20                  25                  30

Arg Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu
        35                  40                  45

Phe Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala
    50                  55                  60
```

```
Leu Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe
65                  70                  75                  80

Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln
                85                  90                  95

Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile
            100                 105                 110

Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu
        115                 120                 125

Glu Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly
    130                 135                 140

Ile Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu
145                 150                 155                 160

Thr Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly
                165                 170                 175

Trp Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
            180                 185                 190

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
        195                 200                 205

Val Leu Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val
    210                 215                 220

Tyr Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu
225                 230                 235                 240

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
                245                 250                 255

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
            260                 265                 270

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
        275                 280                 285
```

```
Asp Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn
    290                 295                 300

Met Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val
305                 310                 315                 320

Ala Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His
                325                 330                 335

Arg Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg
            340                 345                 350

Phe Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr
        355                 360                 365

Trp Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser
    370                 375                 380

Glu His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala
385                 390                 395                 400

Asn Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met
                405                 410                 415

Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe
            420                 425                 430

Asp Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu
        435                 440                 445

Thr Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg
    450                 455                 460

Leu Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn
465                 470                 475                 480

Leu Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu
                485                 490                 495

Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln
            500                 505                 510

Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser
```

```
        515                 520                 525

Thr Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu
    530                 535                 540

Thr Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr
545                 550                 555                 560

Gly Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile
                565                 570                 575

Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile
            580                 585                 590

Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys
        595                 600                 605

Glu Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser
    610                 615                 620

Pro Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser
625                 630                 635                 640

Lys Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser
                645                 650                 655

Pro Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn
            660                 665                 670

Glu Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp
        675                 680                 685

Glu Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser
    690                 695                 700

Glu Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala
705                 710                 715                 720

Phe Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg
                725                 730                 735

Ile Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu
            740                 745                 750
```

```
Leu Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser
        755                 760                 765

Phe Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile
    770                 775                 780

Phe Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu
785                 790                 795                 800

His Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu
                805                 810                 815

Val Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile
            820                 825                 830

Asn Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
        835                 840                 845

Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
    850                 855                 860

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu Leu
865                 870                 875                 880

Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly Lys Leu
                885                 890                 895

Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu Cys Lys Gly
            900                 905                 910

Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His Pro Ile Ile Gln
        915                 920                 925

Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe Asp Asn Val Leu Ala
    930                 935                 940

Ala Met Met Ala Leu Phe Thr Val Ser Thr Phe Glu Gly Trp Pro Glu
945                 950                 955                 960

Leu Leu Tyr Arg Ser Ile Asp Ser His Thr Glu Asp Lys Gly Pro Ile
                965                 970                 975
```

```
Tyr Asn Tyr Arg Val Glu Ile Ser Ile Phe Phe Ile Ile Tyr Ile Ile
            980                 985                 990

Ile Ile Ala Phe Phe Met Met Asn  Ile Phe Val Gly Phe  Val Ile
Val
        995                1000                1005

Thr Phe  Gln Glu Gln Gly Glu  Gln Glu Tyr Lys Asn  Cys Glu Leu
    1010                1015                1020

Asp Lys  Asn Gln Arg Gln Cys  Val Glu Tyr Ala Leu  Lys Ala Arg
    1025                1030                1035

Pro Leu  Arg Arg Tyr Ile Pro  Lys Asn Gln His Gln  Tyr Lys Val
    1040                1045                1050

Trp Tyr  Val Val Asn Ser Thr  Tyr Phe Glu Tyr Leu  Met Phe Val
    1055                1060                1065

Leu Ile  Leu Leu Asn Thr Ile  Cys Leu Ala Met Gln  His Tyr Gly
    1070                1075                1080

Gln Ser  Cys Leu Phe Lys Ile  Ala Met Asn Ile Leu  Asn Met Leu
    1085                1090                1095

Phe Thr  Gly Leu Phe Thr Val  Glu Met Ile Leu Lys  Leu Ile Ala
    1100                1105                1110

Phe Lys  Pro Lys His Tyr Phe  Cys Asp Ala Trp Asn  Thr Phe Asp
    1115                1120                1125

Ala Leu  Ile Val Val Gly Ser  Ile Val Asp Ile Ala  Ile Thr Glu
    1130                1135                1140

Val Asn  Asn Ala Glu Glu Asn  Ser Arg Ile Ser Ile  Thr Phe Phe
    1145                1150                1155

Arg Leu  Phe Arg Val Met Arg  Leu Val Lys Leu Leu  Ser Arg Gly
    1160                1165                1170

Glu Gly  Ile Arg Thr Leu Leu  Trp Thr Phe Ile Lys  Ser Phe Gln
    1175                1180                1185
```

```
Ala Leu  Pro Tyr Val Ala Leu  Leu Ile Val Met Leu  Phe Phe Ile
    1190                1195                1200

Tyr Ala  Val Ile Gly Met Gln  Val Phe Gly Lys Ile  Ala Leu Asn
    1205                1210                1215

Asp Thr  Thr Glu Ile Asn Arg  Asn Asn Asn Phe Gln  Thr Phe Pro
    1220                1225                1230

Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala Thr Gly  Glu Ala Trp
    1235                1240                1245

Gln Asp  Ile Met Leu Ala Cys  Met Pro Gly Lys Lys  Cys Ala Pro
    1250                1255                1260

Glu Ser  Glu Pro Ser Asn Ser  Thr Glu Gly Glu Thr  Pro Cys Gly
    1265                1270                1275

Ser Ser  Phe Ala Val Phe Tyr  Phe Ile Ser Phe Tyr  Met Leu Cys
    1280                1285                1290

Ala Phe  Leu Ile Ile Asn Leu  Phe Val Ala Val Ile  Met Asp Asn
    1295                1300                1305

Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile Leu Gly  Pro His His
    1310                1315                1320

Leu Asp  Glu Phe Lys Arg Ile  Trp Ala Glu Tyr Asp  Pro Glu Ala
    1325                1330                1335

Lys Gly  Arg Ile Lys His Leu  Asp Val Val Thr Leu  Leu Arg Arg
    1340                1345                1350

Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Leu Cys Pro  His Arg Val
    1355                1360                1365

Ala Cys  Lys Arg Leu Val Ser  Met Asn Met Pro Leu  Asn Ser Asp
    1370                1375                1380

Gly Thr  Val Met Phe Asn Ala  Thr Leu Phe Ala Leu  Val Arg Thr
    1385                1390                1395
```

```
Ala Leu  Arg Ile Lys Thr Glu  Gly Asn Leu Glu Gln  Ala Asn Glu
    1400                1405                1410

Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp Lys Arg  Thr Ser Met
    1415                1420                1425

Lys Leu  Leu Asp Gln Val Val  Pro Pro Ala Gly Asp  Asp Glu Val
    1430                1435                1440

Thr Val  Gly Lys Phe Tyr Ala  Thr Phe Leu Ile Gln  Glu Tyr Phe
    1445                1450                1455

Arg Lys  Phe Lys Lys Arg Lys  Glu Gln Gly Leu Val  Gly Lys Pro
    1460                1465                1470

Ser Gln  Arg Asn Ala Leu Ser  Leu Gln Ala Gly Leu  Arg Thr Leu
    1475                1480                1485

His Asp  Ile Gly Pro Glu Ile  Arg Arg Ala Ile Ser  Gly Asp Leu
    1490                1495                1500

Thr Ala  Glu Glu Glu Leu Asp  Lys Ala Met Lys Glu  Ala Val Ser
    1505                1510                1515

Ala Ala  Ser Glu Asp Asp Ile  Phe Arg Arg Ala Gly  Gly Leu Phe
    1520                1525                1530

Gly Asn  His Val Ser Tyr Tyr  Gln Ser Asp Gly Arg  Ser Ala Phe
    1535                1540                1545

Pro Gln  Thr Phe Thr Thr Gln  Arg Pro Leu His Ile  Asn Lys Ala
    1550                1555                1560

Gly Ser  Ser Gln Gly Asp Thr  Glu Ser Pro Ser His  Glu Lys Leu
    1565                1570                1575

Val Asp  Ser Thr Phe Thr Pro  Ser Ser Tyr Ser Ser  Thr Gly Ser
    1580                1585                1590

Asn Ala  Asn Ile Asn Asn Ala  Asn Asn Thr Ala Leu  Gly Arg Leu
    1595                1600                1605

Pro Arg  Pro Ala Gly Tyr Pro  Ser Thr Val Ser Thr  Val Glu Gly
```

1610 1615 1620

His Gly Pro Pro Leu Ser Pro Ala Ile Arg Val Gln Glu Val Ala
1625 1630 1635

Trp Lys Leu Ser Ser Asn Arg Met His Cys Cys Asp Met Leu Asp
1640 1645 1650

Gly Gly Thr Phe Pro Pro Ala Leu Gly Pro Arg Arg Ala Pro Pro
1655 1660 1665

Cys Leu His Gln Gln Leu Gln Gly Ser Leu Ala Gly Leu Arg Glu
1670 1675 1680

Asp Thr Pro Cys Ile Val Pro Gly His Ala Ser Leu Cys Cys Ser
1685 1690 1695

Ser Arg Val Gly Glu Trp Leu Pro Ala Gly Cys Thr Ala Pro Gln
1700 1705 1710

His Ala Arg Cys His Ser Arg Glu Ser Gln Ala Ala Met Ala Gly
1715 1720 1725

Gln Glu Glu Thr Ser Gln Asp Glu Thr Tyr Glu Val Lys Met Asn
1730 1735 1740

His Asp Thr Glu Ala Cys Ser Glu Pro Ser Leu Leu Ser Thr Glu
1745 1750 1755

Met Leu Ser Tyr Gln Asp Asp Glu Asn Arg Gln Leu Thr Leu Pro
1760 1765 1770

Glu Glu Asp Lys Arg Asp Ile Arg Gln Ser Pro Lys Arg Gly Phe
1775 1780 1785

Leu Arg Ser Ala Ser Leu Gly Arg Arg Ala Ser Phe His Leu Glu
1790 1795 1800

Cys Leu Lys Arg Gln Lys Asp Arg Gly Gly Asp Ile Ser Gln Lys
1805 1810 1815

Thr Val Leu Pro Leu His Leu Val His His Gln Ala Leu Ala Val
1820 1825 1830

```
Ala Gly  Leu Ser Pro Leu Leu  Gln Arg Ser His Ser  Pro Ala Ser
    1835                 1840                 1845

Phe Pro  Arg Pro Phe Ala Thr  Pro Pro Ala Thr Pro  Gly Ser Arg
    1850                 1855                 1860

Gly Trp  Pro Pro Gln Pro Val  Pro Thr Leu Arg Leu  Glu Gly Val
    1865                 1870                 1875

Glu Ser  Ser Glu Lys Leu Asn  Ser Ser Phe Pro Ser  Ile His Cys
    1880                 1885                 1890

Gly Ser  Trp Ala Glu Thr Thr  Pro Gly Gly Gly Gly  Ser Ser Ala
    1895                 1900                 1905

Ala Arg  Arg Val Arg Pro Val  Ser Leu Met Val Pro  Ser Gln Ala
    1910                 1915                 1920

Gly Ala  Pro Gly Arg Gln Phe  His Gly Ser Ala Ser  Ser Leu Val
    1925                 1930                 1935

Glu Ala  Val Leu Ile Ser Glu  Gly Leu Gly Gln Phe  Ala Gln Asp
    1940                 1945                 1950

Pro Lys  Phe Ile Glu Val Thr  Thr Gln Glu Leu Ala  Asp Ala Cys
    1955                 1960                 1965

Asp Met  Thr Ile Glu Glu Met  Glu Ser Ala Ala Asp  Asn Ile Leu
    1970                 1975                 1980

Ser Gly  Gly Ala Pro Gln Ser  Pro Asn Gly Ala Leu  Leu Pro Phe
    1985                 1990                 1995

Val Asn  Cys Arg Asp Ala Gly  Gln Asp Arg Ala Gly  Gly Glu Glu
    2000                 2005                 2010

Asp Ala  Gly Cys Val Arg Ala  Arg Gly Arg Pro Ser  Glu Glu Glu
    2015                 2020                 2025

Leu Gln  Asp Ser Arg Val Tyr  Val Ser Ser Leu
    2030                 2035
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<210> 10743
<211> 144
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
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<223> /note="ENSP ID: ENSP00000479274"

<400> 10743
Met Ala Tyr Val Cys Lys Leu Leu Met Ser Lys Thr Arg Pro Leu Val
1 5 10 15

Met Ile Gly Val Ala Trp Val Met Leu Leu Tyr Arg Ser Ile Asp Ser
20 25 30

His Thr Glu Asp Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser
35 40 45

Ile Phe Phe Ile Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met Asn
50 55 60

Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly Glu Gln
65 70 75 80

Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln Cys Val Glu
85 90 95

Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile Pro Lys Asn Gln
100 105 110

His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser Thr Tyr Phe Glu Tyr
115 120 125

Leu Met Phe Val Leu Ile Leu Leu Asn Thr Ile Cys Leu Ala Met Gln
130 135 140

<210> 10744
<211> 2027
<212> PRT
<213> Homo sapiens

<220>
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type, alpha 1C
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<220>
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<223> /note="ENSP ID: ENSP00000480292"

<400> 10744
Glu Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe
1 5 10 15

Leu Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu
20 25 30

Arg Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu
35 40 45

Phe Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala
50 55 60

Leu Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe
65 70 75 80

Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln
85 90 95

Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile
100 105 110

Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu

```
        115                 120                 125

Glu Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly
    130                 135                 140

Ile Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu
145                 150                 155                 160

Thr Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly
                165                 170                 175

Trp Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
            180                 185                 190

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
        195                 200                 205

Val Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile
    210                 215                 220

Tyr Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu
225                 230                 235                 240

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
                245                 250                 255

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
            260                 265                 270

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
        275                 280                 285

Asp Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn
    290                 295                 300

Met Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val
305                 310                 315                 320

Ala Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His
                325                 330                 335

Arg Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg
            340                 345                 350
```

```
Phe Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr
        355                 360                 365

Trp Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser
    370                 375                 380

Glu His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala
385                 390                 395                 400

Asn Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met
                405                 410                 415

Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe
            420                 425                 430

Asp Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu
        435                 440                 445

Thr Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg
    450                 455                 460

Leu Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn
465                 470                 475                 480

Leu Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu
                485                 490                 495

Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln
            500                 505                 510

Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser
        515                 520                 525

Thr Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu
    530                 535                 540

Thr Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr
545                 550                 555                 560

Gly Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile
                565                 570                 575
```

```
Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile
            580                 585                 590

Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys
        595                 600                 605

Glu Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser
    610                 615                 620

Pro Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser
625                 630                 635                 640

Lys Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser
                645                 650                 655

Pro Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn
            660                 665                 670

Glu Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp
        675                 680                 685

Glu Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser
    690                 695                 700

Glu Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala
705                 710                 715                 720

Phe Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg
                725                 730                 735

Ile Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu
            740                 745                 750

Leu Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser
        755                 760                 765

Phe Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile
    770                 775                 780

Phe Thr Ile Glu Ile Ala Leu Lys Ile Leu Gly Asn Ala Asp Tyr Val
785                 790                 795                 800
```

```
Phe Thr Ser Ile Phe Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr
                805                 810                 815

Gly Ala Phe Leu His Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile
            820                 825                 830

Leu Asp Leu Leu Val Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln
        835                 840                 845

Ser Ser Ala Ile Asn Val Val Lys Ile Leu Arg Val Leu Arg Val Leu
    850                 855                 860

Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val
865                 870                 875                 880

Gln Cys Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val
                885                 890                 895

Thr Thr Leu Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe
            900                 905                 910

Lys Gly Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala
        915                 920                 925

Glu Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
    930                 935                 940

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe Asp
945                 950                 955                 960

Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr Phe Glu
                965                 970                 975

Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His Thr Glu Asp
            980                 985                 990

Lys Gly Pro Ile Tyr Asn Tyr Arg  Val Glu Ile Ser Ile  Phe Phe
Ile
        995                 1000                1005

Ile Tyr  Ile Ile Ile Ile Ala  Phe Phe Met Met Asn  Ile Phe Val
    1010                1015                1020
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Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly Glu Gln Glu Tyr
1025 1030 1035

Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln Cys Val Glu Tyr
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Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile Pro Lys Asn Gln
1055 1060 1065

His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser Thr Tyr Phe Glu
1070 1075 1080

Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr Ile Cys Leu Ala
1085 1090 1095

Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys Ile Ala Met Asn
1100 1105 1110

Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr Val Glu Met Ile
1115 1120 1125

Leu Lys Leu Ile Ala Phe Lys Pro Lys Gly Tyr Phe Ser Asp Pro
1130 1135 1140

Trp Asn Val Phe Asp Phe Leu Ile Val Ile Gly Ser Ile Ile Asp
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Val Ile Leu Ser Glu Thr Asn His Tyr Phe Cys Asp Ala Trp Asn
1160 1165 1170

Thr Phe Asp Ala Leu Ile Val Val Gly Ser Ile Val Asp Ile Ala
1175 1180 1185

Ile Thr Glu Val Asn Pro Ala Glu His Thr Gln Cys Ser Pro Ser
1190 1195 1200

Met Asn Ala Glu Glu Asn Ser Arg Ile Ser Ile Thr Phe Phe Arg
1205 1210 1215

Leu Phe Arg Val Met Arg Leu Val Lys Leu Leu Ser Arg Gly Glu
1220 1225 1230

Gly Ile Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln Ala

1235 1240 1245

Leu Pro Tyr Val Ala Leu Leu Ile Val Met Leu Phe Phe Ile Tyr
1250 1255 1260

Ala Val Ile Gly Met Gln Val Phe Gly Lys Ile Ala Leu Asn Asp
1265 1270 1275

Thr Thr Glu Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln
1280 1285 1290

Ala Val Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln
1295 1300 1305

Asp Ile Met Leu Ala Cys Met Pro Gly Lys Lys Cys Ala Pro Glu
1310 1315 1320

Ser Glu Pro Ser Asn Ser Thr Glu Gly Glu Thr Pro Cys Gly Ser
1325 1330 1335

Ser Phe Ala Val Phe Tyr Phe Ile Ser Phe Tyr Met Leu Cys Ala
1340 1345 1350

Phe Leu Ile Ile Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe
1355 1360 1365

Asp Tyr Leu Thr Arg Asp Trp Ser Ile Leu Gly Pro His His Leu
1370 1375 1380

Asp Glu Phe Lys Arg Ile Trp Ala Glu Tyr Asp Pro Glu Ala Lys
1385 1390 1395

Gly Arg Ile Lys His Leu Asp Val Val Thr Leu Leu Arg Arg Ile
1400 1405 1410

Gln Pro Pro Leu Gly Phe Gly Lys Leu Cys Pro His Arg Val Ala
1415 1420 1425

Cys Lys Arg Leu Val Ser Met Asn Met Pro Leu Asn Ser Asp Gly
1430 1435 1440

Thr Val Met Phe Asn Ala Thr Leu Phe Ala Leu Val Arg Thr Ala
1445 1450 1455

```
Leu Arg  Ile Lys Thr Glu Gly  Asn Leu Glu Gln Ala  Asn Glu Glu
    1460                1465                1470

Leu Arg  Ala Ile Ile Lys Lys  Ile Trp Lys Arg Thr  Ser Met Lys
    1475                1480                1485

Leu Leu  Asp Gln Val Val Pro  Pro Ala Gly Asp Asp  Glu Val Thr
    1490                1495                1500

Val Gly  Lys Phe Tyr Ala Thr  Phe Leu Ile Gln Glu  Tyr Phe Arg
    1505                1510                1515

Lys Phe  Lys Lys Arg Lys Glu  Gln Gly Leu Val Gly  Lys Pro Ser
    1520                1525                1530

Gln Arg  Asn Ala Leu Ser Leu  Gln Ala Gly Leu Arg  Thr Leu His
    1535                1540                1545

Asp Ile  Gly Pro Glu Ile Arg  Arg Ala Ile Ser Gly  Asp Leu Thr
    1550                1555                1560

Ala Glu  Glu Glu Leu Asp Lys  Ala Met Lys Glu Ala  Val Ser Ala
    1565                1570                1575

Ala Ser  Glu Asp Asp Ile Phe  Arg Arg Ala Gly Gly  Leu Phe Gly
    1580                1585                1590

Asn His  Val Ser Tyr Tyr Gln  Ser Asp Gly Arg Ser  Ala Phe Pro
    1595                1600                1605

Gln Thr  Phe Thr Thr Gln Arg  Pro Leu His Ile Asn  Lys Ala Gly
    1610                1615                1620

Ser Ser  Gln Gly Asp Thr Glu  Ser Pro Ser His Glu  Lys Leu Val
    1625                1630                1635

Asp Ser  Thr Phe Thr Pro Ser  Ser Tyr Ser Ser Thr  Gly Ser Asn
    1640                1645                1650

Ala Asn  Ile Asn Asn Ala Asn  Asn Thr Ala Leu Gly  Arg Leu Pro
    1655                1660                1665
```

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Arg Pro  Ala Gly Tyr Pro Ser  Thr Val Ser Thr Val  Glu Gly His
    1670                1675                1680

Gly Pro  Pro Leu Ser Pro Ala  Ile Arg Val Gln Glu  Val Ala Trp
    1685                1690                1695

Lys Leu  Ser Ser Asn Arg Cys  His Ser Arg Glu Ser  Gln Ala Ala
    1700                1705                1710

Met Ala  Gly Gln Glu Glu Thr  Ser Gln Asp Glu Thr  Tyr Glu Val
    1715                1720                1725

Lys Met  Asn His Asp Thr Glu  Ala Cys Ser Glu Pro  Ser Leu Leu
    1730                1735                1740

Ser Thr  Glu Met Leu Ser Tyr  Gln Asp Asp Glu Asn  Arg Gln Leu
    1745                1750                1755

Thr Leu  Pro Glu Glu Asp Lys  Arg Asp Ile Arg Gln  Ser Pro Lys
    1760                1765                1770

Arg Gly  Phe Leu Arg Ser Ala  Ser Leu Gly Arg Arg  Ala Ser Phe
    1775                1780                1785

His Leu  Glu Cys Leu Lys Arg  Gln Lys Asp Arg Gly  Gly Asp Ile
    1790                1795                1800

Ser Gln  Lys Thr Val Leu Pro  Leu His Leu Val His  His Gln Ala
    1805                1810                1815

Leu Ala  Val Ala Gly Leu Ser  Pro Leu Leu Gln Arg  Ser His Ser
    1820                1825                1830

Pro Ala  Ser Phe Pro Arg Pro  Phe Ala Thr Pro Pro  Ala Thr Pro
    1835                1840                1845

Gly Ser  Arg Gly Trp Pro Pro  Gln Pro Val Pro Thr  Leu Arg Leu
    1850                1855                1860

Glu Gly  Val Glu Ser Ser Glu  Lys Leu Asn Ser Ser  Phe Pro Ser
    1865                1870                1875
```

```
Ile His  Cys Gly Ser Trp Ala  Glu Thr Thr Pro Gly  Gly Gly Gly
    1880                1885                1890

Ser Ser  Ala Ala Arg Arg Val  Arg Pro Val Ser Leu  Met Val Pro
    1895                1900                1905

Ser Gln  Ala Gly Ala Pro Gly  Arg Gln Phe His Gly  Ser Ala Ser
    1910                1915                1920

Ser Leu  Val Glu Ala Val Leu  Ile Ser Glu Gly Leu  Gly Gln Phe
    1925                1930                1935

Ala Gln  Asp Pro Lys Phe Ile  Glu Val Thr Thr Gln  Glu Leu Ala
    1940                1945                1950

Asp Ala  Cys Asp Met Thr Ile  Glu Glu Met Glu Ser  Ala Ala Asp
    1955                1960                1965

Asn Ile  Leu Ser Gly Gly Ala  Pro Gln Ser Pro Asn  Gly Ala Leu
    1970                1975                1980

Leu Pro  Phe Val Asn Cys Arg  Asp Ala Gly Gln Asp  Arg Ala Gly
    1985                1990                1995

Gly Glu  Glu Asp Ala Gly Cys  Val Arg Ala Arg Gly  Arg Pro Ser
    2000                2005                2010

Glu Glu  Glu Leu Gln Asp Ser  Arg Val Tyr Val Ser  Ser Leu
    2015                2020                2025


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Arg Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu
35 40 45

Phe Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala
50 55 60

Leu Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe
65 70 75 80

Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln
85 90 95

Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile
100 105 110

Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu
115 120 125

Glu Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly
130 135 140

Ile Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu
145 150 155 160

Thr Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly
165 170 175

Trp Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
180 185 190

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
195 200 205

Val Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile
210 215 220

Tyr Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu
225 230 235 240

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
245 250 255

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
260 265 270

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
275 280 285

Asp Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn
290 295 300

Met Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val
305 310 315 320

Ala Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His
325 330 335

Arg Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg
340 345 350

Phe Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr
355 360 365

Trp Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser
370 375 380

Glu His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala
385 390 395 400

Asn Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met
405 410 415

Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe
420 425 430

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Asp Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu
        435                 440                 445

Thr Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg
    450                 455                 460

Leu Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn
465                 470                 475                 480

Leu Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu
                485                 490                 495

Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln
            500                 505                 510

Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser
        515                 520                 525

Thr Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu
    530                 535                 540

Thr Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr
545                 550                 555                 560

Gly Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile
                565                 570                 575

Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile
            580                 585                 590

Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys
        595                 600                 605

Glu Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser
    610                 615                 620

Pro Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser
625                 630                 635                 640

Lys Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser
                645                 650                 655
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Pro Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn
            660                 665                 670

Glu Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp
        675                 680                 685

Glu Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser
    690                 695                 700

Glu Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala
705                 710                 715                 720

Phe Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg
                725                 730                 735

Ile Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu
            740                 745                 750

Leu Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser
        755                 760                 765

Phe Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile
    770                 775                 780

Phe Thr Ile Glu Ile Ala Leu Lys Ile Leu Gly Asn Ala Asp Tyr Val
785                 790                 795                 800

Phe Thr Ser Ile Phe Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr
                805                 810                 815

Gly Ala Phe Leu His Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile
            820                 825                 830

Leu Asp Leu Leu Val Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln
        835                 840                 845

Ser Ser Ala Ile Asn Val Val Lys Ile Leu Arg Val Leu Arg Val Leu
    850                 855                 860

Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val
865                 870                 875                 880

Gln Cys Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val
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885 890 895

Thr Thr Leu Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe
900 905 910

Lys Gly Lys Leu Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala
915 920 925

Glu Cys Lys Gly Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His
930 935 940

Pro Ile Ile Gln Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe Asp
945 950 955 960

Asn Val Leu Ala Ala Met Met Ala Leu Phe Thr Val Ser Thr Phe Glu
965 970 975

Gly Trp Pro Glu Leu Leu Tyr Arg Ser Ile Asp Ser His Thr Glu Asp
980 985 990

Lys Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile Ser Ile Phe Phe
Ile
995 1000 1005

Ile Tyr Ile Ile Ile Ile Ala Phe Phe Met Met Asn Ile Phe Val
1010 1015 1020

Gly Phe Val Ile Val Thr Phe Gln Glu Gln Gly Glu Gln Glu Tyr
1025 1030 1035

Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg Gln Cys Val Glu Tyr
1040 1045 1050

Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile Pro Lys Asn Gln
1055 1060 1065

His Gln Tyr Lys Val Trp Tyr Val Val Asn Ser Thr Tyr Phe Glu
1070 1075 1080

Tyr Leu Met Phe Val Leu Ile Leu Leu Asn Thr Ile Cys Leu Ala
1085 1090 1095

Met Gln His Tyr Gly Gln Ser Cys Leu Phe Lys Ile Ala Met Asn

1100 1105 1110

Ile Leu Asn Met Leu Phe Thr Gly Leu Phe Thr Val Glu Met Ile
1115 1120 1125

Leu Lys Leu Ile Ala Phe Lys Pro Lys Gly Tyr Phe Ser Asp Pro
1130 1135 1140

Trp Asn Val Phe Asp Phe Leu Ile Val Ile Gly Ser Ile Ile Asp
1145 1150 1155

Val Ile Leu Ser Glu Thr Asn His Tyr Phe Cys Asp Ala Trp Asn
1160 1165 1170

Thr Phe Asp Ala Leu Ile Val Val Gly Ser Ile Val Asp Ile Ala
1175 1180 1185

Ile Thr Glu Val Asn Pro Ala Glu His Thr Gln Cys Ser Pro Ser
1190 1195 1200

Met Asn Ala Glu Glu Asn Ser Arg Ile Ser Ile Thr Phe Phe Arg
1205 1210 1215

Leu Phe Arg Val Met Arg Leu Val Lys Leu Leu Ser Arg Gly Glu
1220 1225 1230

Gly Ile Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln Ala
1235 1240 1245

Leu Pro Tyr Val Ala Leu Leu Ile Val Met Leu Phe Phe Ile Tyr
1250 1255 1260

Ala Val Ile Gly Met Gln Val Phe Gly Lys Ile Ala Leu Asn Asp
1265 1270 1275

Thr Thr Glu Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln
1280 1285 1290

Ala Val Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln
1295 1300 1305

Asp Ile Met Leu Ala Cys Met Pro Gly Lys Lys Cys Ala Pro Glu
1310 1315 1320

```
Ser Glu  Pro Ser Asn Ser Thr  Glu Gly Glu Thr Pro  Cys Gly Ser
    1325                1330                1335

Ser Phe  Ala Val Phe Tyr Phe  Ile Ser Phe Tyr Met  Leu Cys Ala
    1340                1345                1350

Phe Leu  Ile Ile Asn Leu Phe  Val Ala Val Ile Met  Asp Asn Phe
    1355                1360                1365

Asp Tyr  Leu Thr Arg Asp Trp  Ser Ile Leu Gly Pro  His His Leu
    1370                1375                1380

Asp Glu  Phe Lys Arg Ile Trp  Ala Glu Tyr Asp Pro  Glu Ala Lys
    1385                1390                1395

Gly Arg  Ile Lys His Leu Asp  Val Val Thr Leu Leu  Arg Arg Ile
    1400                1405                1410

Gln Pro  Pro Leu Gly Phe Gly  Lys Leu Cys Pro His  Arg Val Ala
    1415                1420                1425

Cys Lys  Arg Leu Val Ser Met  Asn Met Pro Leu Asn  Ser Asp Gly
    1430                1435                1440

Thr Val  Met Phe Asn Ala Thr  Leu Phe Ala Leu Val  Arg Thr Ala
    1445                1450                1455

Leu Arg  Ile Lys Thr Glu Gly  Asn Leu Glu Gln Ala  Asn Glu Glu
    1460                1465                1470

Leu Arg  Ala Ile Ile Lys Lys  Ile Trp Lys Arg Thr  Ser Met Lys
    1475                1480                1485

Leu Leu  Asp Gln Val Val Pro  Pro Ala Gly Asp Asp  Glu Val Thr
    1490                1495                1500

Val Gly  Lys Phe Tyr Ala Thr  Phe Leu Ile Gln Glu  Tyr Phe Arg
    1505                1510                1515

Lys Phe  Lys Lys Arg Lys Glu  Gln Gly Leu Val Gly  Lys Pro Ser
    1520                1525                1530
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```
Gln Arg  Asn Ala Leu Ser Leu  Gln Ala Gly Leu Arg  Thr Leu His
    1535                1540                1545

Asp Ile  Gly Pro Glu Ile Arg  Arg Ala Ile Ser Gly  Asp Leu Thr
    1550                1555                1560

Ala Glu  Glu Glu Leu Asp Lys  Ala Met Lys Glu Ala  Val Ser Ala
    1565                1570                1575

Ala Ser  Glu Asp Asp Ile Phe  Arg Arg Ala Gly Gly  Leu Phe Gly
    1580                1585                1590

Asn His  Val Ser Tyr Tyr Gln  Ser Asp Gly Arg Ser  Ala Phe Pro
    1595                1600                1605

Gln Thr  Phe Thr Thr Gln Arg  Pro Leu His Ile Asn  Lys Ala Gly
    1610                1615                1620

Ser Ser  Gln Gly Asp Thr Glu  Ser Pro Ser His Glu  Lys Leu Val
    1625                1630                1635

Asp Ser  Thr Phe Thr Pro Ser  Ser Tyr Ser Ser Thr  Gly Ser Asn
    1640                1645                1650

Ala Asn  Ile Asn Asn Ala Asn  Asn Thr Ala Leu Gly  Arg Leu Pro
    1655                1660                1665

Arg Pro  Ala Gly Tyr Pro Ser  Thr Val Ser Thr Val  Glu Gly His
    1670                1675                1680

Gly Pro  Pro Leu Ser Pro Ala  Ile Arg Val Gln Glu  Val Ala Trp
    1685                1690                1695

Lys Leu  Ser Ser Asn Arg Glu  Arg His Val Pro Met  Cys Glu Asp
    1700                1705                1710

Leu Glu  Leu Arg Arg Asp Ser  Gly Ser Ala Gly Thr  Gln Ala His
    1715                1720                1725

Cys Leu  Leu Leu Arg Arg Ala  Asn Pro Ser Arg Cys  His Ser Arg
    1730                1735                1740
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Glu Ser Gln Ala Ala Met Ala Gly Gln Glu Glu Thr Ser Gln Asp
1745 1750 1755

Glu Thr Tyr Glu Val Lys Met Asn His Asp Thr Glu Ala Cys Ser
1760 1765 1770

Glu Pro Ser Leu Leu Ser Thr Glu Met Leu Ser Tyr Gln Asp Asp
1775 1780 1785

Glu Asn Arg Gln Leu Thr Leu Pro Glu Glu Asp Lys Arg Asp Ile
1790 1795 1800

Arg Gln Ser Pro Lys Arg Gly Phe Leu Arg Ser Ala Ser Leu Gly
1805 1810 1815

Arg Arg Ala Ser Phe His Leu Glu Cys Leu Lys Arg Gln Lys Asp
1820 1825 1830

Arg Gly Gly Asp Ile Ser Gln Lys Thr Val Leu Pro Leu His Leu
1835 1840 1845

Val His His Gln Ala Leu Ala Val Ala Gly Leu Ser Pro Leu Leu
1850 1855 1860

Gln Arg Ser His Ser Pro Ala Ser Phe Pro Arg Pro Phe Ala Thr
1865 1870 1875

Pro Pro Ala Thr Pro Gly Ser Arg Gly Trp Pro Pro Gln Pro Val
1880 1885 1890

Pro Thr Leu Arg Leu Glu Gly Val Glu Ser Ser Glu Lys Leu Asn
1895 1900 1905

Ser Ser Phe Pro Ser Ile His Cys Gly Ser Trp Ala Glu Thr Thr
1910 1915 1920

Pro Gly Gly Gly Gly Ser Ser Ala Ala Arg Arg Val Arg Pro Val
1925 1930 1935

Ser Leu Met Val Pro Ser Gln Ala Gly Ala Pro Gly Arg Gln Phe
1940 1945 1950

His Gly Ser Ala Ser Ser Leu Val Glu Ala Val Leu Ile Ser Glu

```
    1955                1960                1965

Gly Leu  Gly Gln Phe Ala Gln  Asp Pro Lys Phe Ile  Glu Val Thr
    1970                1975                1980

Thr Gln  Glu Leu Ala Asp Ala  Cys Asp Met Thr Ile  Glu Glu Met
    1985                1990                1995

Glu Ser  Ala Ala Asp Asn Ile  Leu Ser Gly Gly Ala  Pro Gln Ser
    2000                2005                2010

Pro Asn  Gly Ala Leu Leu Pro  Phe Val Asn Cys Arg  Asp Ala Gly
    2015                2020                2025

Gln Asp  Arg Ala Gly Gly Glu  Glu Asp Ala Gly Cys  Val Arg Ala
    2030                2035                2040

Arg Gly  Arg Pro Ser Glu Glu  Glu Leu Gln Asp Ser  Arg Val Tyr
    2045                2050                2055

Val Ser  Ser Leu
    2060


<210> 10746
<211> 829
<212> PRT
<213> Homo sapiens

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1               5                  10                  15
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Thr Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys Leu Leu Ser
            20                  25                  30

Arg Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe
        35                  40                  45

Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val Met Leu Phe Phe Ile
    50                  55                  60

Tyr Ala Val Ile Gly Met Gln Val Phe Gly Lys Ile Ala Leu Asn Asp
65                  70                  75                  80

Thr Thr Glu Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala
                85                  90                  95

Val Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln Asp Ile
            100                 105                 110

Met Leu Ala Cys Met Pro Gly Lys Lys Cys Ala Pro Glu Ser Glu Pro
        115                 120                 125

Ser Asn Ser Thr Glu Gly Glu Thr Pro Cys Gly Ser Ser Phe Ala Val
    130                 135                 140

Phe Tyr Phe Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn
145                 150                 155                 160

Leu Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg Asp
                165                 170                 175

Trp Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys Arg Ile Trp
            180                 185                 190

Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu Asp Val
        195                 200                 205

Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu
    210                 215                 220

Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ser Met Asn Met Pro
225                 230                 235                 240
```

```
Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala Thr Leu Phe Ala Leu
                245                 250                 255

Val Arg Thr Ala Leu Arg Ile Lys Thr Glu Gly Asn Leu Glu Gln Ala
            260                 265                 270

Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp Lys Arg Thr Ser
        275                 280                 285

Met Lys Leu Leu Asp Gln Val Val Pro Pro Ala Gly Asp Asp Glu Val
    290                 295                 300

Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg
305                 310                 315                 320

Lys Phe Lys Lys Arg Lys Glu Gln Gly Leu Val Gly Lys Pro Ser Gln
                325                 330                 335

Arg Asn Ala Leu Ser Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile
            340                 345                 350

Gly Pro Glu Ile Arg Arg Ala Ile Ser Gly Asp Leu Thr Ala Glu Glu
        355                 360                 365

Glu Leu Asp Lys Ala Met Lys Glu Ala Val Ser Ala Ala Ser Glu Asp
    370                 375                 380

Asp Ile Phe Arg Arg Ala Gly Gly Leu Phe Gly Asn His Val Ser Tyr
385                 390                 395                 400

Tyr Gln Ser Asp Gly Arg Ser Ala Phe Pro Gln Thr Phe Thr Thr Gln
                405                 410                 415

Arg Pro Leu His Ile Asn Lys Ala Gly Ser Ser Gln Gly Asp Thr Glu
            420                 425                 430

Ser Pro Ser His Glu Lys Leu Val Asp Ser Thr Phe Thr Pro Ser Ser
        435                 440                 445

Tyr Ser Ser Thr Gly Ser Asn Ala Asn Ile Asn Asn Ala Asn Asn Thr
    450                 455                 460
```

```
Ala Leu Gly Arg Leu Pro Arg Pro Ala Gly Tyr Pro Ser Thr Val Ser
465                 470                 475                 480

Thr Val Glu Gly His Gly Pro Pro Leu Ser Pro Ala Ile Arg Val Gln
                485                 490                 495

Glu Val Ala Trp Lys Leu Ser Ser Asn Arg Cys His Ser Arg Glu Ser
            500                 505                 510

Gln Ala Ala Met Ala Gly Gln Glu Glu Thr Ser Gln Asp Glu Thr Tyr
        515                 520                 525

Glu Val Lys Met Asn His Asp Thr Glu Ala Cys Ser Glu Pro Ser Leu
    530                 535                 540

Leu Ser Thr Glu Met Leu Ser Tyr Gln Asp Asp Glu Asn Arg Gln Leu
545                 550                 555                 560

Thr Leu Pro Glu Glu Asp Lys Arg Asp Ile Arg Gln Ser Pro Lys Arg
                565                 570                 575

Gly Phe Leu Arg Ser Ala Ser Leu Gly Arg Arg Ala Ser Phe His Leu
            580                 585                 590

Glu Cys Leu Lys Arg Gln Lys Asp Arg Gly Gly Asp Ile Ser Gln Lys
        595                 600                 605

Thr Val Leu Pro Leu His Leu Val His His Gln Ala Leu Ala Val Ala
    610                 615                 620

Gly Leu Ser Pro Leu Leu Gln Arg Ser His Ser Pro Ala Ser Phe Pro
625                 630                 635                 640

Arg Pro Phe Ala Thr Pro Pro Ala Thr Pro Gly Ser Arg Gly Trp Pro
                645                 650                 655

Pro Gln Pro Val Pro Thr Leu Arg Leu Glu Gly Val Glu Ser Ser Glu
            660                 665                 670

Lys Leu Asn Ser Ser Phe Pro Ser Ile His Cys Gly Ser Trp Ala Glu
        675                 680                 685

Thr Thr Pro Gly Gly Gly Gly Ser Ser Ala Ala Arg Arg Val Arg Pro
```

690 695 700

Val Ser Leu Met Val Pro Ser Gln Ala Gly Ala Pro Gly Arg Gln Phe
705 710 715 720

His Gly Ser Ala Ser Ser Leu Val Glu Ala Val Leu Ile Ser Glu Gly
725 730 735

Leu Gly Gln Phe Ala Gln Asp Pro Lys Phe Ile Glu Val Thr Thr Gln
740 745 750

Glu Leu Ala Asp Ala Cys Asp Met Thr Ile Glu Glu Met Glu Ser Ala
755 760 765

Ala Asp Asn Ile Leu Ser Gly Gly Ala Pro Gln Ser Pro Asn Gly Ala
770 775 780

Leu Leu Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg Ala Gly
785 790 795 800

Gly Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg Pro Ser Glu
805 810 815

Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser Leu
820 825

<210> 10747
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Glu Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe
1 5 10 15

Leu Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu
20 25 30

Arg Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu
35 40 45

Phe Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala
50 55 60

Leu Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe
65 70 75 80

Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln
85 90 95

Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile
100 105 110

Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu
115 120 125

Glu Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly
130 135 140

Ile Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu
145 150 155 160

Thr Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly
165 170 175

Trp Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
180 185 190

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
195 200 205

Val Leu Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val
210 215 220

```
Tyr Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu
225                 230                 235                 240

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
                245                 250                 255

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
            260                 265                 270

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
        275                 280                 285

Asp Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn
    290                 295                 300

Met Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val
305                 310                 315                 320

Ala Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His
                325                 330                 335

Arg Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg
            340                 345                 350

Phe Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr
        355                 360                 365

Trp Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser
    370                 375                 380

Glu His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala
385                 390                 395                 400

Asn Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met
                405                 410                 415

Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe
            420                 425                 430

Asp Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu
        435                 440                 445
```

```
Thr Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg
    450                 455                 460

Leu Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn
465                 470                 475                 480

Leu Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu
                485                 490                 495

Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln
            500                 505                 510

Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser
        515                 520                 525

Thr Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu
    530                 535                 540

Thr Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr
545                 550                 555                 560

Gly Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile
                565                 570                 575

Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile
            580                 585                 590

Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys
        595                 600                 605

Glu Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser
    610                 615                 620

Pro Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser
625                 630                 635                 640

Lys Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser
                645                 650                 655

Pro Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn
            660                 665                 670

Glu Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp
```

675 680 685

Glu Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser
690 695 700

Glu Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala
705 710 715 720

Phe Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg
725 730 735

Ile Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu
740 745 750

Leu Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser
755 760 765

Phe Arg Asn His Ile Leu Phe Tyr Phe Asp Ile Val Phe Thr Thr Ile
770 775 780

Phe Thr Ile Glu Ile Ala Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu
785 790 795 800

His Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu
805 810 815

Val Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile
820 825 830

Asn Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
835 840 845

Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
850 855 860

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu Leu
865 870 875 880

Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly Lys Leu
885 890 895

Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu Cys Lys Gly
900 905 910

```
Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His Pro Ile Ile Gln
        915                 920                 925

Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe Asp Asn Val Leu Ala
    930                 935                 940

Ala Met Met Ala Leu Phe Thr Val Ser Thr Phe Glu Gly Trp Pro Glu
945                 950                 955                 960

Leu Leu Tyr Arg Ser Ile Asp Ser His Thr Glu Asp Lys Gly Pro Ile
                965                 970                 975

Tyr Asn Tyr Arg Val Glu Ile Ser Ile Phe Phe Ile Ile Tyr Ile Ile
            980                 985                 990

Ile Ile Ala Phe Phe Met Met Asn  Ile Phe Val Gly Phe  Val Ile
Val
        995                 1000                1005

Thr Phe  Gln Glu Gln Gly Glu  Gln Glu Tyr Lys Asn  Cys Glu Leu
    1010                1015                1020

Asp Lys  Asn Gln Arg Gln Cys  Val Glu Tyr Ala Leu  Lys Ala Arg
    1025                1030                1035

Pro Leu  Arg Arg Tyr Ile Pro  Lys Asn Gln His Gln  Tyr Lys Val
    1040                1045                1050

Trp Tyr  Val Val Asn Ser Thr  Tyr Phe Glu Tyr Leu  Met Phe Val
    1055                1060                1065

Leu Ile  Leu Leu Asn Thr Ile  Cys Leu Ala Met Gln  His Tyr Gly
    1070                1075                1080

Gln Ser  Cys Leu Phe Lys Ile  Ala Met Asn Ile Leu  Asn Met Leu
    1085                1090                1095

Phe Thr  Gly Leu Phe Thr Val  Glu Met Ile Leu Lys  Leu Ile Ala
    1100                1105                1110

Phe Lys  Pro Lys Gly Tyr Phe  Ser Asp Pro Trp Asn  Val Phe Asp
    1115                1120                1125
```

```
Phe Leu  Ile Val Ile Gly Ser  Ile Ile Asp Val Ile  Leu Ser Glu
    1130                1135                1140

Thr Asn  Pro Ala Glu His Thr  Gln Cys Ser Pro Ser  Met Asn Ala
    1145                1150                1155

Glu Glu  Asn Ser Arg Ile Ser  Ile Thr Phe Phe Arg  Leu Phe Arg
    1160                1165                1170

Val Met  Arg Leu Val Lys Leu  Leu Ser Arg Gly Glu  Gly Ile Arg
    1175                1180                1185

Thr Leu  Leu Trp Thr Phe Ile  Lys Ser Phe Gln Ala  Leu Pro Tyr
    1190                1195                1200

Val Ala  Leu Leu Ile Val Met  Leu Phe Phe Ile Tyr  Ala Val Ile
    1205                1210                1215

Gly Met  Gln Val Phe Gly Lys  Ile Ala Leu Asn Asp  Thr Thr Glu
    1220                1225                1230

Ile Asn  Arg Asn Asn Asn Phe  Gln Thr Phe Pro Gln  Ala Val Leu
    1235                1240                1245

Leu Leu  Phe Arg Cys Ala Thr  Gly Glu Ala Trp Gln  Asp Ile Met
    1250                1255                1260

Leu Ala  Cys Met Pro Gly Lys  Lys Cys Ala Pro Glu  Ser Glu Pro
    1265                1270                1275

Ser Asn  Ser Thr Glu Gly Glu  Thr Pro Cys Gly Ser  Ser Phe Ala
    1280                1285                1290

Val Phe  Tyr Phe Ile Ser Phe  Tyr Met Leu Cys Ala  Phe Leu Ile
    1295                1300                1305

Ile Asn  Leu Phe Val Ala Val  Ile Met Asp Asn Phe  Asp Tyr Leu
    1310                1315                1320

Thr Arg  Asp Trp Ser Ile Leu  Gly Pro His His Leu  Asp Glu Phe
    1325                1330                1335
```

```
Lys Arg  Ile Trp Ala Glu Tyr  Asp Pro Glu Ala Lys  Gly Arg Ile
    1340                1345                1350

Lys His  Leu Asp Val Val Thr  Leu Leu Arg Arg Ile  Gln Pro Pro
    1355                1360                1365

Leu Gly  Phe Gly Lys Leu Cys  Pro His Arg Val Ala  Cys Lys Arg
    1370                1375                1380

Leu Val  Ser Met Asn Met Pro  Leu Asn Ser Asp Gly  Thr Val Met
    1385                1390                1395

Phe Asn  Ala Thr Leu Phe Ala  Leu Val Arg Thr Ala  Leu Arg Ile
    1400                1405                1410

Lys Thr  Glu Gly Asn Leu Glu  Gln Ala Asn Glu Glu  Leu Arg Ala
    1415                1420                1425

Ile Ile  Lys Lys Ile Trp Lys  Arg Thr Ser Met Lys  Leu Leu Asp
    1430                1435                1440

Gln Val  Val Pro Pro Ala Gly  Asp Asp Glu Val Thr  Val Gly Lys
    1445                1450                1455

Phe Tyr  Ala Thr Phe Leu Ile  Gln Glu Tyr Phe Arg  Lys Phe Lys
    1460                1465                1470

Lys Arg  Lys Glu Gln Gly Leu  Val Gly Lys Pro Ser  Gln Arg Asn
    1475                1480                1485

Ala Leu  Ser Leu Gln Ala Gly  Leu Arg Thr Leu His  Asp Ile Gly
    1490                1495                1500

Pro Glu  Ile Arg Arg Ala Ile  Ser Gly Asp Leu Thr  Ala Glu Glu
    1505                1510                1515

Glu Leu  Asp Lys Ala Met Lys  Glu Ala Val Ser Ala  Ala Ser Glu
    1520                1525                1530

Asp Asp  Ile Phe Arg Arg Ala  Gly Gly Leu Phe Gly  Asn His Val
    1535                1540                1545
```

```
Ser Tyr  Tyr Gln Ser Asp Gly  Arg Ser Ala Phe Pro  Gln Thr Phe
    1550                1555                1560

Thr Thr  Gln Arg Pro Leu His  Ile Asn Lys Ala Gly  Ser Ser Gln
    1565                1570                1575

Gly Asp  Thr Glu Ser Pro Ser  His Glu Lys Leu Val  Asp Ser Thr
    1580                1585                1590

Phe Thr  Pro Ser Ser Tyr Ser  Ser Thr Gly Ser Asn  Ala Asn Ile
    1595                1600                1605

Asn Asn  Ala Asn Asn Thr Ala  Leu Gly Arg Leu Pro  Arg Pro Ala
    1610                1615                1620

Gly Tyr  Pro Ser Thr Val Ser  Thr Val Glu Gly His  Gly Pro Pro
    1625                1630                1635

Leu Ser  Pro Ala Ile Arg Val  Gln Glu Val Ala Trp  Lys Leu Ser
    1640                1645                1650

Ser Asn  Arg Glu Arg His Val  Pro Met Cys Glu Asp  Leu Glu Leu
    1655                1660                1665

Arg Arg  Asp Ser Gly Ser Ala  Gly Thr Gln Ala His  Cys Leu Leu
    1670                1675                1680

Leu Arg  Arg Ala Asn Pro Ser  Arg Cys His Ser Arg  Glu Ser Gln
    1685                1690                1695

Ala Ala  Met Ala Gly Gln Glu  Glu Thr Ser Gln Asp  Glu Thr Tyr
    1700                1705                1710

Glu Val  Lys Met Asn His Asp  Thr Glu Ala Cys Ser  Glu Pro Ser
    1715                1720                1725

Leu Leu  Ser Thr Glu Met Leu  Ser Tyr Gln Asp Asp  Glu Asn Arg
    1730                1735                1740

Gln Leu  Thr Leu Pro Glu Glu  Asp Lys Arg Asp Ile  Arg Gln Ser
    1745                1750                1755

Pro Lys  Arg Gly Phe Leu Arg  Ser Ala Ser Leu Gly  Arg Arg Ala
```

1760 1765 1770

Ser Phe His Leu Glu Cys Leu Lys Arg Gln Lys Asp Arg Gly Gly
1775 1780 1785

Asp Ile Ser Gln Lys Thr Val Leu Pro Leu His Leu Val His His
1790 1795 1800

Gln Ala Leu Ala Val Ala Gly Leu Ser Pro Leu Leu Gln Arg Ser
1805 1810 1815

His Ser Pro Ala Ser Phe Pro Arg Pro Phe Ala Thr Pro Pro Ala
1820 1825 1830

Thr Pro Gly Ser Arg Gly Trp Pro Pro Gln Pro Val Pro Thr Leu
1835 1840 1845

Arg Leu Glu Gly Val Glu Ser Ser Glu Lys Leu Asn Ser Ser Phe
1850 1855 1860

Pro Ser Ile His Cys Gly Ser Trp Ala Glu Thr Thr Pro Gly Gly
1865 1870 1875

Gly Gly Ser Ser Ala Ala Arg Arg Val Arg Pro Val Ser Leu Met
1880 1885 1890

Val Pro Ser Gln Ala Gly Ala Pro Gly Arg Gln Phe His Gly Ser
1895 1900 1905

Ala Ser Ser Leu Val Glu Ala Val Leu Ile Ser Glu Gly Leu Gly
1910 1915 1920

Gln Phe Ala Gln Asp Pro Lys Phe Ile Glu Val Thr Thr Gln Glu
1925 1930 1935

Leu Ala Asp Ala Cys Asp Met Thr Ile Glu Glu Met Glu Ser Ala
1940 1945 1950

Ala Asp Asn Ile Leu Ser Gly Gly Ala Pro Gln Ser Pro Asn Gly
1955 1960 1965

Ala Leu Leu Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg
1970 1975 1980

Ala Gly Gly Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg
    1985   1990   1995

Pro Ser Glu Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser
    2000   2005   2010

Leu

<210> 10748
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Glu Arg Val Glu Tyr Leu Phe Leu Ile Ile Phe Thr Val Glu Ala Phe
1   5   10   15

Leu Lys Val Ile Ala Tyr Gly Leu Leu Phe His Pro Asn Ala Tyr Leu
            20   25   30

Arg Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu
        35   40   45

Phe Ser Ala Ile Leu Glu Gln Ala Thr Lys Ala Asp Gly Ala Asn Ala
    50   55   60

Leu Gly Gly Lys Gly Ala Gly Phe Asp Val Lys Ala Leu Arg Ala Phe
65   70   75   80

```
Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu Gln
                85                  90                  95

Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu His Ile
            100                 105                 110

Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu
        115                 120                 125

Glu Leu Phe Met Gly Lys Met His Lys Thr Cys Tyr Asn Gln Glu Gly
    130                 135                 140

Ile Ala Asp Val Pro Ala Glu Asp Asp Pro Ser Pro Cys Ala Leu Glu
145                 150                 155                 160

Thr Gly His Gly Arg Gln Cys Gln Asn Gly Thr Val Cys Lys Pro Gly
                165                 170                 175

Trp Asp Gly Pro Lys His Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
            180                 185                 190

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
        195                 200                 205

Val Leu Tyr Trp Val Asn Asp Ala Val Gly Arg Asp Trp Pro Trp Ile
    210                 215                 220

Tyr Phe Val Thr Leu Ile Ile Ile Gly Ser Phe Phe Val Leu Asn Leu
225                 230                 235                 240

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
                245                 250                 255

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
            260                 265                 270

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
        275                 280                 285

Asp Pro Glu Asn Glu Asp Glu Gly Met Asp Glu Glu Lys Pro Arg Asn
    290                 295                 300
```

```
Met Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val
305                 310                 315                 320

Ala Gly Gly Asp Ile Glu Gly Glu Asn Cys Gly Ala Arg Leu Ala His
                325                 330                 335

Arg Ile Ser Lys Ser Lys Phe Ser Arg Tyr Trp Arg Arg Trp Asn Arg
            340                 345                 350

Phe Cys Arg Arg Lys Cys Arg Ala Ala Val Lys Ser Asn Val Phe Tyr
        355                 360                 365

Trp Leu Val Ile Phe Leu Val Phe Leu Asn Thr Leu Thr Ile Ala Ser
    370                 375                 380

Glu His Tyr Asn Gln Pro Asn Trp Leu Thr Glu Val Gln Asp Thr Ala
385                 390                 395                 400

Asn Lys Ala Leu Leu Ala Leu Phe Thr Ala Glu Met Leu Leu Lys Met
                405                 410                 415

Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe
            420                 425                 430

Asp Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Ile Leu Val Glu
        435                 440                 445

Thr Lys Ile Met Ser Pro Leu Gly Ile Ser Val Leu Arg Cys Val Arg
    450                 455                 460

Leu Leu Arg Ile Phe Lys Ile Thr Arg Tyr Trp Asn Ser Leu Ser Asn
465                 470                 475                 480

Leu Val Ala Ser Leu Leu Asn Ser Val Arg Ser Ile Ala Ser Leu Leu
                485                 490                 495

Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln
            500                 505                 510

Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Met Gln Thr Arg Arg Ser
        515                 520                 525

Thr Phe Asp Asn Phe Pro Gln Ser Leu Leu Thr Val Phe Gln Ile Leu
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530 535 540

Thr Gly Glu Asp Trp Asn Ser Val Met Tyr Asp Gly Ile Met Ala Tyr
545 550 555 560

Gly Gly Pro Ser Phe Pro Gly Met Leu Val Cys Ile Tyr Phe Ile Ile
565 570 575

Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile
580 585 590

Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Thr Ser Ala Gln Lys
595 600 605

Glu Glu Glu Glu Glu Lys Glu Arg Lys Lys Leu Ala Arg Thr Ala Ser
610 615 620

Pro Glu Lys Lys Gln Glu Leu Val Glu Lys Pro Ala Val Gly Glu Ser
625 630 635 640

Lys Glu Glu Lys Ile Glu Leu Lys Ser Ile Thr Ala Asp Gly Glu Ser
645 650 655

Pro Pro Ala Thr Lys Ile Asn Met Asp Asp Leu Gln Pro Asn Glu Asn
660 665 670

Glu Asp Lys Ser Pro Tyr Pro Asn Pro Glu Thr Thr Gly Glu Glu Asp
675 680 685

Glu Glu Glu Pro Glu Met Pro Val Gly Pro Arg Pro Arg Pro Leu Ser
690 695 700

Glu Leu His Leu Lys Glu Lys Ala Val Pro Met Pro Glu Ala Ser Ala
705 710 715 720

Phe Phe Ile Phe Ser Ser Asn Asn Arg Phe Arg Leu Gln Cys His Arg
725 730 735

Ile Val Asn Asp Thr Ile Phe Thr Asn Leu Ile Leu Phe Phe Ile Leu
740 745 750

Leu Ser Ser Ile Ser Leu Ala Ala Glu Asp Pro Val Gln His Thr Ser
755 760 765

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Phe Arg Asn His Ile Leu Gly Asn Ala Asp Tyr Val Phe Thr Ser Ile
    770                 775                 780

Phe Thr Leu Glu Ile Ile Leu Lys Met Thr Ala Tyr Gly Ala Phe Leu
785                 790                 795                 800

His Lys Gly Ser Phe Cys Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu
                805                 810                 815

Val Val Ser Val Ser Leu Ile Ser Phe Gly Ile Gln Ser Ser Ala Ile
            820                 825                 830

Asn Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg
        835                 840                 845

Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe
    850                 855                 860

Val Ala Ile Arg Thr Ile Gly Asn Ile Val Ile Val Thr Thr Leu Leu
865                 870                 875                 880

Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly Lys Leu
                885                 890                 895

Tyr Thr Cys Ser Asp Ser Ser Lys Gln Thr Glu Ala Glu Cys Lys Gly
            900                 905                 910

Asn Tyr Ile Thr Tyr Lys Asp Gly Glu Val Asp His Pro Ile Ile Gln
        915                 920                 925

Pro Arg Ser Trp Glu Asn Ser Lys Phe Asp Phe Asp Asn Val Leu Ala
    930                 935                 940

Ala Met Met Ala Leu Phe Thr Val Ser Thr Phe Glu Gly Trp Pro Glu
945                 950                 955                 960

Leu Leu Tyr Arg Ser Ile Asp Ser His Thr Glu Asp Lys Gly Pro Ile
                965                 970                 975

Tyr Asn Tyr Arg Val Glu Ile Ser Ile Phe Phe Ile Ile Tyr Ile Ile
            980                 985                 990
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Ile Ile Ala Phe Phe Met Met Asn Ile Phe Val Gly Phe Val Ile Val
995 1000 1005

Thr Phe Gln Glu Gln Gly Glu Gln Glu Tyr Lys Asn Cys Glu Leu
1010 1015 1020

Asp Lys Asn Gln Arg Gln Cys Val Glu Tyr Ala Leu Lys Ala Arg
1025 1030 1035

Pro Leu Arg Arg Tyr Ile Pro Lys Asn Gln His Gln Tyr Lys Val
1040 1045 1050

Trp Tyr Val Val Asn Ser Thr Tyr Phe Glu Tyr Leu Met Phe Val
1055 1060 1065

Leu Ile Leu Leu Asn Thr Ile Cys Leu Ala Met Gln His Tyr Gly
1070 1075 1080

Gln Ser Cys Leu Phe Lys Ile Ala Met Asn Ile Leu Asn Met Leu
1085 1090 1095

Phe Thr Gly Leu Phe Thr Val Glu Met Ile Leu Lys Leu Ile Ala
1100 1105 1110

Phe Lys Pro Lys His Tyr Phe Cys Asp Ala Trp Asn Thr Phe Asp
1115 1120 1125

Ala Leu Ile Val Val Gly Ser Ile Val Asp Ile Ala Ile Thr Glu
1130 1135 1140

Val Asn Pro Ala Glu His Thr Gln Cys Ser Pro Ser Met Asn Ala
1145 1150 1155

Glu Glu Asn Ser Arg Ile Ser Ile Thr Phe Phe Arg Leu Phe Arg
1160 1165 1170

Val Met Arg Leu Val Lys Leu Leu Ser Arg Gly Glu Gly Ile Arg
1175 1180 1185

Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln Ala Leu Pro Tyr
1190 1195 1200

Val Ala Leu Leu Ile Val Met Leu Phe Phe Ile Tyr Ala Val Ile
1205 1210 1215

Gly Met Gln Val Phe Gly Lys Ile Ala Leu Asn Asp Thr Thr Glu
1220 1225 1230

Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala Val Leu
1235 1240 1245

Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln Asp Ile Met
1250 1255 1260

Leu Ala Cys Met Pro Gly Lys Lys Cys Ala Pro Glu Ser Glu Pro
1265 1270 1275

Ser Asn Ser Thr Glu Gly Glu Thr Pro Cys Gly Ser Ser Phe Ala
1280 1285 1290

Val Phe Tyr Phe Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu Ile
1295 1300 1305

Ile Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu
1310 1315 1320

Thr Arg Asp Trp Ser Ile Leu Gly Pro His His Leu Asp Glu Phe
1325 1330 1335

Lys Arg Ile Trp Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile
1340 1345 1350

Lys His Leu Asp Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro
1355 1360 1365

Leu Gly Phe Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg
1370 1375 1380

Leu Val Ser Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met
1385 1390 1395

Phe Asn Ala Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Arg Ile
1400 1405 1410

Lys Thr Glu Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala
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Ile Ile Lys Lys Ile Trp Lys Arg Thr Ser Met Lys Leu Leu Asp
1430 1435 1440

Gln Val Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys
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Phe Tyr Ala Thr Phe Leu Ile Gln Glu Tyr Phe Arg Lys Phe Lys
1460 1465 1470

Lys Arg Lys Glu Gln Gly Leu Val Gly Lys Pro Ser Gln Arg Asn
1475 1480 1485

Ala Leu Ser Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile Gly
1490 1495 1500

Pro Glu Ile Arg Arg Ala Ile Ser Gly Asp Leu Thr Ala Glu Glu
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Glu Leu Asp Lys Ala Met Lys Glu Ala Val Ser Ala Ala Ser Glu
1520 1525 1530

Asp Asp Ile Phe Arg Arg Ala Gly Gly Leu Phe Gly Asn His Val
1535 1540 1545

Ser Tyr Tyr Gln Ser Asp Gly Arg Ser Ala Phe Pro Gln Thr Phe
1550 1555 1560

Thr Thr Gln Arg Pro Leu His Ile Asn Lys Ala Gly Ser Ser Gln
1565 1570 1575

Gly Asp Thr Glu Ser Pro Ser His Glu Lys Leu Val Asp Ser Thr
1580 1585 1590

Phe Thr Pro Ser Ser Tyr Ser Ser Thr Gly Ser Asn Ala Asn Ile
1595 1600 1605

Asn Asn Ala Asn Asn Thr Ala Leu Gly Arg Leu Pro Arg Pro Ala
1610 1615 1620

Gly Tyr Pro Ser Thr Val Ser Thr Val Glu Gly His Gly Pro Pro

1625 1630 1635

Leu Ser Pro Ala Ile Arg Val Gln Glu Val Ala Trp Lys Leu Ser
1640 1645 1650

Ser Asn Arg Glu Arg His Val Pro Met Cys Glu Asp Leu Glu Leu
1655 1660 1665

Arg Arg Asp Ser Gly Ser Ala Gly Thr Gln Ala His Cys Leu Leu
1670 1675 1680

Leu Arg Arg Ala Asn Pro Ser Arg Cys His Ser Arg Glu Ser Gln
1685 1690 1695

Ala Ala Met Ala Gly Gln Glu Glu Thr Ser Gln Asp Glu Thr Tyr
1700 1705 1710

Glu Val Lys Met Asn His Asp Thr Glu Ala Cys Ser Glu Pro Ser
1715 1720 1725

Leu Leu Ser Thr Glu Met Leu Ser Tyr Gln Asp Asp Glu Asn Arg
1730 1735 1740

Gln Leu Thr Leu Pro Glu Glu Asp Lys Arg Asp Ile Arg Gln Ser
1745 1750 1755

Pro Lys Arg Gly Phe Leu Arg Ser Ala Ser Leu Gly Arg Arg Ala
1760 1765 1770

Ser Phe His Leu Glu Cys Leu Lys Arg Gln Lys Asp Arg Gly Gly
1775 1780 1785

Asp Ile Ser Gln Lys Thr Val Leu Pro Leu His Leu Val His His
1790 1795 1800

Gln Ala Leu Ala Val Ala Gly Leu Ser Pro Leu Leu Gln Arg Ser
1805 1810 1815

His Ser Pro Ala Ser Phe Pro Arg Pro Phe Ala Thr Pro Pro Ala
1820 1825 1830

Thr Pro Gly Ser Arg Gly Trp Pro Pro Gln Pro Val Pro Thr Leu
1835 1840 1845

Arg Leu Glu Gly Val Glu Ser Ser Glu Lys Leu Asn Ser Ser Phe
1850 1855 1860

Pro Ser Ile His Cys Gly Ser Trp Ala Glu Thr Thr Pro Gly Gly
1865 1870 1875

Gly Gly Ser Ser Ala Ala Arg Arg Val Arg Pro Val Ser Leu Met
1880 1885 1890

Val Pro Ser Gln Ala Gly Ala Pro Gly Arg Gln Phe His Gly Ser
1895 1900 1905

Ala Ser Ser Leu Val Glu Ala Val Leu Ile Ser Glu Gly Leu Gly
1910 1915 1920

Gln Phe Ala Gln Asp Pro Lys Phe Ile Glu Val Thr Thr Gln Glu
1925 1930 1935

Leu Ala Asp Ala Cys Asp Met Thr Ile Glu Glu Met Glu Ser Ala
1940 1945 1950

Ala Asp Asn Ile Leu Ser Gly Gly Ala Pro Gln Ser Pro Asn Gly
1955 1960 1965

Ala Leu Leu Pro Phe Val Asn Cys Arg Asp Ala Gly Gln Asp Arg
1970 1975 1980

Ala Gly Gly Glu Glu Asp Ala Gly Cys Val Arg Ala Arg Gly Arg
1985 1990 1995

Pro Ser Glu Glu Glu Leu Gln Asp Ser Arg Val Tyr Val Ser Ser
2000 2005 2010

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Gln Ala Asp His Ala Asn Glu Ala Asn Tyr Ala Arg Gly Thr Arg Leu
            20                  25                  30

Pro Leu Ser Gly Glu Gly Pro Thr Ser Gln Pro Asn Ser Ser Lys Gln
        35                  40                  45

Thr Val Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys
    50                  55                  60

Ala Ala Gln Thr Met Ser Thr Ser Ala Pro Pro Pro Val Gly Ser Leu
65                  70                  75                  80

Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn
                85                  90                  95

Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn
            100                 105                 110

Asn Pro Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe
        115                 120                 125

Asp Ile Phe Ile Leu Leu Ala Ile Phe Ala Asn Cys Val Ala Leu Ala
    130                 135                 140
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Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn
145                 150                 155                 160

Leu Glu Lys Val Glu Tyr Ala Phe Leu Ile Ile Phe Thr Val Glu Thr
                165                 170                 175

Phe Leu Lys Ile Ile Ala Tyr Gly Leu Leu Leu His Pro Asn Ala Tyr
            180                 185                 190

Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly
        195                 200                 205

Leu Phe Ser Val Ile Leu Glu Gln Leu Thr Lys Glu Thr Glu Gly Gly
    210                 215                 220

Asn His Ser Ser Gly Lys Ser Gly Gly Phe Asp Val Lys Ala Leu Arg
225                 230                 235                 240

Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser
                245                 250                 255

Leu Gln Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu
            260                 265                 270

His Ile Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile
        275                 280                 285

Gly Leu Glu Leu Phe Ile Gly Lys Met His Lys Thr Cys Phe Phe Ala
    290                 295                 300

Asp Ser Asp Ile Val Ala Glu Glu Asp Pro Ala Pro Cys Ala Phe Ser
305                 310                 315                 320

Gly Asn Gly Arg Gln Cys Thr Ala Asn Gly Thr Glu Cys Arg Ser Gly
                325                 330                 335

Trp Val Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
            340                 345                 350

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
        355                 360                 365

Val Leu Tyr Trp Met Asn Asp Ala Met Gly Phe Glu Leu Pro Trp Val
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370 375 380

Tyr Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu
385 390 395 400

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
405 410 415

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
420 425 430

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
435 440 445

Asp Pro Glu Asn Glu Glu Glu Gly Gly Glu Glu Gly Lys Arg Asn Thr
450 455 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ser
465 470 475 480

Gly Glu Gly Glu Asn Arg Gly Cys Cys Gly Ser Leu Cys Gln Ala Ile
485 490 495

Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp Asn Arg Phe Asn
500 505 510

Arg Arg Arg Cys Arg Ala Ala Val Lys Ser Val Thr Phe Tyr Trp Leu
515 520 525

Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile Ser Ser Glu His
530 535 540

Tyr Asn Gln Pro Asp Trp Leu Thr Gln Ile Gln Asp Ile Ala Asn Lys
545 550 555 560

Val Leu Leu Ala Leu Phe Thr Cys Glu Met Leu Val Lys Met Tyr Ser
565 570 575

Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp Cys
580 585 590

Phe Val Val Cys Gly Gly Ile Thr Glu Thr Ile Leu Val Glu Leu Glu
595 600 605

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Ile Met Ser Pro Leu Gly Ile Ser Val Phe Arg Cys Val Arg Leu Leu
    610                 615                 620

Arg Ile Phe Lys Val Thr Arg His Trp Thr Ser Leu Ser Asn Leu Val
625                 630                 635                 640

Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala Ser Leu Leu Leu Leu
                645                 650                 655

Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu Phe
            660                 665                 670

Gly Gly Lys Phe Asn Phe Asp Glu Thr Gln Thr Lys Arg Ser Thr Phe
        675                 680                 685

Asp Asn Phe Pro Gln Ala Leu Leu Thr Val Phe Gln Ile Leu Thr Gly
    690                 695                 700

Glu Asp Trp Asn Ala Val Met Tyr Asp Gly Ile Met Ala Tyr Gly Gly
705                 710                 715                 720

Pro Ser Ser Ser Gly Met Ile Val Cys Ile Tyr Phe Ile Ile Leu Phe
                725                 730                 735

Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala Val
            740                 745                 750

Asp Asn Leu Ala Asp Ala Glu Ser Leu Asn Thr Ala Gln Lys Glu Glu
        755                 760                 765

Ala Glu Glu Lys Glu Arg Lys Lys Ile Ala Arg Lys Glu Ser Leu Glu
    770                 775                 780

Asn Lys Lys Asn Asn Lys Pro Glu Val Asn Gln Ile Ala Asn Ser Asp
785                 790                 795                 800

Asn Lys Val Thr Ile Asp Asp Tyr Arg Glu Glu Asp Glu Asp Lys Asp
                805                 810                 815

Pro Tyr Pro Pro Cys Asp Val Pro Val Gly Glu Glu Glu Glu Glu Glu
            820                 825                 830
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Glu Glu Asp Glu Pro Glu Val Pro Ala Gly Pro Arg Pro Arg Arg Ile
        835                 840                 845

Ser Glu Leu Asn Met Lys Glu Lys Ile Ala Pro Ile Pro Glu Gly Ser
    850                 855                 860

Ala Phe Phe Ile Leu Ser Lys Thr Asn Pro Ile Arg Val Gly Cys His
865                 870                 875                 880

Lys Leu Ile Asn His His Ile Phe Thr Asn Leu Ile Leu Val Phe Ile
                885                 890                 895

Met Leu Ser Ser Ala Ala Leu Ala Ala Glu Asp Pro Ile Arg Ser His
            900                 905                 910

Ser Phe Arg Asn Thr Ile Leu Gly Tyr Phe Asp Tyr Ala Phe Thr Ala
        915                 920                 925

Ile Phe Thr Val Glu Ile Leu Leu Lys Met Thr Thr Phe Gly Ala Phe
    930                 935                 940

Leu His Lys Gly Ala Phe Cys Arg Asn Tyr Phe Asn Leu Leu Asp Met
945                 950                 955                 960

Leu Val Val Gly Val Ser Leu Val Ser Phe Gly Ile Gln Ser Ser Ala
                965                 970                 975

Ile Ser Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu
            980                 985                 990

Arg Ala Ile Asn Arg Ala Lys Gly  Leu Lys His Val Val  Gln Cys
Val
        995                 1000                1005

Phe Val  Ala Ile Arg Thr Ile  Gly Asn Ile Met Ile  Val Thr Thr
    1010                1015                1020

Leu Leu  Gln Phe Met Phe Ala  Cys Ile Gly Val Gln  Leu Phe Lys
    1025                1030                1035

Gly Lys  Phe Tyr Arg Cys Thr  Asp Glu Ala Lys Ser  Asn Pro Glu
    1040                1045                1050
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Glu Cys  Arg Gly Leu Phe Ile  Leu Tyr Lys Asp Gly  Asp Val Asp
    1055                1060                1065

Ser Pro  Val Val Arg Glu Arg  Ile Trp Gln Asn Ser  Asp Phe Asn
    1070                1075                1080

Phe Asp  Asn Val Leu Ser Ala  Met Met Ala Leu Phe  Thr Val Ser
    1085                1090                1095

Thr Phe  Glu Gly Trp Pro Ala  Leu Leu Tyr Lys Ala  Ile Asp Ser
    1100                1105                1110

Asn Gly  Glu Asn Ile Gly Pro  Ile Tyr Asn His Arg  Val Glu Ile
    1115                1120                1125

Ser Ile  Phe Phe Ile Ile Tyr  Ile Ile Ile Val Ala  Phe Phe Met
    1130                1135                1140

Met Asn  Ile Phe Val Gly Phe  Val Ile Val Thr Phe  Gln Glu Gln
    1145                1150                1155

Gly Glu  Lys Glu Tyr Lys Asn  Cys Glu Leu Asp Lys  Asn Gln Arg
    1160                1165                1170

Gln Cys  Val Glu Tyr Ala Leu  Lys Ala Arg Pro Leu  Arg Arg Tyr
    1175                1180                1185

Ile Pro  Lys Asn Pro Tyr Gln  Tyr Lys Phe Trp Tyr  Val Val Asn
    1190                1195                1200

Ser Ser  Pro Phe Glu Tyr Met  Met Phe Val Leu Ile  Met Leu Asn
    1205                1210                1215

Thr Leu  Cys Leu Ala Met Gln  His Tyr Glu Gln Ser  Lys Met Phe
    1220                1225                1230

Asn Asp  Ala Met Asp Ile Leu  Asn Met Val Phe Thr  Gly Val Phe
    1235                1240                1245

Thr Val  Glu Met Val Leu Lys  Val Ile Ala Phe Lys  Pro Lys Gly
    1250                1255                1260
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Tyr Phe  Ser Asp Ala Trp Asn  Thr Phe Asp Ser Leu  Ile Val Ile
    1265                1270                1275

Gly Ser  Ile Ile Asp Val Ala  Leu Ser Glu Ala Asp  Pro Thr Glu
    1280                1285                1290

Ser Glu  Asn Val Pro Val Pro  Thr Ala Thr Pro Gly  Asn Ser Glu
    1295                1300                1305

Glu Ser  Asn Arg Ile Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val
    1310                1315                1320

Met Arg  Leu Val Lys Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr
    1325                1330                1335

Leu Leu  Trp Thr Phe Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val
    1340                1345                1350

Ala Leu  Leu Ile Ala Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly
    1355                1360                1365

Met Gln  Met Phe Gly Lys Val  Ala Met Arg Asp Asn  Asn Gln Ile
    1370                1375                1380

Asn Arg  Asn Asn Asn Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu
    1385                1390                1395

Leu Phe  Arg Cys Ala Thr Gly  Glu Ala Trp Gln Glu  Ile Met Leu
    1400                1405                1410

Ala Cys  Leu Pro Gly Lys Leu  Cys Asp Pro Glu Ser  Asp Tyr Asn
    1415                1420                1425

Pro Gly  Glu Glu Tyr Thr Cys  Gly Ser Asn Phe Ala  Ile Val Tyr
    1430                1435                1440

Phe Ile  Ser Phe Tyr Met Leu  Cys Ala Phe Leu Ile  Ile Asn Leu
    1445                1450                1455

Phe Val  Ala Val Ile Met Asp  Asn Phe Asp Tyr Leu  Thr Arg Asp
    1460                1465                1470

Trp Ser  Ile Leu Gly Pro His  His Leu Asp Glu Phe  Lys Arg Ile
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Trp Ser Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His Leu
1490 1495 1500

Asp Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe
1505 1510 1515

Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Ala
1520 1525 1530

Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala
1535 1540 1545

Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Lys Ile Lys Thr Glu
1550 1555 1560

Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Val Ile Lys
1565 1570 1575

Lys Ile Trp Lys Lys Thr Ser Met Lys Leu Leu Asp Gln Val Val
1580 1585 1590

Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala
1595 1600 1605

Thr Phe Leu Ile Gln Asp Tyr Phe Arg Lys Phe Lys Lys Arg Lys
1610 1615 1620

Glu Gln Gly Leu Val Gly Lys Tyr Pro Ala Lys Asn Thr Thr Ile
1625 1630 1635

Ala Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu
1640 1645 1650

Ile Arg Arg Ala Ile Ser Cys Asp Leu Gln Asp Asp Glu Pro Glu
1655 1660 1665

Glu Thr Lys Arg Glu Glu Glu Asp Asp Val Phe Lys Arg Asn Gly
1670 1675 1680

Ala Leu Leu Gly Asn His Val Asn His Val Asn Ser Asp Arg Arg
1685 1690 1695

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Asp Ser  Leu Gln Gln Thr Asn  Thr Thr His Arg Pro  Leu His Val
    1700                1705                1710

Gln Arg  Pro Ser Ile Pro Pro  Ala Ser Asp Thr Glu  Lys Pro Leu
    1715                1720                1725

Phe Pro  Pro Ala Gly Asn Ser  Val Cys His Asn His  His Asn His
    1730                1735                1740

Asn Ser  Ile Gly Lys Gln Val  Pro Thr Ser Thr Asn  Ala Asn Leu
    1745                1750                1755

Asn Asn  Ala Asn Met Ser Lys  Ala Ala His Gly Lys  Arg Pro Ser
    1760                1765                1770

Ile Gly  Asn Leu Glu His Val  Ser Glu Asn Gly His  His Ser Ser
    1775                1780                1785

His Lys  His Asp Arg Glu Pro  Gln Arg Arg Ser Ser  Val Lys Arg
    1790                1795                1800

Thr Arg  Tyr Tyr Glu Thr Tyr  Ile Arg Ser Asp Ser  Gly Asp Glu
    1805                1810                1815

Gln Leu  Pro Thr Ile Cys Arg  Glu Asp Pro Glu Ile  His Gly Tyr
    1820                1825                1830

Phe Arg  Asp Pro His Cys Leu  Gly Glu Gln Glu Tyr  Phe Ser Ser
    1835                1840                1845

Glu Glu  Cys Tyr Glu Asp Asp  Ser Ser Pro Thr Trp  Ser Arg Gln
    1850                1855                1860

Asn Tyr  Gly Tyr Tyr Ser Arg  Tyr Pro Gly Arg Asn  Ile Asp Ser
    1865                1870                1875

Glu Arg  Pro Arg Gly Tyr His  His Pro Gln Gly Phe  Leu Glu Asp
    1880                1885                1890

Asp Asp  Ser Pro Val Cys Tyr  Asp Ser Arg Arg Ser  Pro Arg Arg
    1895                1900                1905
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Arg Leu Leu Pro Pro Thr Pro Ala Ser His Arg Arg Ser Ser Phe
1910 1915 1920

Asn Phe Glu Cys Leu Arg Arg Gln Ser Ser Gln Glu Glu Val Pro
1925 1930 1935

Ser Ser Pro Ile Phe Pro His Arg Thr Ala Leu Pro Leu His Leu
1940 1945 1950

Met Gln Gln Gln Ile Met Ala Val Ala Gly Leu Asp Ser Ser Lys
1955 1960 1965

Ala Gln Lys Tyr Ser Pro Ser His Ser Thr Arg Ser Trp Ala Thr
1970 1975 1980

Pro Pro Ala Thr Pro Pro Tyr Arg Asp Trp Thr Pro Cys Tyr Thr
1985 1990 1995

Pro Leu Ile Gln Val Glu Gln Ser Glu Ala Leu Asp Gln Val Asn
2000 2005 2010

Gly Ser Leu Pro Ser Leu His Arg Ser Ser Trp Tyr Thr Asp Glu
2015 2020 2025

Pro Asp Ile Ser Tyr Arg Thr Phe Thr Pro Ala Ser Leu Thr Val
2030 2035 2040

Pro Ser Ser Phe Arg Asn Lys Asn Ser Asp Lys Gln Arg Ser Ala
2045 2050 2055

Asp Ser Leu Val Glu Ala Val Leu Ile Ser Glu Gly Leu Gly Arg
2060 2065 2070

Tyr Ala Arg Asp Pro Lys Phe Val Ser Ala Thr Lys His Glu Ile
2075 2080 2085

Ala Asp Ala Cys Asp Leu Thr Ile Asp Glu Met Glu Ser Ala Ala
2090 2095 2100

Ser Thr Leu Leu Asn Gly Asn Val Arg Pro Arg Ala Asn Gly Asp
2105 2110 2115

Val Gly Pro Leu Ser His Arg Gln Asp Tyr Glu Leu Gln Asp Phe
2120 2125 2130

Gly Pro Gly Tyr Ser Asp Glu Glu Pro Asp Pro Gly Arg Asp Glu
2135 2140 2145

Glu Asp Leu Ala Asp Glu Met Ile Cys Ile Thr Thr Leu
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Pro Leu Ser Gly Glu Gly Pro Thr Ser Gln Pro Asn Ser Ser Lys Gln
35 40 45

Thr Val Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys
50 55 60

Ala Ala Gln Thr Met Ser Thr Ser Ala Pro Pro Pro Val Gly Ser Leu

65 70 75 80

Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn
85 90 95

Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn
100 105 110

Asn Pro Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe
115 120 125

Asp Ile Phe Ile Leu Leu Ala Ile Phe Ala Asn Cys Val Ala Leu Ala
130 135 140

Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn
145 150 155 160

Leu Glu Lys Val Glu Tyr Ala Phe Leu Ile Ile Phe Thr Val Glu Thr
165 170 175

Phe Leu Lys Ile Ile Ala Tyr Gly Leu Leu Leu His Pro Asn Ala Tyr
180 185 190

Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly
195 200 205

Leu Phe Ser Val Ile Leu Glu Gln Leu Thr Lys Glu Thr Glu Gly Gly
210 215 220

Asn His Ser Ser Gly Lys Ser Gly Gly Phe Asp Val Lys Ala Leu Arg
225 230 235 240

Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser
245 250 255

Leu Gln Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu
260 265 270

His Ile Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile
275 280 285

Gly Leu Glu Leu Phe Ile Gly Lys Met His Lys Thr Cys Phe Phe Ala
290 295 300

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Asp Ser Asp Ile Val Ala Glu Glu Asp Pro Ala Pro Cys Ala Phe Ser
305                 310                 315                 320

Gly Asn Gly Arg Gln Cys Thr Ala Asn Gly Thr Glu Cys Arg Ser Gly
                325                 330                 335

Trp Val Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
            340                 345                 350

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
        355                 360                 365

Val Leu Tyr Trp Val Asn Asp Ala Ile Gly Trp Glu Trp Pro Trp Val
    370                 375                 380

Tyr Phe Val Ser Leu Ile Ile Leu Gly Ser Phe Phe Val Leu Asn Leu
385                 390                 395                 400

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
                405                 410                 415

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
            420                 425                 430

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
        435                 440                 445

Asp Pro Glu Asn Glu Glu Glu Gly Gly Glu Glu Gly Lys Arg Asn Thr
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ser
465                 470                 475                 480

Gly Glu Gly Glu Asn Arg Gly Cys Cys Gly Ser Leu Trp Cys Trp Trp
                485                 490                 495

Arg Arg Arg Gly Ala Ala Lys Ala Gly Pro Ser Gly Cys Arg Arg Trp
            500                 505                 510

Gly Gln Ala Ile Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp
        515                 520                 525
```

```
Asn Arg Phe Asn Arg Arg Arg Cys Arg Ala Ala Val Lys Ser Val Thr
    530                 535                 540

Phe Tyr Trp Leu Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile
545                 550                 555                 560

Ser Ser Glu His Tyr Asn Gln Pro Asp Trp Leu Thr Gln Ile Gln Asp
                565                 570                 575

Ile Ala Asn Lys Val Leu Leu Ala Leu Phe Thr Cys Glu Met Leu Val
            580                 585                 590

Lys Met Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn
        595                 600                 605

Arg Phe Asp Cys Phe Val Val Cys Gly Gly Ile Thr Glu Thr Ile Leu
    610                 615                 620

Val Glu Leu Glu Ile Met Ser Pro Leu Gly Ile Ser Val Phe Arg Cys
625                 630                 635                 640

Val Arg Leu Leu Arg Ile Phe Lys Val Thr Arg His Trp Thr Ser Leu
                645                 650                 655

Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala Ser
            660                 665                 670

Leu Leu Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly
        675                 680                 685

Met Gln Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Thr Gln Thr Lys
    690                 695                 700

Arg Ser Thr Phe Asp Asn Phe Pro Gln Ala Leu Leu Thr Val Phe Gln
705                 710                 715                 720

Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr Asp Gly Ile Met
                725                 730                 735

Ala Tyr Gly Gly Pro Ser Ser Ser Gly Met Ile Val Cys Ile Tyr Phe
            740                 745                 750
```

```
Ile Ile Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu
        755                 760                 765

Ala Ile Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Asn Thr Ala
    770                 775                 780

Gln Lys Glu Glu Ala Glu Glu Lys Glu Arg Lys Lys Ile Ala Arg Lys
785                 790                 795                 800

Glu Ser Leu Glu Asn Lys Lys Asn Asn Lys Pro Glu Val Asn Gln Ile
                805                 810                 815

Ala Asn Ser Asp Asn Lys Val Thr Ile Asp Asp Tyr Arg Glu Glu Asp
            820                 825                 830

Glu Asp Lys Asp Pro Tyr Pro Pro Cys Asp Val Pro Val Gly Glu Glu
        835                 840                 845

Glu Glu Glu Glu Glu Glu Asp Glu Pro Glu Val Pro Ala Gly Pro Arg
    850                 855                 860

Pro Arg Arg Ile Ser Glu Leu Asn Met Lys Glu Lys Ile Ala Pro Ile
865                 870                 875                 880

Pro Glu Gly Ser Ala Phe Phe Ile Leu Ser Lys Thr Asn Pro Ile Arg
                885                 890                 895

Val Gly Cys His Lys Leu Ile Asn His His Ile Phe Thr Asn Leu Ile
            900                 905                 910

Leu Val Phe Ile Met Leu Ser Ser Ala Ala Leu Ala Ala Glu Asp Pro
        915                 920                 925

Ile Arg Ser His Ser Phe Arg Asn Thr Ile Leu Gly Tyr Phe Asp Tyr
    930                 935                 940

Ala Phe Thr Ala Ile Phe Thr Val Glu Ile Leu Leu Lys Met Thr Thr
945                 950                 955                 960

Phe Gly Ala Phe Leu His Lys Gly Ala Phe Cys Arg Asn Tyr Phe Asn
                965                 970                 975

Leu Leu Asp Met Leu Val Val Gly Val Ser Leu Val Ser Phe Gly Ile
```

980 985 990

Gln Ser Ser Ala Ile Ser Val Val Lys Ile Leu Arg Val Leu Arg Val
995 1000 1005

Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His
1010 1015 1020

Val Val Gln Cys Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile
1025 1030 1035

Met Ile Val Thr Thr Leu Leu Gln Phe Met Phe Ala Cys Ile Gly
1040 1045 1050

Val Gln Leu Phe Lys Gly Lys Phe Tyr Arg Cys Thr Asp Glu Ala
1055 1060 1065

Lys Ser Asn Pro Glu Glu Cys Arg Gly Leu Phe Ile Leu Tyr Lys
1070 1075 1080

Asp Gly Asp Val Asp Ser Pro Val Val Arg Glu Arg Ile Trp Gln
1085 1090 1095

Asn Ser Asp Phe Asn Phe Asp Asn Val Leu Ser Ala Met Met Ala
1100 1105 1110

Leu Phe Thr Val Ser Thr Phe Glu Gly Trp Pro Ala Leu Leu Tyr
1115 1120 1125

Lys Ala Ile Asp Ser Asn Gly Glu Asn Ile Gly Pro Ile Tyr Asn
1130 1135 1140

His Arg Val Glu Ile Ser Ile Phe Phe Ile Ile Tyr Ile Ile Ile
1145 1150 1155

Val Ala Phe Phe Met Met Asn Ile Phe Val Gly Phe Val Ile Val
1160 1165 1170

Thr Phe Gln Glu Gln Gly Glu Lys Glu Tyr Lys Asn Cys Glu Leu
1175 1180 1185

Asp Lys Asn Gln Arg Gln Cys Val Glu Tyr Ala Leu Lys Ala Arg

1190 1195 1200

Pro Leu Arg Arg Tyr Ile Pro Lys Asn Pro Tyr Gln Tyr Lys Phe
1205 1210 1215

Trp Tyr Val Val Asn Ser Ser Pro Phe Glu Tyr Met Met Phe Val
1220 1225 1230

Leu Ile Met Leu Asn Thr Leu Cys Leu Ala Met Gln His Tyr Glu
1235 1240 1245

Gln Ser Lys Met Phe Asn Asp Ala Met Asp Ile Leu Asn Met Val
1250 1255 1260

Phe Thr Gly Val Phe Thr Val Glu Met Val Leu Lys Val Ile Ala
1265 1270 1275

Phe Lys Pro Lys Gly Tyr Phe Ser Asp Ala Trp Asn Thr Phe Asp
1280 1285 1290

Ser Leu Ile Val Ile Gly Ser Ile Ile Asp Val Ala Leu Ser Glu
1295 1300 1305

Ala Asp Pro Thr Glu Ser Glu Asn Val Pro Val Pro Thr Ala Thr
1310 1315 1320

Pro Gly Asn Ser Glu Glu Ser Asn Arg Ile Ser Ile Thr Phe Phe
1325 1330 1335

Arg Leu Phe Arg Val Met Arg Leu Val Lys Leu Leu Ser Arg Gly
1340 1345 1350

Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln
1355 1360 1365

Ala Leu Pro Tyr Val Ala Leu Leu Ile Ala Met Leu Phe Phe Ile
1370 1375 1380

Tyr Ala Val Ile Gly Met Gln Met Phe Gly Lys Val Ala Met Arg
1385 1390 1395

Asp Asn Asn Gln Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro
1400 1405 1410

```
Gln Ala  Val Leu Leu Leu Phe  Arg Cys Ala Thr Gly  Glu Ala Trp
    1415                 1420                 1425

Gln Glu  Ile Met Leu Ala Cys  Leu Pro Gly Lys Leu  Cys Asp Pro
    1430                 1435                 1440

Glu Ser  Asp Tyr Asn Pro Gly  Glu Glu Tyr Thr Cys  Gly Ser Asn
    1445                 1450                 1455

Phe Ala  Ile Val Tyr Phe Ile  Ser Phe Tyr Met Leu  Cys Ala Phe
    1460                 1465                 1470

Leu Ile  Ile Asn Leu Phe Val  Ala Val Ile Met Asp  Asn Phe Asp
    1475                 1480                 1485

Tyr Leu  Thr Arg Asp Trp Ser  Ile Leu Gly Pro His  His Leu Asp
    1490                 1495                 1500

Glu Phe  Lys Arg Ile Trp Ser  Glu Tyr Asp Pro Glu  Ala Lys Gly
    1505                 1510                 1515

Arg Ile  Lys His Leu Asp Val  Val Thr Leu Leu Arg  Arg Ile Gln
    1520                 1525                 1530

Pro Pro  Leu Gly Phe Gly Lys  Leu Cys Pro His Arg  Val Ala Cys
    1535                 1540                 1545

Lys Arg  Leu Val Ala Met Asn  Met Pro Leu Asn Ser  Asp Gly Thr
    1550                 1555                 1560

Val Met  Phe Asn Ala Thr Leu  Phe Ala Leu Val Arg  Thr Ala Leu
    1565                 1570                 1575

Lys Ile  Lys Thr Glu Gly Asn  Leu Glu Gln Ala Asn  Glu Glu Leu
    1580                 1585                 1590

Arg Ala  Val Ile Lys Lys Ile  Trp Lys Lys Thr Ser  Met Lys Leu
    1595                 1600                 1605

Leu Asp  Gln Val Val Pro Pro  Ala Gly Asp Asp Glu  Val Thr Val
    1610                 1615                 1620
```

```
Gly Lys  Phe Tyr Ala Thr Phe  Leu Ile Gln Asp Tyr  Phe Arg Lys
    1625                1630                1635

Phe Lys  Lys Arg Lys Glu Gln  Gly Leu Val Gly Lys  Tyr Pro Ala
    1640                1645                1650

Lys Asn  Thr Thr Ile Ala Leu  Gln Ala Gly Leu Arg  Thr Leu His
    1655                1660                1665

Asp Ile  Gly Pro Glu Ile Arg  Arg Ala Ile Ser Cys  Asp Leu Gln
    1670                1675                1680

Asp Asp  Glu Pro Glu Glu Thr  Lys Arg Glu Glu Glu  Asp Asp Val
    1685                1690                1695

Phe Lys  Arg Asn Gly Ala Leu  Leu Gly Asn His Val  Asn His Val
    1700                1705                1710

Asn Ser  Asp Arg Arg Asp Ser  Leu Gln Gln Thr Asn  Thr Thr His
    1715                1720                1725

Arg Pro  Leu His Val Gln Arg  Pro Ser Ile Pro Pro  Ala Ser Asp
    1730                1735                1740

Thr Glu  Lys Pro Leu Phe Pro  Pro Ala Gly Asn Ser  Val Cys His
    1745                1750                1755

Asn His  His Asn His Asn Ser  Ile Gly Lys Gln Val  Pro Thr Ser
    1760                1765                1770

Thr Asn  Ala Asn Leu Asn Asn  Ala Asn Met Ser Lys  Ala Ala His
    1775                1780                1785

Gly Lys  Arg Pro Ser Ile Gly  Asn Leu Glu His Val  Ser Glu Asn
    1790                1795                1800

Gly His  His Ser Ser His Lys  His Asp Arg Glu Pro  Gln Arg Arg
    1805                1810                1815

Ser Ser  Val Lys Arg Thr Arg  Tyr Tyr Glu Thr Tyr  Ile Arg Ser
    1820                1825                1830
```

```
Asp Ser  Gly Asp Glu Gln Leu  Pro Thr Ile Cys Arg  Glu Asp Pro
    1835                1840                1845

Glu Ile  His Gly Tyr Phe Arg  Asp Pro His Cys Leu  Gly Glu Gln
    1850                1855                1860

Glu Tyr  Phe Ser Ser Glu Glu  Cys Tyr Glu Asp Asp  Ser Ser Pro
    1865                1870                1875

Thr Trp  Ser Arg Gln Asn Tyr  Gly Tyr Tyr Ser Arg  Tyr Pro Gly
    1880                1885                1890

Arg Asn  Ile Asp Ser Glu Arg  Pro Arg Gly Tyr His  His Pro Gln
    1895                1900                1905

Gly Phe  Leu Glu Asp Asp Asp  Ser Pro Val Cys Tyr  Asp Ser Arg
    1910                1915                1920

Arg Ser  Pro Arg Arg Arg Leu  Leu Pro Pro Thr Pro  Ala Ser His
    1925                1930                1935

Arg Arg  Ser Ser Phe Asn Phe  Glu Cys Leu Arg Arg  Gln Ser Ser
    1940                1945                1950

Gln Glu  Glu Val Pro Ser Ser  Pro Ile Phe Pro His  Arg Thr Ala
    1955                1960                1965

Leu Pro  Leu His Leu Met Gln  Gln Gln Ile Met Ala  Val Ala Gly
    1970                1975                1980

Leu Asp  Ser Ser Lys Ala Gln  Lys Tyr Ser Pro Ser  His Ser Thr
    1985                1990                1995

Arg Ser  Trp Ala Thr Pro Pro  Ala Thr Pro Pro Tyr  Arg Asp Trp
    2000                2005                2010

Thr Pro  Cys Tyr Thr Pro Leu  Ile Gln Val Glu Gln  Ser Glu Ala
    2015                2020                2025

Leu Asp  Gln Val Asn Gly Ser  Leu Pro Ser Leu His  Arg Ser Ser
    2030                2035                2040

Trp Tyr  Thr Asp Glu Pro Asp  Ile Ser Tyr Arg Thr  Phe Thr Pro
```

```
    2045                2050                2055

Ala Ser  Leu Thr Val Pro Ser  Ser Phe Arg Asn Lys  Asn Ser Asp
    2060                2065                2070

Lys Gln  Arg Ser Ala Asp Ser  Leu Val Glu Ala Val  Leu Ile Ser
    2075                2080                2085

Glu Gly  Leu Gly Arg Tyr Ala  Arg Asp Pro Lys Phe  Val Ser Ala
    2090                2095                2100

Thr Lys  His Glu Ile Ala Asp  Ala Cys Asp Leu Thr  Ile Asp Glu
    2105                2110                2115

Met Glu  Ser Ala Ala Ser Thr  Leu Leu Asn Gly Asn  Val Arg Pro
    2120                2125                2130

Arg Ala  Asn Gly Asp Val Gly  Pro Leu Ser His Arg  Gln Asp Tyr
    2135                2140                2145

Glu Leu  Gln Asp Phe Gly Pro  Gly Tyr Ser Asp Glu  Glu Pro Asp
    2150                2155                2160

Pro Gly  Arg Asp Glu Glu Asp  Leu Ala Asp Glu Met  Ile Cys Ile
    2165                2170                2175

Thr Thr  Leu
    2180


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            20   25   30

Pro Leu Ser Gly Glu Gly Pro Thr Ser Gln Pro Asn Ser Ser Lys Gln
        35   40   45

Thr Val Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys
    50   55   60

Ala Ala Gln Thr Met Ser Thr Ser Ala Pro Pro Pro Val Gly Ser Leu
65   70   75   80

Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn
                85   90   95

Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn
            100   105   110

Asn Pro Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe
        115   120   125

Asp Ile Phe Ile Leu Leu Ala Ile Phe Ala Asn Cys Val Ala Leu Ala
    130   135   140

Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn
145   150   155   160

Leu Glu Lys Val Glu Tyr Ala Phe Leu Ile Ile Phe Thr Val Glu Thr
                165   170   175

Phe Leu Lys Ile Ile Ala Tyr Gly Leu Leu Leu His Pro Asn Ala Tyr
            180   185   190

```
Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly
        195                 200                 205

Leu Phe Ser Val Ile Leu Glu Gln Leu Thr Lys Glu Thr Glu Gly Gly
    210                 215                 220

Asn His Ser Ser Gly Lys Ser Gly Gly Phe Asp Val Lys Ala Leu Arg
225                 230                 235                 240

Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser
                245                 250                 255

Leu Gln Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu
            260                 265                 270

His Ile Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile
        275                 280                 285

Gly Leu Glu Leu Phe Ile Gly Lys Met His Lys Thr Cys Phe Phe Ala
    290                 295                 300

Asp Ser Asp Ile Val Ala Glu Glu Asp Pro Ala Pro Cys Ala Phe Ser
305                 310                 315                 320

Gly Asn Gly Arg Gln Cys Thr Ala Asn Gly Thr Glu Cys Arg Ser Gly
                325                 330                 335

Trp Val Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
            340                 345                 350

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
        355                 360                 365

Val Leu Tyr Trp Met Asn Asp Ala Met Gly Phe Glu Leu Pro Trp Val
    370                 375                 380

Tyr Phe Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu
385                 390                 395                 400

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
                405                 410                 415
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Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
            420                 425                 430

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
        435                 440                 445

Asp Pro Glu Asn Glu Glu Glu Gly Gly Glu Glu Gly Lys Arg Asn Thr
    450                 455                 460

Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ser
465                 470                 475                 480

Gly Glu Gly Glu Asn Arg Gly Cys Cys Gly Ser Leu Cys Gln Ala Ile
                485                 490                 495

Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp Asn Arg Phe Asn
            500                 505                 510

Arg Arg Arg Cys Arg Ala Ala Val Lys Ser Val Thr Phe Tyr Trp Leu
        515                 520                 525

Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile Ser Ser Glu His
    530                 535                 540

Tyr Asn Gln Pro Asp Trp Leu Thr Gln Ile Gln Asp Ile Ala Asn Lys
545                 550                 555                 560

Val Leu Leu Ala Leu Phe Thr Cys Glu Met Leu Val Lys Met Tyr Ser
                565                 570                 575

Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp Cys
            580                 585                 590

Phe Val Val Cys Gly Gly Ile Thr Glu Thr Ile Leu Val Glu Leu Glu
        595                 600                 605

Ile Met Ser Pro Leu Gly Ile Ser Val Phe Arg Cys Val Arg Leu Leu
    610                 615                 620

Arg Ile Phe Lys Val Thr Arg His Trp Thr Ser Leu Ser Asn Leu Val
625                 630                 635                 640

Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala Ser Leu Leu Leu Leu
```

645 650 655

Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu Phe
660 665 670

Gly Gly Lys Phe Asn Phe Asp Glu Thr Gln Thr Lys Arg Ser Thr Phe
675 680 685

Asp Asn Phe Pro Gln Ala Leu Leu Thr Val Phe Gln Ile Leu Thr Gly
690 695 700

Glu Asp Trp Asn Ala Val Met Tyr Asp Gly Ile Met Ala Tyr Gly Gly
705 710 715 720

Pro Ser Ser Ser Gly Met Ile Val Cys Ile Tyr Phe Ile Ile Leu Phe
725 730 735

Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala Val
740 745 750

Asp Asn Leu Ala Asp Ala Glu Ser Leu Asn Thr Ala Gln Lys Glu Glu
755 760 765

Ala Glu Glu Lys Glu Arg Lys Lys Ile Ala Arg Lys Glu Ser Leu Glu
770 775 780

Asn Lys Lys Asn Asn Lys Pro Glu Val Asn Gln Ile Ala Asn Ser Asp
785 790 795 800

Asn Lys Val Thr Ile Asp Asp Tyr Arg Glu Glu Asp Glu Asp Lys Asp
805 810 815

Pro Tyr Pro Pro Cys Asp Val Pro Val Gly Glu Glu Glu Glu Glu Glu
820 825 830

Glu Glu Asp Glu Pro Glu Val Pro Ala Gly Pro Arg Pro Arg Arg Ile
835 840 845

Ser Glu Leu Asn Met Lys Glu Lys Ile Ala Pro Ile Pro Glu Gly Ser
850 855 860

Ala Phe Phe Ile Leu Ser Lys Thr Asn Pro Ile Arg Val Gly Cys His
865 870 875 880

Lys Leu Ile Asn His His Ile Phe Thr Asn Leu Ile Leu Val Phe Ile
885 890 895

Met Leu Ser Ser Ala Ala Leu Ala Ala Glu Asp Pro Ile Arg Ser His
900 905 910

Ser Phe Arg Asn Thr Ile Leu Gly Tyr Phe Asp Tyr Ala Phe Thr Ala
915 920 925

Ile Phe Thr Val Glu Ile Leu Leu Lys Met Thr Thr Phe Gly Ala Phe
930 935 940

Leu His Lys Gly Ala Phe Cys Arg Asn Tyr Phe Asn Leu Leu Asp Met
945 950 955 960

Leu Val Val Gly Val Ser Leu Val Ser Phe Gly Ile Gln Ser Ser Ala
965 970 975

Ile Ser Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu
980 985 990

Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys
Val
995 1000 1005

Phe Val Ala Ile Arg Thr Ile Gly Asn Ile Met Ile Val Thr Thr
1010 1015 1020

Leu Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys
1025 1030 1035

Gly Lys Phe Tyr Arg Cys Thr Asp Glu Ala Lys Ser Asn Pro Glu
1040 1045 1050

Glu Cys Arg Gly Leu Phe Ile Leu Tyr Lys Asp Gly Asp Val Asp
1055 1060 1065

Ser Pro Val Val Arg Glu Arg Ile Trp Gln Asn Ser Asp Phe Asn
1070 1075 1080

Phe Asp Asn Val Leu Ser Ala Met Met Ala Leu Phe Thr Val Ser
1085 1090 1095

```
Thr Phe  Glu Gly Trp Pro Ala  Leu Leu Tyr Lys Ala  Ile Asp Ser
    1100                1105                1110

Asn Gly  Glu Asn Ile Gly Pro  Ile Tyr Asn His Arg  Val Glu Ile
    1115                1120                1125

Ser Ile  Phe Phe Ile Ile Tyr  Ile Ile Ile Val Ala  Phe Phe Met
    1130                1135                1140

Met Asn  Ile Phe Val Gly Phe  Val Ile Val Thr Phe  Gln Glu Gln
    1145                1150                1155

Gly Glu  Lys Glu Tyr Lys Asn  Cys Glu Leu Asp Lys  Asn Gln Arg
    1160                1165                1170

Gln Cys  Val Glu Tyr Ala Leu  Lys Ala Arg Pro Leu  Arg Arg Tyr
    1175                1180                1185

Ile Pro  Lys Asn Pro Tyr Gln  Tyr Lys Phe Trp Tyr  Val Val Asn
    1190                1195                1200

Ser Ser  Pro Phe Glu Tyr Met  Met Phe Val Leu Ile  Met Leu Asn
    1205                1210                1215

Thr Leu  Cys Leu Ala Met Gln  His Tyr Glu Gln Ser  Lys Met Phe
    1220                1225                1230

Asn Asp  Ala Met Asp Ile Leu  Asn Met Val Phe Thr  Gly Val Phe
    1235                1240                1245

Thr Val  Glu Met Val Leu Lys  Val Ile Ala Phe Lys  Pro Lys Gly
    1250                1255                1260

Tyr Phe  Ser Asp Ala Trp Asn  Thr Phe Asp Ser Leu  Ile Val Ile
    1265                1270                1275

Gly Ser  Ile Ile Asp Val Ala  Leu Ser Glu Ala Asp  Asn Ser Glu
    1280                1285                1290

Glu Ser  Asn Arg Ile Ser Ile  Thr Phe Phe Arg Leu  Phe Arg Val
    1295                1300                1305
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Met Arg  Leu Val Lys Leu Leu  Ser Arg Gly Glu Gly  Ile Arg Thr
    1310                1315                1320

Leu Leu  Trp Thr Phe Ile Lys  Ser Phe Gln Ala Leu  Pro Tyr Val
    1325                1330                1335

Ala Leu  Leu Ile Ala Met Leu  Phe Phe Ile Tyr Ala  Val Ile Gly
    1340                1345                1350

Met Gln  Met Phe Gly Lys Val  Ala Met Arg Asp Asn  Asn Gln Ile
    1355                1360                1365

Asn Arg  Asn Asn Asn Phe Gln  Thr Phe Pro Gln Ala  Val Leu Leu
    1370                1375                1380

Leu Phe  Arg Cys Ala Thr Gly  Glu Ala Trp Gln Glu  Ile Met Leu
    1385                1390                1395

Ala Cys  Leu Pro Gly Lys Leu  Cys Asp Pro Glu Ser  Asp Tyr Asn
    1400                1405                1410

Pro Gly  Glu Glu Tyr Thr Cys  Gly Ser Asn Phe Ala  Ile Val Tyr
    1415                1420                1425

Phe Ile  Ser Phe Tyr Met Leu  Cys Ala Phe Leu Ile  Ile Asn Leu
    1430                1435                1440

Phe Val  Ala Val Ile Met Asp  Asn Phe Asp Tyr Leu  Thr Arg Asp
    1445                1450                1455

Trp Ser  Ile Leu Gly Pro His  His Leu Asp Glu Phe  Lys Arg Ile
    1460                1465                1470

Trp Ser  Glu Tyr Asp Pro Glu  Ala Lys Gly Arg Ile  Lys His Leu
    1475                1480                1485

Asp Val  Val Thr Leu Leu Arg  Arg Ile Gln Pro Pro  Leu Gly Phe
    1490                1495                1500

Gly Lys  Leu Cys Pro His Arg  Val Ala Cys Lys Arg  Leu Val Ala
    1505                1510                1515
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Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn Ala
1520 1525 1530

Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Lys Ile Lys Thr Glu
1535 1540 1545

Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Val Ile Lys
1550 1555 1560

Lys Ile Trp Lys Lys Thr Ser Met Lys Leu Leu Asp Gln Val Val
1565 1570 1575

Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr Ala
1580 1585 1590

Thr Phe Leu Ile Gln Asp Tyr Phe Arg Lys Phe Lys Lys Arg Lys
1595 1600 1605

Glu Gln Gly Leu Val Gly Lys Tyr Pro Ala Lys Asn Thr Thr Ile
1610 1615 1620

Ala Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile Gly Pro Glu
1625 1630 1635

Ile Arg Arg Ala Ile Ser Cys Asp Leu Gln Asp Asp Glu Pro Glu
1640 1645 1650

Glu Thr Lys Arg Glu Glu Glu Asp Asp Val Phe Lys Arg Asn Gly
1655 1660 1665

Ala Leu Leu Gly Asn His Val Asn His Val Asn Ser Asp Arg Arg
1670 1675 1680

Asp Ser Leu Gln Gln Thr Asn Thr Thr His Arg Pro Leu His Val
1685 1690 1695

Gln Arg Pro Ser Ile Pro Pro Ala Ser Asp Thr Glu Lys Pro Leu
1700 1705 1710

Phe Pro Pro Ala Gly Asn Ser Val Cys His Asn His His Asn His
1715 1720 1725

Asn Ser Ile Gly Lys Gln Val Pro Thr Ser Thr Asn Ala Asn Leu

1730 1735 1740

Asn Asn Ala Asn Met Ser Lys Ala Ala His Gly Lys Arg Pro Ser
1745 1750 1755

Ile Gly Asn Leu Glu His Val Ser Glu Asn Gly His His Ser Ser
1760 1765 1770

His Lys His Asp Arg Glu Pro Gln Arg Arg Ser Ser Val Lys Arg
1775 1780 1785

Ser Asp Ser Gly Asp Glu Gln Leu Pro Thr Ile Cys Arg Glu Asp
1790 1795 1800

Pro Glu Ile His Gly Tyr Phe Arg Asp Pro His Cys Leu Gly Glu
1805 1810 1815

Gln Glu Tyr Phe Ser Ser Glu Glu Cys Tyr Glu Asp Asp Ser Ser
1820 1825 1830

Pro Thr Trp Ser Arg Gln Asn Tyr Gly Tyr Tyr Ser Arg Tyr Pro
1835 1840 1845

Gly Arg Asn Ile Asp Ser Glu Arg Pro Arg Gly Tyr His His Pro
1850 1855 1860

Gln Gly Phe Leu Glu Asp Asp Asp Ser Pro Val Cys Tyr Asp Ser
1865 1870 1875

Arg Arg Ser Pro Arg Arg Arg Leu Leu Pro Pro Thr Pro Ala Ser
1880 1885 1890

His Arg Arg Ser Ser Phe Asn Phe Glu Cys Leu Arg Arg Gln Ser
1895 1900 1905

Ser Gln Glu Glu Val Pro Ser Ser Pro Ile Phe Pro His Arg Thr
1910 1915 1920

Ala Leu Pro Leu His Leu Met Gln Gln Gln Ile Met Ala Val Ala
1925 1930 1935

Gly Leu Asp Ser Ser Lys Ala Gln Lys Tyr Ser Pro Ser His Ser
1940 1945 1950

```
Thr Arg  Ser Trp Ala Thr Pro  Pro Ala Thr Pro Pro  Tyr Arg Asp
    1955                1960                1965

Trp Thr  Pro Cys Tyr Thr Pro  Leu Ile Gln Val Glu  Gln Ser Glu
    1970                1975                1980

Ala Leu  Asp Gln Val Asn Gly  Ser Leu Pro Ser Leu  His Arg Ser
    1985                1990                1995

Ser Trp  Tyr Thr Asp Glu Pro  Asp Ile Ser Tyr Arg  Thr Phe Thr
    2000                2005                2010

Pro Ala  Ser Leu Thr Val Pro  Ser Ser Phe Arg Asn  Lys Asn Ser
    2015                2020                2025

Asp Lys  Gln Arg Ser Ala Asp  Ser Leu Val Glu Ala  Val Leu Ile
    2030                2035                2040

Ser Glu  Gly Leu Gly Arg Tyr  Ala Arg Asp Pro Lys  Phe Val Ser
    2045                2050                2055

Ala Thr  Lys His Glu Ile Ala  Asp Ala Cys Asp Leu  Thr Ile Asp
    2060                2065                2070

Glu Met  Glu Ser Ala Ala Ser  Thr Leu Leu Asn Gly  Asn Val Arg
    2075                2080                2085

Pro Arg  Ala Asn Gly Asp Val  Gly Pro Leu Ser His  Arg Gln Asp
    2090                2095                2100

Tyr Glu  Leu Gln Asp Phe Gly  Pro Gly Tyr Ser Asp  Glu Glu Pro
    2105                2110                2115

Asp Pro  Gly Arg Asp Glu Glu  Asp Leu Ala Asp Glu  Met Ile Cys
    2120                2125                2130

Ile Thr  Thr Leu
    2135
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<210> 10752
<211> 1854
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2139; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA1D; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, L
type, alpha 1D
subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000418014"

<400> 10752

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Ala Asn Gly Thr Glu Cys Arg Ser Gly Trp Val Gly Pro Asn Gly Gly
1               5                  10                  15

Ile Thr Asn Phe Asp Asn Phe Ala Phe Ala Met Leu Thr Val Phe Gln
            20                  25                  30

Cys Ile Thr Met Glu Gly Trp Thr Asp Val Leu Tyr Trp Met Asn Asp
        35                  40                  45

Ala Met Gly Phe Glu Leu Pro Trp Val Tyr Phe Val Ser Leu Val Ile
    50                  55                  60

Phe Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
65                  70                  75                  80

Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys Ala Arg Gly Asp Phe Gln
                85                  90                  95

Lys Leu Arg Glu Lys Gln Gln Leu Glu Glu Asp Leu Lys Gly Tyr Leu
            100                 105                 110

Asp Trp Ile Thr Gln Ala Glu Asp Ile Asp Pro Glu Asn Glu Glu Glu
        115                 120                 125

Gly Gly Glu Glu Gly Lys Arg Asn Thr Ser Met Pro Thr Ser Glu Thr
    130                 135                 140
```

```
Glu Ser Val Asn Thr Glu Asn Val Ser Gly Glu Gly Glu Asn Arg Gly
145                 150                 155                 160

Cys Cys Gly Ser Leu Trp Cys Trp Trp Arg Arg Arg Gly Ala Ala Lys
                165                 170                 175

Ala Gly Pro Ser Gly Cys Arg Arg Trp Gly Gln Ala Ile Ser Lys Ser
            180                 185                 190

Lys Leu Ser Arg Arg Trp Arg Arg Trp Asn Arg Phe Asn Arg Arg Arg
        195                 200                 205

Cys Arg Ala Ala Val Lys Ser Val Thr Phe Tyr Trp Leu Val Ile Val
    210                 215                 220

Leu Val Phe Leu Asn Thr Leu Thr Ile Ser Ser Glu His Tyr Asn Gln
225                 230                 235                 240

Pro Asp Trp Leu Thr Gln Ile Gln Asp Ile Ala Asn Lys Val Leu Leu
                245                 250                 255

Ala Leu Phe Thr Cys Glu Met Leu Val Lys Met Tyr Ser Leu Gly Leu
            260                 265                 270

Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg Phe Asp Cys Phe Val Val
        275                 280                 285

Cys Gly Gly Ile Thr Glu Thr Ile Leu Val Glu Leu Glu Ile Met Ser
    290                 295                 300

Pro Leu Gly Ile Ser Val Phe Arg Cys Val Arg Leu Leu Arg Ile Phe
305                 310                 315                 320

Lys Val Thr Arg His Trp Thr Ser Leu Ser Asn Leu Val Ala Ser Leu
                325                 330                 335

Leu Asn Ser Met Lys Ser Ile Ala Ser Leu Leu Leu Leu Leu Phe Leu
            340                 345                 350

Phe Ile Ile Ile Phe Ser Leu Leu Gly Met Gln Leu Phe Gly Gly Lys
        355                 360                 365

Phe Asn Phe Asp Glu Thr Gln Thr Lys Arg Ser Thr Phe Asp Asn Phe
```

```
    370                 375                 380

Pro Gln Ala Leu Leu Thr Val Phe Gln Ile Leu Thr Gly Glu Asp Trp
385                 390                 395                 400

Asn Ala Val Met Tyr Asp Gly Ile Met Ala Tyr Gly Gly Pro Ser Ser
                405                 410                 415

Ser Gly Met Ile Val Cys Ile Tyr Phe Ile Ile Leu Phe Ile Cys Gly
            420                 425                 430

Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp Asn Leu
        435                 440                 445

Ala Asp Ala Glu Ser Leu Asn Thr Ala Gln Lys Glu Glu Ala Glu Glu
    450                 455                 460

Lys Glu Arg Lys Lys Ile Ala Arg Lys Glu Ser Leu Glu Asn Lys Lys
465                 470                 475                 480

Asn Asn Lys Pro Glu Val Asn Gln Ile Ala Asn Ser Asp Asn Lys Val
                485                 490                 495

Thr Ile Asp Asp Tyr Arg Glu Glu Asp Glu Asp Lys Asp Pro Tyr Pro
            500                 505                 510

Pro Cys Asp Val Pro Val Gly Glu Glu Glu Glu Glu Glu Glu Glu Asp
        515                 520                 525

Glu Pro Glu Val Pro Ala Gly Pro Arg Pro Arg Arg Ile Ser Glu Leu
    530                 535                 540

Asn Met Lys Glu Lys Ile Ala Pro Ile Pro Glu Gly Ser Ala Phe Phe
545                 550                 555                 560

Ile Leu Ser Lys Thr Asn Pro Ile Arg Val Gly Cys His Lys Leu Ile
                565                 570                 575

Asn His His Ile Phe Thr Asn Leu Ile Leu Val Phe Ile Met Leu Ser
            580                 585                 590

Ser Ala Ala Leu Ala Ala Glu Asp Pro Ile Arg Ser His Ser Phe Arg
        595                 600                 605
```

```
Asn Thr Ile Leu Gly Tyr Phe Asp Tyr Ala Phe Thr Ala Ile Phe Thr
    610                 615                 620

Val Glu Ile Leu Leu Lys Met Thr Thr Phe Gly Ala Phe Leu His Lys
625                 630                 635                 640

Gly Ala Phe Cys Arg Asn Tyr Phe Asn Leu Leu Asp Met Leu Val Val
                645                 650                 655

Gly Val Ser Leu Val Ser Phe Gly Ile Gln Ser Ser Ala Ile Ser Val
            660                 665                 670

Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg Ala Ile
        675                 680                 685

Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe Val Ala
    690                 695                 700

Ile Arg Thr Ile Gly Asn Ile Met Ile Val Thr Thr Leu Leu Gln Phe
705                 710                 715                 720

Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr Arg
                725                 730                 735

Cys Thr Asp Glu Ala Lys Ser Asn Pro Glu Glu Cys Arg Gly Leu Phe
            740                 745                 750

Ile Leu Tyr Lys Asp Gly Asp Val Asp Ser Pro Val Val Arg Glu Arg
        755                 760                 765

Ile Trp Gln Asn Ser Asp Phe Asn Phe Asp Asn Val Leu Ser Ala Met
    770                 775                 780

Met Ala Leu Phe Thr Val Ser Thr Phe Glu Gly Trp Pro Ala Leu Leu
785                 790                 795                 800

Tyr Lys Ala Ile Asp Ser Asn Gly Glu Asn Ile Gly Pro Ile Tyr Asn
                805                 810                 815

His Arg Val Glu Ile Ser Ile Phe Phe Ile Ile Tyr Ile Ile Ile Val
            820                 825                 830
```

```
Ala Phe Phe Met Met Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe
        835                 840                 845

Gln Glu Gln Gly Glu Lys Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn
    850                 855                 860

Gln Arg Gln Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg
865                 870                 875                 880

Tyr Ile Pro Lys Asn Pro Tyr Gln Tyr Lys Phe Trp Tyr Val Val Asn
                885                 890                 895

Ser Ser Pro Phe Glu Tyr Met Met Phe Val Leu Ile Met Leu Asn Thr
            900                 905                 910

Leu Cys Leu Ala Met Gln His Tyr Glu Gln Ser Lys Met Phe Asn Asp
        915                 920                 925

Ala Met Asp Ile Leu Asn Met Val Phe Thr Gly Val Phe Thr Val Glu
    930                 935                 940

Met Val Leu Lys Val Ile Ala Phe Lys Pro Lys His Tyr Phe Thr Asp
945                 950                 955                 960

Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val Gly Ser Val Val Asp
                965                 970                 975

Ile Ala Ile Thr Glu Val Asn Pro Thr Glu Ser Glu Asn Val Pro Val
            980                 985                 990

Pro Thr Ala Thr Pro Gly Asn Ser  Glu Glu Ser Asn Arg  Ile Ser
Ile
        995                 1000                1005

Thr Phe  Phe Arg Leu Phe Arg  Val Met Arg Leu Val  Lys Leu Leu
    1010                1015                1020

Ser Arg  Gly Glu Gly Ile Arg  Thr Leu Leu Trp Thr  Phe Ile Lys
    1025                1030                1035

Ser Phe  Gln Ala Leu Pro Tyr  Val Ala Leu Leu Ile  Ala Met Leu
    1040                1045                1050
```

```
Phe Phe  Ile Tyr Ala Val Ile  Gly Met Gln Met Phe  Gly Lys Val
    1055                1060                1065

Ala Met  Arg Asp Asn Asn Gln  Ile Asn Arg Asn Asn  Asn Phe Gln
    1070                1075                1080

Thr Phe  Pro Gln Ala Val Leu  Leu Leu Phe Arg Cys  Ala Thr Gly
    1085                1090                1095

Glu Ala  Trp Gln Glu Ile Met  Leu Ala Cys Leu Pro  Gly Lys Leu
    1100                1105                1110

Cys Asp  Pro Glu Ser Asp Tyr  Asn Pro Gly Glu Glu  Tyr Thr Cys
    1115                1120                1125

Gly Ser  Asn Phe Ala Ile Val  Tyr Phe Ile Ser Phe  Tyr Met Leu
    1130                1135                1140

Cys Ala  Phe Leu Ile Ile Asn  Leu Phe Val Ala Val  Ile Met Asp
    1145                1150                1155

Asn Phe  Asp Tyr Leu Thr Arg  Asp Trp Ser Ile Leu  Gly Pro His
    1160                1165                1170

His Leu  Asp Glu Phe Lys Arg  Ile Trp Ser Glu Tyr  Asp Pro Glu
    1175                1180                1185

Ala Lys  Gly Arg Ile Lys His  Leu Asp Val Val Thr  Leu Leu Arg
    1190                1195                1200

Arg Ile  Gln Pro Pro Leu Gly  Phe Gly Lys Leu Cys  Pro His Arg
    1205                1210                1215

Val Ala  Cys Lys Arg Leu Val  Ala Met Asn Met Pro  Leu Asn Ser
    1220                1225                1230

Asp Gly  Thr Val Met Phe Asn  Ala Thr Leu Phe Ala  Leu Val Arg
    1235                1240                1245

Thr Ala  Leu Lys Ile Lys Thr  Glu Gly Asn Leu Glu  Gln Ala Asn
    1250                1255                1260
```

```
Glu Glu  Leu Arg Ala Val Ile  Lys Lys Ile Trp Lys  Lys Thr Ser
    1265                 1270                 1275

Met Lys  Leu Leu Asp Gln Val  Val Pro Pro Ala Gly  Asp Asp Glu
    1280                 1285                 1290

Val Thr  Val Gly Lys Phe Tyr  Ala Thr Phe Leu Ile  Gln Asp Tyr
    1295                 1300                 1305

Phe Arg  Lys Phe Lys Lys Arg  Lys Glu Gln Gly Leu  Val Gly Lys
    1310                 1315                 1320

Tyr Pro  Ala Lys Asn Thr Thr  Ile Ala Leu Gln Ala  Gly Leu Arg
    1325                 1330                 1335

Thr Leu  His Asp Ile Gly Pro  Glu Ile Arg Arg Ala  Ile Ser Cys
    1340                 1345                 1350

Asp Leu  Gln Asp Asp Glu Pro  Glu Glu Thr Lys Arg  Glu Glu Glu
    1355                 1360                 1365

Asp Asp  Val Phe Lys Arg Asn  Gly Ala Leu Leu Gly  Asn His Val
    1370                 1375                 1380

Asn His  Val Asn Ser Asp Arg  Arg Asp Ser Leu Gln  Gln Thr Asn
    1385                 1390                 1395

Thr Thr  His Arg Pro Leu His  Val Gln Arg Pro Ser  Ile Pro Pro
    1400                 1405                 1410

Ala Ser  Asp Thr Glu Lys Pro  Leu Phe Pro Pro Ala  Gly Asn Ser
    1415                 1420                 1425

Val Cys  His Asn His His Asn  His Asn Ser Ile Gly  Lys Gln Val
    1430                 1435                 1440

Pro Thr  Ser Thr Asn Ala Asn  Leu Asn Asn Ala Asn  Met Ser Lys
    1445                 1450                 1455

Ala Ala  His Gly Lys Arg Pro  Ser Ile Gly Asn Leu  Glu His Val
    1460                 1465                 1470

Ser Glu  Asn Gly His His Ser  Ser His Lys His Asp  Arg Glu Pro
```

1475 1480 1485

Gln Arg Arg Ser Ser Val Lys Arg Thr Arg Tyr Tyr Glu Thr Tyr
1490 1495 1500

Ile Arg Ser Asp Ser Gly Asp Glu Gln Leu Pro Thr Ile Cys Arg
1505 1510 1515

Glu Asp Pro Glu Ile His Gly Tyr Phe Arg Asp Pro His Cys Leu
1520 1525 1530

Gly Glu Gln Glu Tyr Phe Ser Ser Glu Glu Cys Tyr Glu Asp Asp
1535 1540 1545

Ser Ser Pro Thr Trp Ser Arg Gln Asn Tyr Gly Tyr Tyr Ser Arg
1550 1555 1560

Tyr Pro Gly Arg Asn Ile Asp Ser Glu Arg Pro Arg Gly Tyr His
1565 1570 1575

His Pro Gln Gly Phe Leu Glu Asp Asp Asp Ser Pro Val Cys Tyr
1580 1585 1590

Asp Ser Arg Arg Ser Pro Arg Arg Arg Leu Leu Pro Pro Thr Pro
1595 1600 1605

Ala Ser His Arg Arg Ser Ser Phe Asn Phe Glu Cys Leu Arg Arg
1610 1615 1620

Gln Ser Ser Gln Glu Glu Val Pro Ser Ser Pro Ile Phe Pro His
1625 1630 1635

Arg Thr Ala Leu Pro Leu His Leu Met Gln Gln Gln Ile Met Ala
1640 1645 1650

Val Ala Gly Leu Asp Ser Ser Lys Ala Gln Lys Tyr Ser Pro Ser
1655 1660 1665

His Ser Thr Arg Ser Trp Ala Thr Pro Pro Ala Thr Pro Pro Tyr
1670 1675 1680

Arg Asp Trp Thr Pro Cys Tyr Thr Pro Leu Ile Gln Val Glu Gln
1685 1690 1695

```
Ser Glu  Ala Leu Asp Gln Val  Asn Gly Ser Leu Pro  Ser Leu His
    1700                1705                1710

Arg Ser  Ser Trp Tyr Thr Asp  Glu Pro Asp Ile Ser  Tyr Arg Thr
    1715                1720                1725

Phe Thr  Pro Ala Ser Leu Thr  Val Pro Ser Ser Phe  Arg Asn Lys
    1730                1735                1740

Asn Ser  Asp Lys Gln Arg Ser  Ala Asp Ser Leu Val  Glu Ala Val
    1745                1750                1755

Leu Ile  Ser Glu Gly Leu Gly  Arg Tyr Ala Arg Asp  Pro Lys Phe
    1760                1765                1770

Val Ser  Ala Thr Lys His Glu  Ile Ala Asp Ala Cys  Asp Leu Thr
    1775                1780                1785

Ile Asp  Glu Met Glu Ser Ala  Ala Ser Thr Leu Leu  Asn Gly Asn
    1790                1795                1800

Val Arg  Pro Arg Ala Asn Gly  Asp Val Gly Pro Leu  Ser His Arg
    1805                1810                1815

Gln Asp  Tyr Glu Leu Gln Asp  Phe Gly Pro Gly Tyr  Ser Asp Glu
    1820                1825                1830

Glu Pro  Asp Pro Gly Arg Asp  Glu Glu Asp Leu Ala  Asp Glu Met
    1835                1840                1845

Ile Cys  Ile Thr Thr Leu
    1850
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<210> 10753
<211> 264
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2139; "

<220>
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<223> /note="Gene Symbol: CACNA1D; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, L
type, alpha 1D
subunit; "

<220>
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10753

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Xaa Pro Cys Ala Phe Ser Gly Asn Gly Arg Gln Cys Thr Ala Asn Gly
1               5                  10                  15

Thr Glu Cys Arg Ser Gly Trp Val Gly Pro Asn Gly Gly Ile Thr Asn
            20                  25                  30

Phe Asp Asn Phe Ala Phe Ala Met Leu Thr Val Phe Gln Cys Ile Thr
        35                  40                  45

Met Glu Gly Trp Thr Asp Val Leu Tyr Trp Val Asn Asp Ala Ile Gly
    50                  55                  60

Trp Glu Trp Pro Trp Val Tyr Phe Val Ser Leu Ile Ile Leu Gly Ser
65                  70                  75                  80

Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly Glu Phe Ser
                85                  90                  95

Lys Glu Arg Glu Lys Ala Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg
            100                 105                 110

Glu Lys Gln Gln Leu Glu Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile
        115                 120                 125

Thr Gln Ala Glu Asp Ile Asp Pro Glu Asn Glu Glu Glu Gly Gly Glu
    130                 135                 140

Glu Gly Lys Arg Asn Arg Val Thr Val Ala Asp Leu Leu Lys Glu Asp
145                 150                 155                 160
```

```
Lys Lys Lys Lys Lys Phe Cys Cys Phe Arg Gln Arg Arg Ala Lys Asp
                165                 170                 175

His Ala Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn
            180                 185                 190

Val Ser Gly Glu Gly Glu Asn Arg Gly Cys Cys Gly Ser Leu Cys Gln
        195                 200                 205

Ala Ile Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp Asn Arg
    210                 215                 220

Phe Asn Arg Arg Arg Cys Arg Ala Ala Val Lys Ser Val Thr Phe Tyr
225                 230                 235                 240

Trp Leu Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile Ser Ser
                245                 250                 255

Glu His Tyr Asn Gln Pro Asp Trp
            260


<210> 10754
<211> 1966
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2140; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA1F; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, L
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      subunit; "

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<223> /note="Uniprot ID:  O60840; "

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<400> 10754
Met Ser Glu Ser Glu Gly Gly Lys Asp Thr Thr Pro Glu Pro Ser Pro
1 5 10 15

Ala Asn Gly Ala Gly Pro Gly Pro Glu Trp Gly Leu Cys Pro Gly Pro
20 25 30

Pro Ala Val Glu Gly Glu Ser Ser Gly Ala Ser Gly Leu Gly Thr Pro
35 40 45

Lys Arg Arg Asn Gln His Ser Lys His Lys Thr Val Ala Val Ala Ser
50 55 60

Ala Gln Arg Ser Pro Arg Ala Leu Phe Cys Leu Thr Leu Ala Asn Pro
65 70 75 80

Leu Arg Arg Ser Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Asp Ile
85 90 95

Leu Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Gly Val Tyr
100 105 110

Ile Pro Phe Pro Glu Asp Asp Ser Asn Thr Ala Asn His Asn Leu Glu
115 120 125

Gln Val Glu Tyr Val Phe Leu Val Ile Phe Thr Val Glu Thr Val Leu
130 135 140

Lys Ile Val Ala Tyr Gly Leu Val Leu His Pro Ser Ala Tyr Ile Arg
145 150 155 160

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
165 170 175

Ser Val Leu Leu Glu Gln Gly Pro Gly Arg Pro Gly Asp Ala Pro His
180 185 190

Thr Gly Gly Lys Pro Gly Gly Phe Asp Val Lys Ala Leu Arg Ala Phe
195 200 205

Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu His
210 215 220

```
Ile Val Leu Asn Ser Ile Met Lys Ala Leu Val Pro Leu Leu His Ile
225                 230                 235                 240

Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu
                245                 250                 255

Glu Leu Phe Leu Gly Arg Met His Lys Thr Cys Tyr Phe Leu Gly Ser
            260                 265                 270

Asp Met Glu Ala Glu Glu Asp Pro Ser Pro Cys Ala Ser Ser Gly Ser
        275                 280                 285

Gly Arg Ala Cys Thr Leu Asn Gln Thr Glu Cys Arg Gly Arg Trp Pro
    290                 295                 300

Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Phe Phe Ala Met
305                 310                 315                 320

Leu Thr Val Phe Gln Cys Val Thr Met Glu Gly Trp Thr Asp Val Leu
                325                 330                 335

Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr Phe
            340                 345                 350

Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val Leu
        355                 360                 365

Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys Ala
    370                 375                 380

Arg Gly Asp Phe Gln Lys Gln Arg Glu Lys Gln Gln Met Glu Glu Asp
385                 390                 395                 400

Leu Arg Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Glu Leu Asp Met
                405                 410                 415

Glu Asp Pro Ser Ala Asp Asp Asn Leu Gly Pro Gln Leu Ala Glu Leu
            420                 425                 430

Thr Asn Arg Arg Arg Gly Arg Leu Arg Trp Phe Ser His Ser Thr Arg
        435                 440                 445

Ser Thr His Ser Thr Ser Ser His Ala Ser Leu Pro Ala Ser Asp Thr
```

```
    450                 455                 460

Gly Ser Met Thr Glu Thr Gln Gly Asp Glu Asp Glu Glu Glu Gly Ala
465                 470                 475                 480

Leu Ala Ser Cys Thr Arg Cys Leu Asn Lys Ile Met Lys Thr Arg Val
                485                 490                 495

Cys Arg Arg Leu Arg Arg Ala Asn Arg Val Leu Arg Ala Arg Cys Arg
            500                 505                 510

Arg Ala Val Lys Ser Asn Ala Cys Tyr Trp Ala Val Leu Leu Leu Val
        515                 520                 525

Phe Leu Asn Thr Leu Thr Ile Ala Ser Glu His His Gly Gln Pro Val
    530                 535                 540

Trp Leu Thr Gln Ile Gln Glu Tyr Ala Asn Lys Val Leu Leu Cys Leu
545                 550                 555                 560

Phe Thr Val Glu Met Leu Leu Lys Leu Tyr Gly Leu Gly Pro Ser Ala
                565                 570                 575

Tyr Val Ser Ser Phe Phe Asn Arg Phe Asp Cys Phe Val Val Cys Gly
            580                 585                 590

Gly Ile Leu Glu Thr Thr Leu Val Glu Val Gly Ala Met Gln Pro Leu
        595                 600                 605

Gly Ile Ser Val Leu Arg Cys Val Arg Leu Leu Arg Ile Phe Lys Val
    610                 615                 620

Thr Arg His Trp Ala Ser Leu Ser Asn Leu Val Ala Ser Leu Leu Asn
625                 630                 635                 640

Ser Met Lys Ser Ile Ala Ser Leu Leu Leu Leu Leu Phe Leu Phe Ile
                645                 650                 655

Ile Ile Phe Ser Leu Leu Gly Met Gln Leu Phe Gly Gly Lys Phe Asn
            660                 665                 670

Phe Asp Gln Thr His Thr Lys Arg Ser Thr Phe Asp Thr Phe Pro Gln
        675                 680                 685
```

```
Ala Leu Leu Thr Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Val
    690                 695                 700

Val Met Tyr Asp Gly Ile Met Ala Tyr Gly Gly Pro Phe Phe Pro Gly
705                 710                 715                 720

Met Leu Val Cys Ile Tyr Phe Ile Ile Leu Phe Ile Cys Gly Asn Tyr
                725                 730                 735

Ile Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Ser
            740                 745                 750

Gly Asp Ala Gly Thr Ala Lys Asp Lys Gly Gly Glu Lys Ser Asn Glu
        755                 760                 765

Lys Asp Leu Pro Gln Glu Asn Glu Gly Leu Val Pro Gly Val Glu Lys
    770                 775                 780

Glu Glu Glu Glu Gly Ala Arg Arg Glu Gly Ala Asp Met Glu Glu Glu
785                 790                 795                 800

Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Gly Ala
                805                 810                 815

Gly Gly Val Glu Leu Leu Gln Glu Val Val Pro Lys Glu Lys Val Val
            820                 825                 830

Pro Ile Pro Glu Gly Ser Ala Phe Phe Cys Leu Ser Gln Thr Asn Pro
        835                 840                 845

Leu Arg Lys Gly Cys His Thr Leu Ile His His His Val Phe Thr Asn
    850                 855                 860

Leu Ile Leu Val Phe Ile Ile Leu Ser Ser Val Ser Leu Ala Ala Glu
865                 870                 875                 880

Asp Pro Ile Arg Ala His Ser Phe Arg Asn His Ile Leu Gly Tyr Phe
                885                 890                 895

Asp Tyr Ala Phe Thr Ser Ile Phe Thr Val Glu Ile Leu Leu Lys Met
            900                 905                 910
```

```
Thr Val Phe Gly Ala Phe Leu His Arg Gly Ser Phe Cys Arg Ser Trp
        915                 920                 925

Phe Asn Met Leu Asp Leu Leu Val Val Ser Val Ser Leu Ile Ser Phe
    930                 935                 940

Gly Ile His Ser Ser Ala Ile Ser Val Val Lys Ile Leu Arg Val Leu
945                 950                 955                 960

Arg Val Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys
                965                 970                 975

His Val Val Gln Cys Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile
            980                 985                 990

Met Ile Val Thr Thr Leu Leu Gln  Phe Met Phe Ala Cys  Ile Gly
Val
        995                 1000                1005

Gln Leu  Phe Lys Gly Lys Phe  Tyr Thr Cys Thr Asp  Glu Ala Lys
    1010                1015                1020

His Thr  Pro Gln Glu Cys Lys  Gly Ser Phe Leu Val  Tyr Pro Asp
    1025                1030                1035

Gly Asp  Val Ser Arg Pro Leu  Val Arg Glu Arg Leu  Trp Val Asn
    1040                1045                1050

Ser Asp  Phe Asn Phe Asp Asn  Val Leu Ser Ala Met  Met Ala Leu
    1055                1060                1065

Phe Thr  Val Ser Thr Phe Glu  Gly Trp Pro Ala Leu  Leu Tyr Lys
    1070                1075                1080

Ala Ile  Asp Ala Tyr Ala Glu  Asp His Gly Pro Ile  Tyr Asn Tyr
    1085                1090                1095

Arg Val  Glu Ile Ser Val Phe  Phe Ile Val Tyr Ile  Ile Ile Ile
    1100                1105                1110

Ala Phe  Phe Met Met Asn Ile  Phe Val Gly Phe Val  Ile Ile Thr
    1115                1120                1125
```

```
Phe Arg  Ala Gln Gly Glu Gln  Glu Tyr Gln Asn Cys  Glu Leu Asp
    1130                1135                1140

Lys Asn  Gln Arg Gln Cys Val  Glu Tyr Ala Leu Lys  Ala Gln Pro
    1145                1150                1155

Leu Arg  Arg Tyr Ile Pro Lys  Asn Pro His Gln Tyr  Arg Val Trp
    1160                1165                1170

Ala Thr  Val Asn Ser Ala Ala  Phe Glu Tyr Leu Met  Phe Leu Leu
    1175                1180                1185

Ile Leu  Leu Asn Thr Val Ala  Leu Ala Met Gln His  Tyr Glu Gln
    1190                1195                1200

Thr Ala  Pro Phe Asn Tyr Ala  Met Asp Ile Leu Asn  Met Val Phe
    1205                1210                1215

Thr Gly  Leu Phe Thr Ile Glu  Met Val Leu Lys Ile  Ile Ala Phe
    1220                1225                1230

Lys Pro  Lys His Tyr Phe Thr  Asp Ala Trp Asn Thr  Phe Asp Ala
    1235                1240                1245

Leu Ile  Val Val Gly Ser Ile  Val Asp Ile Ala Val  Thr Glu Val
    1250                1255                1260

Asn Asn  Gly Gly His Leu Gly  Glu Ser Ser Glu Asp  Ser Ser Arg
    1265                1270                1275

Ile Ser  Ile Thr Phe Phe Arg  Leu Phe Arg Val Met  Arg Leu Val
    1280                1285                1290

Lys Leu  Leu Ser Lys Gly Glu  Gly Ile Arg Thr Leu  Leu Trp Thr
    1295                1300                1305

Phe Ile  Lys Ser Phe Gln Ala  Leu Pro Tyr Val Ala  Leu Leu Ile
    1310                1315                1320

Ala Met  Ile Phe Phe Ile Tyr  Ala Val Ile Gly Met  Gln Met Phe
    1325                1330                1335
```

```
Gly Lys  Val Ala Leu Gln Asp  Gly Thr Gln Ile Asn  Arg Asn Asn
    1340                1345                1350

Asn Phe  Gln Thr Phe Pro Gln  Ala Val Leu Leu Leu  Phe Arg Cys
    1355                1360                1365

Ala Thr  Gly Glu Ala Trp Gln  Glu Ile Met Leu Ala  Ser Leu Pro
    1370                1375                1380

Gly Asn  Arg Cys Asp Pro Glu  Ser Asp Phe Gly Pro  Gly Glu Glu
    1385                1390                1395

Phe Thr  Cys Gly Ser Asn Phe  Ala Ile Ala Tyr Phe  Ile Ser Phe
    1400                1405                1410

Phe Met  Leu Cys Ala Phe Leu  Ile Ile Asn Leu Phe  Val Ala Val
    1415                1420                1425

Ile Met  Asp Asn Phe Asp Tyr  Leu Thr Arg Asp Trp  Ser Ile Leu
    1430                1435                1440

Gly Pro  His His Leu Asp Glu  Phe Lys Arg Ile Trp  Ser Glu Tyr
    1445                1450                1455

Asp Pro  Gly Ala Lys Gly Arg  Ile Lys His Leu Asp  Val Val Ala
    1460                1465                1470

Leu Leu  Arg Arg Ile Gln Pro  Pro Leu Gly Phe Gly  Lys Leu Cys
    1475                1480                1485

Pro His  Arg Val Ala Cys Lys  Arg Leu Val Ala Met  Asn Met Pro
    1490                1495                1500

Leu Asn  Ser Asp Gly Thr Val  Thr Phe Asn Ala Thr  Leu Phe Ala
    1505                1510                1515

Leu Val  Arg Thr Ser Leu Lys  Ile Lys Thr Glu Gly  Asn Leu Glu
    1520                1525                1530

Gln Ala  Asn Gln Glu Leu Arg  Ile Val Ile Lys Lys  Ile Trp Lys
    1535                1540                1545

Arg Met  Lys Gln Lys Leu Leu  Asp Glu Val Ile Pro  Pro Pro Asp
```

```
    1550                1555                1560

Glu Glu  Glu Val Thr Val Gly  Lys Phe Tyr Ala Thr  Phe Leu Ile
    1565                1570                1575

Gln Asp  Tyr Phe Arg Lys Phe  Arg Arg Arg Lys Glu  Lys Gly Leu
    1580                1585                1590

Leu Gly  Asn Asp Ala Ala Pro  Ser Thr Ser Ser Ala  Leu Gln Ala
    1595                1600                1605

Gly Leu  Arg Ser Leu Gln Asp  Leu Gly Pro Glu Met  Arg Gln Ala
    1610                1615                1620

Leu Thr  Cys Asp Thr Glu Glu  Glu Glu Glu Glu Gly  Gln Glu Gly
    1625                1630                1635

Val Glu  Glu Glu Asp Glu Lys  Asp Leu Glu Thr Asn  Lys Ala Thr
    1640                1645                1650

Met Val  Ser Gln Pro Ser Ala  Arg Arg Gly Ser Gly  Ile Ser Val
    1655                1660                1665

Ser Leu  Pro Val Gly Asp Arg  Leu Pro Asp Ser Leu  Ser Phe Gly
    1670                1675                1680

Pro Ser  Asp Asp Asp Arg Gly  Thr Pro Thr Ser Ser  Gln Pro Ser
    1685                1690                1695

Val Pro  Gln Ala Gly Ser Asn  Thr His Arg Arg Gly  Ser Gly Ala
    1700                1705                1710

Leu Ile  Phe Thr Ile Pro Glu  Glu Gly Asn Ser Gln  Pro Lys Gly
    1715                1720                1725

Thr Lys  Gly Gln Asn Lys Gln  Asp Glu Asp Glu Glu  Val Pro Asp
    1730                1735                1740

Arg Leu  Ser Tyr Leu Asp Glu  Gln Ala Gly Thr Pro  Pro Cys Ser
    1745                1750                1755

Val Leu  Leu Pro Pro His Arg  Ala Gln Arg Tyr Met  Asp Gly His
    1760                1765                1770
```

```
Leu Val  Pro Arg Arg Arg Leu  Leu Pro Pro Thr Pro  Ala Gly Arg
    1775                1780                1785

Lys Pro  Ser Phe Thr Ile Gln  Cys Leu Gln Arg Gln  Gly Ser Cys
    1790                1795                1800

Glu Asp  Leu Pro Ile Pro Gly  Thr Tyr His Arg Gly  Arg Asn Ser
    1805                1810                1815

Gly Pro  Asn Arg Ala Gln Gly  Ser Trp Ala Thr Pro  Pro Gln Arg
    1820                1825                1830

Gly Arg  Leu Leu Tyr Ala Pro  Leu Leu Leu Val Glu  Glu Gly Ala
    1835                1840                1845

Ala Gly  Glu Gly Tyr Leu Gly  Arg Ser Ser Gly Pro  Leu Arg Thr
    1850                1855                1860

Phe Thr  Cys Leu His Val Pro  Gly Thr His Ser Asp  Pro Ser His
    1865                1870                1875

Gly Lys  Arg Gly Ser Ala Asp  Ser Leu Val Glu Ala  Val Leu Ile
    1880                1885                1890

Ser Glu  Gly Leu Gly Leu Phe  Ala Arg Asp Pro Arg  Phe Val Ala
    1895                1900                1905

Leu Ala  Lys Gln Glu Ile Ala  Asp Ala Cys Arg Leu  Thr Leu Asp
    1910                1915                1920

Glu Met  Asp Asn Ala Ala Ser  Asp Leu Leu Ala Gln  Gly Thr Ser
    1925                1930                1935

Ser Leu  Tyr Ser Asp Glu Glu  Ser Ile Leu Ser Arg  Phe Asp Glu
    1940                1945                1950

Glu Asp  Leu Gly Asp Glu Met  Ala Cys Val His Ala  Leu
    1955                1960                1965
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<210> 10755
<211> 1912
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2140; "

<220>
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<400> 10755

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Met Ser Glu Ser Glu Gly Gly Lys Gly Glu Arg Ile Leu Pro Ser Leu
1               5                  10                  15


Gln Thr Leu Gly Ala Ser Ile Val Glu Trp Lys Pro Phe Asp Ile Leu
            20                  25                  30


Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Gly Val Tyr Ile
        35                  40                  45


Pro Phe Pro Glu Asp Asp Ser Asn Thr Ala Asn His Asn Leu Glu Gln
    50                  55                  60


Val Glu Tyr Val Phe Leu Val Ile Phe Thr Val Glu Thr Val Leu Lys
65                  70                  75                  80


Ile Val Ala Tyr Gly Leu Val Leu His Pro Ser Ala Tyr Ile Arg Asn
                85                  90                  95


Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe Ser
            100                 105                 110


Val Leu Leu Glu Gln Gly Pro Gly Arg Pro Gly Asp Ala Pro His Thr
        115                 120                 125
```

```
Gly Gly Lys Pro Gly Gly Phe Asp Val Lys Ala Leu Arg Ala Phe Arg
    130                 135                 140

Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu His Ile
145                 150                 155                 160

Val Leu Asn Ser Ile Met Lys Ala Leu Val Pro Leu Leu His Ile Ala
                165                 170                 175

Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu Glu
            180                 185                 190

Leu Phe Leu Gly Arg Met His Lys Thr Cys Tyr Phe Leu Gly Ser Asp
        195                 200                 205

Met Glu Ala Glu Glu Asp Pro Ser Pro Cys Ala Ser Ser Gly Ser Gly
    210                 215                 220

Arg Ala Cys Thr Leu Asn Gln Thr Glu Cys Arg Gly Arg Trp Pro Gly
225                 230                 235                 240

Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Phe Phe Ala Met Leu
                245                 250                 255

Thr Val Phe Gln Cys Val Thr Met Glu Gly Trp Thr Asp Val Leu Tyr
            260                 265                 270

Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr Phe Val
        275                 280                 285

Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly
    290                 295                 300

Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys Ala Arg
305                 310                 315                 320

Gly Asp Phe Gln Lys Gln Arg Glu Lys Gln Gln Met Glu Glu Asp Leu
                325                 330                 335

Arg Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Glu Leu Asp Met Glu
            340                 345                 350

Asp Pro Ser Ala Asp Asp Asn Leu Gly Ser Met Ala Glu Glu Gly Arg
```

355 360 365

Ala Gly His Arg Pro Gln Leu Ala Glu Leu Thr Asn Arg Arg Arg Gly
370 375 380

Arg Leu Arg Trp Phe Ser His Ser Thr Arg Ser Thr His Ser Thr Ser
385 390 395 400

Ser His Ala Ser Leu Pro Ala Ser Asp Thr Gly Ser Met Thr Glu Thr
405 410 415

Gln Gly Asp Glu Asp Glu Glu Glu Gly Ala Leu Ala Ser Cys Thr Arg
420 425 430

Cys Leu Asn Lys Ile Met Lys Thr Arg Val Cys Arg Arg Leu Arg Arg
435 440 445

Ala Asn Arg Val Leu Arg Ala Arg Cys Arg Arg Ala Val Lys Ser Asn
450 455 460

Ala Cys Tyr Trp Ala Val Leu Leu Leu Val Phe Leu Asn Thr Leu Thr
465 470 475 480

Ile Ala Ser Glu His His Gly Gln Pro Val Trp Leu Thr Gln Ile Gln
485 490 495

Glu Tyr Ala Asn Lys Val Leu Leu Cys Leu Phe Thr Val Glu Met Leu
500 505 510

Leu Lys Leu Tyr Gly Leu Gly Pro Ser Ala Tyr Val Ser Ser Phe Phe
515 520 525

Asn Arg Phe Asp Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr Thr
530 535 540

Leu Val Glu Val Gly Ala Met Gln Pro Leu Gly Ile Ser Val Leu Arg
545 550 555 560

Cys Val Arg Leu Leu Arg Ile Phe Lys Val Thr Arg His Trp Ala Ser
565 570 575

Leu Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala
580 585 590

```
Ser Leu Leu Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu
        595                 600                 605

Gly Met Gln Leu Phe Gly Gly Lys Phe Asn Phe Asp Gln Thr His Thr
    610                 615                 620

Lys Arg Ser Thr Phe Asp Thr Phe Pro Gln Ala Leu Leu Thr Val Phe
625                 630                 635                 640

Gln Ile Leu Thr Gly Glu Asp Trp Asn Val Val Met Tyr Asp Gly Ile
                645                 650                 655

Met Ala Tyr Gly Gly Pro Phe Phe Pro Gly Met Leu Val Cys Ile Tyr
            660                 665                 670

Phe Ile Ile Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe
        675                 680                 685

Leu Ala Ile Ala Val Asp Asn Leu Ala Ser Gly Asp Ala Gly Thr Ala
    690                 695                 700

Lys Asp Lys Gly Gly Glu Lys Ser Asn Glu Lys Asp Leu Pro Gln Glu
705                 710                 715                 720

Asn Glu Gly Leu Val Pro Gly Val Glu Lys Glu Glu Glu Glu Gly Ala
                725                 730                 735

Arg Arg Glu Gly Ala Asp Met Glu Glu Glu Glu Glu Glu Glu Glu Glu
            740                 745                 750

Glu Glu Glu Glu Glu Glu Glu Glu Gly Ala Gly Gly Val Glu Leu Leu
        755                 760                 765

Gln Glu Val Val Pro Lys Glu Lys Val Val Pro Ile Pro Glu Gly Ser
    770                 775                 780

Ala Phe Phe Cys Leu Ser Gln Thr Asn Pro Leu Arg Lys Gly Cys His
785                 790                 795                 800

Thr Leu Ile His His His Val Phe Thr Asn Leu Ile Leu Val Phe Ile
                805                 810                 815
```

```
Ile Leu Ser Ser Val Ser Leu Ala Ala Glu Asp Pro Ile Arg Ala His
            820                 825                 830

Ser Phe Arg Asn His Ile Leu Gly Tyr Phe Asp Tyr Ala Phe Thr Ser
        835                 840                 845

Ile Phe Thr Val Glu Ile Leu Leu Lys Met Thr Val Phe Gly Ala Phe
    850                 855                 860

Leu His Arg Gly Ser Phe Cys Arg Ser Trp Phe Asn Met Leu Asp Leu
865                 870                 875                 880

Leu Val Val Ser Val Ser Leu Ile Ser Phe Gly Ile His Ser Ser Ala
                885                 890                 895

Ile Ser Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu
            900                 905                 910

Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys Val
        915                 920                 925

Phe Val Ala Ile Arg Thr Ile Gly Asn Ile Met Ile Val Thr Thr Leu
    930                 935                 940

Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys Gly Lys
945                 950                 955                 960

Phe Tyr Thr Cys Thr Asp Glu Ala Lys His Thr Pro Gln Glu Cys Lys
                965                 970                 975

Gly Ser Phe Leu Val Tyr Pro Asp Gly Asp Val Ser Arg Pro Leu Val
            980                 985                 990

Arg Glu Arg Leu Trp Val Asn Ser  Asp Phe Asn Phe Asp  Asn Val
Leu
        995                 1000                1005

Ser Ala  Met Met Ala Leu Phe  Thr Val Ser Thr Phe  Glu Gly Trp
    1010                1015                1020

Pro Ala  Leu Leu Tyr Lys Ala  Ile Asp Ala Tyr Ala  Glu Asp His
    1025                1030                1035
```

```
Gly Pro  Ile Tyr Asn Tyr Arg  Val Glu Ile Ser Val  Phe Phe Ile
    1040                1045                1050

Val Tyr  Ile Ile Ile Ile Ala  Phe Phe Met Met Asn  Ile Phe Val
    1055                1060                1065

Gly Phe  Val Ile Ile Thr Phe  Arg Ala Gln Gly Glu  Gln Glu Tyr
    1070                1075                1080

Gln Asn  Cys Glu Leu Asp Lys  Asn Gln Arg Gln Cys  Val Glu Tyr
    1085                1090                1095

Ala Leu  Lys Ala Gln Pro Leu  Arg Arg Tyr Ile Pro  Lys Asn Pro
    1100                1105                1110

His Gln  Tyr Arg Val Trp Ala  Thr Val Asn Ser Ala  Ala Phe Glu
    1115                1120                1125

Tyr Leu  Met Phe Leu Leu Ile  Leu Leu Asn Thr Val  Ala Leu Ala
    1130                1135                1140

Met Gln  His Tyr Glu Gln Thr  Ala Pro Phe Asn Tyr  Ala Met Asp
    1145                1150                1155

Ile Leu  Asn Met Val Phe Thr  Gly Leu Phe Thr Ile  Glu Met Val
    1160                1165                1170

Leu Lys  Ile Ile Ala Phe Lys  Pro Lys His Tyr Phe  Thr Asp Ala
    1175                1180                1185

Trp Asn  Thr Phe Asp Ala Leu  Ile Val Val Gly Ser  Ile Val Asp
    1190                1195                1200

Ile Ala  Val Thr Glu Val Asn  Asn Gly Gly His Leu  Gly Glu Ser
    1205                1210                1215

Ser Glu  Asp Ser Ser Arg Ile  Ser Ile Thr Phe Phe  Arg Leu Phe
    1220                1225                1230

Arg Val  Met Arg Leu Val Lys  Leu Leu Ser Lys Gly  Glu Gly Ile
    1235                1240                1245
```

Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln Ala Leu Pro
1250 1255 1260

Tyr Val Ala Leu Leu Ile Ala Met Ile Phe Phe Ile Tyr Ala Val
1265 1270 1275

Ile Gly Met Gln Met Phe Gly Lys Val Ala Leu Gln Asp Gly Thr
1280 1285 1290

Gln Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala Val
1295 1300 1305

Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln Glu Ile
1310 1315 1320

Met Leu Ala Ser Leu Pro Gly Asn Arg Cys Asp Pro Glu Ser Asp
1325 1330 1335

Phe Gly Pro Gly Glu Glu Phe Thr Cys Gly Ser Asn Phe Ala Ile
1340 1345 1350

Ala Tyr Phe Ile Ser Phe Phe Met Leu Cys Ala Phe Leu Ile Ile
1355 1360 1365

Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu Thr
1370 1375 1380

Arg Asp Trp Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys
1385 1390 1395

Arg Ile Trp Ser Glu Tyr Asp Pro Gly Ala Lys Gly Arg Ile Lys
1400 1405 1410

His Leu Asp Val Val Ala Leu Leu Arg Arg Ile Gln Pro Pro Leu
1415 1420 1425

Gly Phe Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu
1430 1435 1440

Val Ala Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Thr Phe
1445 1450 1455

Asn Ala Thr Leu Phe Ala Leu Val Arg Thr Ser Leu Lys Ile Lys

1460 1465 1470

Thr Glu Gly Asn Leu Glu Gln Ala Asn Gln Glu Leu Arg Ile Val
1475 1480 1485

Ile Lys Lys Ile Trp Lys Arg Met Lys Gln Lys Leu Leu Asp Glu
1490 1495 1500

Val Ile Pro Pro Pro Asp Glu Glu Glu Val Thr Val Gly Lys Phe
1505 1510 1515

Tyr Ala Thr Phe Leu Ile Gln Asp Tyr Phe Arg Lys Phe Arg Arg
1520 1525 1530

Arg Lys Glu Lys Gly Leu Leu Gly Asn Asp Ala Ala Pro Ser Thr
1535 1540 1545

Ser Ser Ala Leu Gln Ala Gly Leu Arg Ser Leu Gln Asp Leu Gly
1550 1555 1560

Pro Glu Met Arg Gln Ala Leu Thr Cys Asp Thr Glu Glu Glu Glu
1565 1570 1575

Glu Glu Gly Gln Glu Gly Val Glu Glu Glu Asp Glu Lys Asp Leu
1580 1585 1590

Glu Thr Asn Lys Ala Thr Met Val Ser Gln Pro Ser Ala Arg Arg
1595 1600 1605

Gly Ser Gly Ile Ser Val Ser Leu Pro Val Gly Asp Arg Leu Pro
1610 1615 1620

Asp Ser Leu Ser Phe Gly Pro Ser Asp Asp Asp Arg Gly Thr Pro
1625 1630 1635

Thr Ser Ser Gln Pro Ser Val Pro Gln Ala Gly Ser Asn Thr His
1640 1645 1650

Arg Arg Gly Ser Gly Ala Leu Ile Phe Thr Ile Pro Glu Glu Gly
1655 1660 1665

Asn Ser Gln Pro Lys Gly Thr Lys Gly Gln Asn Lys Gln Asp Glu
1670 1675 1680

```
Asp Glu  Glu Val Pro Asp Arg  Leu Ser Tyr Leu Asp  Glu Gln Ala
    1685                 1690                 1695

Gly Thr  Pro Pro Cys Ser Val  Leu Leu Pro Pro His  Arg Ala Gln
    1700                 1705                 1710

Arg Tyr  Met Asp Gly His Leu  Val Pro Arg Arg Arg  Leu Leu Pro
    1715                 1720                 1725

Pro Thr  Pro Ala Gly Arg Lys  Pro Ser Phe Thr Ile  Gln Cys Leu
    1730                 1735                 1740

Gln Arg  Gln Gly Ser Cys Glu  Asp Leu Pro Ile Pro  Gly Thr Tyr
    1745                 1750                 1755

His Arg  Gly Arg Asn Ser Gly  Pro Asn Arg Ala Gln  Gly Ser Trp
    1760                 1765                 1770

Ala Thr  Pro Pro Gln Arg Gly  Arg Leu Leu Tyr Ala  Pro Leu Leu
    1775                 1780                 1785

Leu Val  Glu Glu Gly Ala Ala  Gly Glu Gly Tyr Leu  Gly Arg Ser
    1790                 1795                 1800

Ser Gly  Pro Leu Arg Thr Phe  Thr Cys Leu His Val  Pro Gly Thr
    1805                 1810                 1815

His Ser  Asp Pro Ser His Gly  Lys Arg Gly Ser Ala  Asp Ser Leu
    1820                 1825                 1830

Val Glu  Ala Val Leu Ile Ser  Glu Gly Leu Gly Leu  Phe Ala Arg
    1835                 1840                 1845

Asp Pro  Arg Phe Val Ala Leu  Ala Lys Gln Glu Ile  Ala Asp Ala
    1850                 1855                 1860

Cys Arg  Leu Thr Leu Asp Glu  Met Asp Asn Ala Ala  Ser Asp Leu
    1865                 1870                 1875

Leu Ala  Gln Gly Thr Ser Ser  Leu Tyr Ser Asp Glu  Glu Ser Ile
    1880                 1885                 1890
```

```
Leu Ser  Arg Phe Asp Glu Glu  Asp Leu Gly Asp Glu  Met Ala Cys
    1895                1900                1905


Val His  Ala Leu
    1910


<210> 10756
<211> 1977
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Uniprot ID:  O60840; "

<220>
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<400> 10756
Met Ser Glu Ser Glu Gly Gly Lys Asp Thr Thr Pro Glu Pro Ser Pro
1               5                  10                  15


Ala Asn Gly Ala Gly Pro Gly Pro Glu Trp Gly Leu Cys Pro Gly Pro
            20                  25                  30


Pro Ala Val Glu Gly Glu Ser Ser Gly Ala Ser Gly Leu Gly Thr Pro
        35                  40                  45


Lys Arg Arg Asn Gln His Ser Lys His Lys Thr Val Ala Val Ala Ser
    50                  55                  60


Ala Gln Arg Ser Pro Arg Ala Leu Phe Cys Leu Thr Leu Ala Asn Pro
65                  70                  75                  80
```

```
Leu Arg Arg Ser Cys Ile Ser Ile Val Glu Trp Lys Pro Phe Asp Ile
                85                  90                  95

Leu Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu Gly Val Tyr
            100                 105                 110

Ile Pro Phe Pro Glu Asp Asp Ser Asn Thr Ala Asn His Asn Leu Glu
        115                 120                 125

Gln Val Glu Tyr Val Phe Leu Val Ile Phe Thr Val Glu Thr Val Leu
    130                 135                 140

Lys Ile Val Ala Tyr Gly Leu Val Leu His Pro Ser Ala Tyr Ile Arg
145                 150                 155                 160

Asn Gly Trp Asn Leu Leu Asp Phe Ile Ile Val Val Val Gly Leu Phe
                165                 170                 175

Ser Val Leu Leu Glu Gln Gly Pro Gly Arg Pro Gly Asp Ala Pro His
            180                 185                 190

Thr Gly Gly Lys Pro Gly Gly Phe Asp Val Lys Ala Leu Arg Ala Phe
        195                 200                 205

Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser Leu His
    210                 215                 220

Ile Val Leu Asn Ser Ile Met Lys Ala Leu Val Pro Leu Leu His Ile
225                 230                 235                 240

Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile Gly Leu
                245                 250                 255

Glu Leu Phe Leu Gly Arg Met His Lys Thr Cys Tyr Phe Leu Gly Ser
            260                 265                 270

Asp Met Glu Ala Glu Glu Asp Pro Ser Pro Cys Ala Ser Ser Gly Ser
        275                 280                 285

Gly Arg Ala Cys Thr Leu Asn Gln Thr Glu Cys Arg Gly Arg Trp Pro
    290                 295                 300

Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Phe Phe Ala Met
```

305 310 315 320

Leu Thr Val Phe Gln Cys Val Thr Met Glu Gly Trp Thr Asp Val Leu
325 330 335

Tyr Trp Met Gln Asp Ala Met Gly Tyr Glu Leu Pro Trp Val Tyr Phe
340 345 350

Val Ser Leu Val Ile Phe Gly Ser Phe Phe Val Leu Asn Leu Val Leu
355 360 365

Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala Lys Ala
370 375 380

Arg Gly Asp Phe Gln Lys Gln Arg Glu Lys Gln Gln Met Glu Glu Asp
385 390 395 400

Leu Arg Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Glu Leu Asp Met
405 410 415

Glu Asp Pro Ser Ala Asp Asp Asn Leu Gly Ser Met Ala Glu Glu Gly
420 425 430

Arg Ala Gly His Arg Pro Gln Leu Ala Glu Leu Thr Asn Arg Arg Arg
435 440 445

Gly Arg Leu Arg Trp Phe Ser His Ser Thr Arg Ser Thr His Ser Thr
450 455 460

Ser Ser His Ala Ser Leu Pro Ala Ser Asp Thr Gly Ser Met Thr Glu
465 470 475 480

Thr Gln Gly Asp Glu Asp Glu Glu Glu Gly Ala Leu Ala Ser Cys Thr
485 490 495

Arg Cys Leu Asn Lys Ile Met Lys Thr Arg Val Cys Arg Arg Leu Arg
500 505 510

Arg Ala Asn Arg Val Leu Arg Ala Arg Cys Arg Arg Ala Val Lys Ser
515 520 525

Asn Ala Cys Tyr Trp Ala Val Leu Leu Leu Val Phe Leu Asn Thr Leu
530 535 540

```
Thr Ile Ala Ser Glu His His Gly Gln Pro Val Trp Leu Thr Gln Ile
545                 550                 555                 560

Gln Glu Tyr Ala Asn Lys Val Leu Leu Cys Leu Phe Thr Val Glu Met
                565                 570                 575

Leu Leu Lys Leu Tyr Gly Leu Gly Pro Ser Ala Tyr Val Ser Ser Phe
            580                 585                 590

Phe Asn Arg Phe Asp Cys Phe Val Val Cys Gly Gly Ile Leu Glu Thr
        595                 600                 605

Thr Leu Val Glu Val Gly Ala Met Gln Pro Leu Gly Ile Ser Val Leu
    610                 615                 620

Arg Cys Val Arg Leu Leu Arg Ile Phe Lys Val Thr Arg His Trp Ala
625                 630                 635                 640

Ser Leu Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Met Lys Ser Ile
                645                 650                 655

Ala Ser Leu Leu Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu
            660                 665                 670

Leu Gly Met Gln Leu Phe Gly Gly Lys Phe Asn Phe Asp Gln Thr His
        675                 680                 685

Thr Lys Arg Ser Thr Phe Asp Thr Phe Pro Gln Ala Leu Leu Thr Val
    690                 695                 700

Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Val Val Met Tyr Asp Gly
705                 710                 715                 720

Ile Met Ala Tyr Gly Gly Pro Phe Phe Pro Gly Met Leu Val Cys Ile
                725                 730                 735

Tyr Phe Ile Ile Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val
            740                 745                 750

Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Ser Gly Asp Ala Gly Thr
        755                 760                 765
```

```
Ala Lys Asp Lys Gly Gly Glu Lys Ser Asn Glu Lys Asp Leu Pro Gln
    770                 775                 780

Glu Asn Glu Gly Leu Val Pro Gly Val Glu Lys Glu Glu Glu Glu Gly
785                 790                 795                 800

Ala Arg Arg Glu Gly Ala Asp Met Glu Glu Glu Glu Glu Glu Glu Glu
                805                 810                 815

Glu Glu Glu Glu Glu Glu Glu Glu Glu Gly Ala Gly Gly Val Glu Leu
            820                 825                 830

Leu Gln Glu Val Val Pro Lys Glu Lys Val Val Pro Ile Pro Glu Gly
        835                 840                 845

Ser Ala Phe Phe Cys Leu Ser Gln Thr Asn Pro Leu Arg Lys Gly Cys
    850                 855                 860

His Thr Leu Ile His His His Val Phe Thr Asn Leu Ile Leu Val Phe
865                 870                 875                 880

Ile Ile Leu Ser Ser Val Ser Leu Ala Ala Glu Asp Pro Ile Arg Ala
                885                 890                 895

His Ser Phe Arg Asn His Ile Leu Gly Tyr Phe Asp Tyr Ala Phe Thr
            900                 905                 910

Ser Ile Phe Thr Val Glu Ile Leu Leu Lys Met Thr Val Phe Gly Ala
        915                 920                 925

Phe Leu His Arg Gly Ser Phe Cys Arg Ser Trp Phe Asn Met Leu Asp
    930                 935                 940

Leu Leu Val Val Ser Val Ser Leu Ile Ser Phe Gly Ile His Ser Ser
945                 950                 955                 960

Ala Ile Ser Val Val Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro
                965                 970                 975

Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His Val Val Gln Cys
            980                 985                 990
```

Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile Met Ile Val Thr Thr
995 1000 1005

Leu Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln Leu Phe Lys
1010 1015 1020

Gly Lys Phe Tyr Thr Cys Thr Asp Glu Ala Lys His Thr Pro Gln
1025 1030 1035

Glu Cys Lys Gly Ser Phe Leu Val Tyr Pro Asp Gly Asp Val Ser
1040 1045 1050

Arg Pro Leu Val Arg Glu Arg Leu Trp Val Asn Ser Asp Phe Asn
1055 1060 1065

Phe Asp Asn Val Leu Ser Ala Met Met Ala Leu Phe Thr Val Ser
1070 1075 1080

Thr Phe Glu Gly Trp Pro Ala Leu Leu Tyr Lys Ala Ile Asp Ala
1085 1090 1095

Tyr Ala Glu Asp His Gly Pro Ile Tyr Asn Tyr Arg Val Glu Ile
1100 1105 1110

Ser Val Phe Phe Ile Val Tyr Ile Ile Ile Ile Ala Phe Phe Met
1115 1120 1125

Met Asn Ile Phe Val Gly Phe Val Ile Ile Thr Phe Arg Ala Gln
1130 1135 1140

Gly Glu Gln Glu Tyr Gln Asn Cys Glu Leu Asp Lys Asn Gln Arg
1145 1150 1155

Gln Cys Val Glu Tyr Ala Leu Lys Ala Gln Pro Leu Arg Arg Tyr
1160 1165 1170

Ile Pro Lys Asn Pro His Gln Tyr Arg Val Trp Ala Thr Val Asn
1175 1180 1185

Ser Ala Ala Phe Glu Tyr Leu Met Phe Leu Leu Ile Leu Leu Asn
1190 1195 1200

Thr Val Ala Leu Ala Met Gln His Tyr Glu Gln Thr Ala Pro Phe
1205 1210 1215

Asn Tyr Ala Met Asp Ile Leu Asn Met Val Phe Thr Gly Leu Phe
1220 1225 1230

Thr Ile Glu Met Val Leu Lys Ile Ile Ala Phe Lys Pro Lys His
1235 1240 1245

Tyr Phe Thr Asp Ala Trp Asn Thr Phe Asp Ala Leu Ile Val Val
1250 1255 1260

Gly Ser Ile Val Asp Ile Ala Val Thr Glu Val Asn Asn Gly Gly
1265 1270 1275

His Leu Gly Glu Ser Ser Glu Asp Ser Ser Arg Ile Ser Ile Thr
1280 1285 1290

Phe Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys Leu Leu Ser
1295 1300 1305

Lys Gly Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser
1310 1315 1320

Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Ala Met Ile Phe
1325 1330 1335

Phe Ile Tyr Ala Val Ile Gly Met Gln Met Phe Gly Lys Val Ala
1340 1345 1350

Leu Gln Asp Gly Thr Gln Ile Asn Arg Asn Asn Asn Phe Gln Thr
1355 1360 1365

Phe Pro Gln Ala Val Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu
1370 1375 1380

Ala Trp Gln Glu Ile Met Leu Ala Ser Leu Pro Gly Asn Arg Cys
1385 1390 1395

Asp Pro Glu Ser Asp Phe Gly Pro Gly Glu Glu Phe Thr Cys Gly
1400 1405 1410

Ser Asn Phe Ala Ile Ala Tyr Phe Ile Ser Phe Phe Met Leu Cys

1415 1420 1425

Ala Phe Leu Ile Ile Asn Leu Phe Val Ala Val Ile Met Asp Asn
1430 1435 1440

Phe Asp Tyr Leu Thr Arg Asp Trp Ser Ile Leu Gly Pro His His
1445 1450 1455

Leu Asp Glu Phe Lys Arg Ile Trp Ser Glu Tyr Asp Pro Gly Ala
1460 1465 1470

Lys Gly Arg Ile Lys His Leu Asp Val Val Ala Leu Leu Arg Arg
1475 1480 1485

Ile Gln Pro Pro Leu Gly Phe Gly Lys Leu Cys Pro His Arg Val
1490 1495 1500

Ala Cys Lys Arg Leu Val Ala Met Asn Met Pro Leu Asn Ser Asp
1505 1510 1515

Gly Thr Val Thr Phe Asn Ala Thr Leu Phe Ala Leu Val Arg Thr
1520 1525 1530

Ser Leu Lys Ile Lys Thr Glu Gly Asn Leu Glu Gln Ala Asn Gln
1535 1540 1545

Glu Leu Arg Ile Val Ile Lys Lys Ile Trp Lys Arg Met Lys Gln
1550 1555 1560

Lys Leu Leu Asp Glu Val Ile Pro Pro Pro Asp Glu Glu Glu Val
1565 1570 1575

Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu Ile Gln Asp Tyr Phe
1580 1585 1590

Arg Lys Phe Arg Arg Arg Lys Glu Lys Gly Leu Leu Gly Asn Asp
1595 1600 1605

Ala Ala Pro Ser Thr Ser Ser Ala Leu Gln Ala Gly Leu Arg Ser
1610 1615 1620

Leu Gln Asp Leu Gly Pro Glu Met Arg Gln Ala Leu Thr Cys Asp
1625 1630 1635

```
Thr Glu  Glu Glu Glu Glu Glu  Gly Gln Glu Gly Val  Glu Glu Glu
    1640                 1645                 1650

Asp Glu  Lys Asp Leu Glu Thr  Asn Lys Ala Thr Met  Val Ser Gln
    1655                 1660                 1665

Pro Ser  Ala Arg Arg Gly Ser  Gly Ile Ser Val Ser  Leu Pro Val
    1670                 1675                 1680

Gly Asp  Arg Leu Pro Asp Ser  Leu Ser Phe Gly Pro  Ser Asp Asp
    1685                 1690                 1695

Asp Arg  Gly Thr Pro Thr Ser  Ser Gln Pro Ser Val  Pro Gln Ala
    1700                 1705                 1710

Gly Ser  Asn Thr His Arg Arg  Gly Ser Gly Ala Leu  Ile Phe Thr
    1715                 1720                 1725

Ile Pro  Glu Glu Gly Asn Ser  Gln Pro Lys Gly Thr  Lys Gly Gln
    1730                 1735                 1740

Asn Lys  Gln Asp Glu Asp Glu  Glu Val Pro Asp Arg  Leu Ser Tyr
    1745                 1750                 1755

Leu Asp  Glu Gln Ala Gly Thr  Pro Pro Cys Ser Val  Leu Leu Pro
    1760                 1765                 1770

Pro His  Arg Ala Gln Arg Tyr  Met Asp Gly His Leu  Val Pro Arg
    1775                 1780                 1785

Arg Arg  Leu Leu Pro Pro Thr  Pro Ala Gly Arg Lys  Pro Ser Phe
    1790                 1795                 1800

Thr Ile  Gln Cys Leu Gln Arg  Gln Gly Ser Cys Glu  Asp Leu Pro
    1805                 1810                 1815

Ile Pro  Gly Thr Tyr His Arg  Gly Arg Asn Ser Gly  Pro Asn Arg
    1820                 1825                 1830

Ala Gln  Gly Ser Trp Ala Thr  Pro Pro Gln Arg Gly  Arg Leu Leu
    1835                 1840                 1845
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```
Tyr Ala  Pro Leu Leu Leu Val  Glu Glu Gly Ala Ala  Gly Glu Gly
    1850                1855                1860

Tyr Leu  Gly Arg Ser Ser Gly  Pro Leu Arg Thr Phe  Thr Cys Leu
    1865                1870                1875

His Val  Pro Gly Thr His Ser  Asp Pro Ser His Gly  Lys Arg Gly
    1880                1885                1890

Ser Ala  Asp Ser Leu Val Glu  Ala Val Leu Ile Ser  Glu Gly Leu
    1895                1900                1905

Gly Leu  Phe Ala Arg Asp Pro  Arg Phe Val Ala Leu  Ala Lys Gln
    1910                1915                1920

Glu Ile  Ala Asp Ala Cys Arg  Leu Thr Leu Asp Glu  Met Asp Asn
    1925                1930                1935

Ala Ala  Ser Asp Leu Leu Ala  Gln Gly Thr Ser Ser  Leu Tyr Ser
    1940                1945                1950

Asp Glu  Glu Ser Ile Leu Ser  Arg Phe Asp Glu Glu  Asp Leu Gly
    1955                1960                1965

Asp Glu  Met Ala Cys Val His  Ala Leu
    1970                1975


<210> 10757
<211> 116
<212> PRT
<213> Homo sapiens

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<221> source
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<220>
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<221> source
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<400> 10757
Asp Tyr Phe Arg Lys Phe Arg Arg Arg Lys Glu Lys Gly Leu Leu Gly
1   5   10   15

Asn Asp Ala Ala Pro Ser Thr Ser Ser Ala Leu Gln Ala Gly Leu Arg
            20   25   30

Ser Leu Gln Asp Leu Gly Pro Glu Met Arg Gln Ala Leu Thr Cys Asp
        35   40   45

Thr Glu Glu Glu Glu Glu Glu Gly Gln Glu Gly Val Glu Glu Glu Asp
    50   55   60

Glu Lys Asp Leu Glu Thr Asn Lys Val Gly Thr Ser Phe His Ser Pro
65   70   75   80

Arg Asn Leu Ile Val Lys Tyr Phe Val Asn Pro Leu Ser Asp Phe Asp
                85   90   95

Thr Ala Ser Gly Lys Lys Leu Pro Gln Arg Ser Pro Leu Cys Asn Arg
            100   105   110

Lys Ile Phe Ile
        115

<210> 10758
<211> 1873
<212> PRT
<213> Homo sapiens

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Met Glu Pro Ser Ser Pro Gln Asp Glu Gly Leu Arg Lys Lys Gln Pro
1               5                  10                  15

Lys Lys Pro Val Pro Glu Ile Leu Pro Arg Pro Pro Arg Ala Leu Phe
            20                  25                  30

Cys Leu Thr Leu Glu Asn Pro Leu Arg Lys Ala Cys Ile Ser Ile Val
        35                  40                  45

Glu Trp Lys Pro Phe Glu Thr Ile Ile Leu Leu Thr Ile Phe Ala Asn
    50                  55                  60

Cys Val Ala Leu Ala Val Tyr Leu Pro Met Pro Glu Asp Asp Asn Asn
65                  70                  75                  80

Ser Leu Asn Leu Gly Leu Glu Lys Leu Glu Tyr Phe Phe Leu Ile Val
                85                  90                  95

Phe Ser Ile Glu Ala Ala Met Lys Ile Ile Ala Tyr Gly Phe Leu Phe
            100                 105                 110

His Gln Asp Ala Tyr Leu Arg Ser Gly Trp Asn Val Leu Asp Phe Thr
        115                 120                 125

Ile Val Phe Leu Gly Val Phe Thr Val Ile Leu Glu Gln Val Asn Val
    130                 135                 140

Ile Gln Ser His Thr Ala Pro Met Ser Ser Lys Gly Ala Gly Leu Asp
145                 150                 155                 160

Val Lys Ala Leu Arg Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val
                165                 170                 175

Ser Gly Val Pro Ser Leu Gln Val Val Leu Asn Ser Ile Phe Lys Ala
            180                 185                 190

Met Leu Pro Leu Phe His Ile Ala Leu Leu Val Leu Phe Met Val Ile
        195                 200                 205
```

```
Ile Tyr Ala Ile Ile Gly Leu Glu Leu Phe Lys Gly Lys Met His Lys
    210                 215                 220

Thr Cys Tyr Phe Ile Gly Thr Asp Ile Val Ala Thr Val Glu Asn Glu
225                 230                 235                 240

Glu Pro Ser Pro Cys Ala Arg Thr Gly Ser Gly Arg Arg Cys Thr Ile
                245                 250                 255

Asn Gly Ser Glu Cys Arg Gly Gly Trp Pro Gly Pro Asn His Gly Ile
            260                 265                 270

Thr His Phe Asp Asn Phe Gly Phe Ser Met Leu Thr Val Tyr Gln Cys
        275                 280                 285

Ile Thr Met Glu Gly Trp Thr Asp Val Leu Tyr Trp Val Asn Asp Ala
    290                 295                 300

Ile Gly Asn Glu Trp Pro Trp Ile Tyr Phe Val Thr Leu Ile Leu Leu
305                 310                 315                 320

Gly Ser Phe Phe Ile Leu Asn Leu Val Leu Gly Val Leu Ser Gly Glu
                325                 330                 335

Phe Thr Lys Glu Arg Glu Lys Ala Lys Ser Arg Gly Thr Phe Gln Lys
            340                 345                 350

Leu Arg Glu Lys Gln Gln Leu Asp Glu Asp Leu Arg Gly Tyr Met Ser
        355                 360                 365

Trp Ile Thr Gln Gly Glu Val Met Asp Val Glu Asp Phe Arg Glu Gly
    370                 375                 380

Lys Leu Ser Leu Asp Glu Gly Gly Ser Asp Thr Glu Ser Leu Tyr Glu
385                 390                 395                 400

Ile Ala Gly Leu Asn Lys Ile Ile Gln Phe Ile Arg His Trp Arg Gln
                405                 410                 415

Trp Asn Arg Ile Phe Arg Trp Lys Cys His Asp Ile Val Lys Ser Lys
            420                 425                 430
```

```
Val Phe Tyr Trp Leu Val Ile Leu Ile Val Ala Leu Asn Thr Leu Ser
        435                 440                 445

Ile Ala Ser Glu His His Asn Gln Pro Leu Trp Leu Thr Arg Leu Gln
    450                 455                 460

Asp Ile Ala Asn Arg Val Leu Leu Ser Leu Phe Thr Thr Glu Met Leu
465                 470                 475                 480

Met Lys Met Tyr Gly Leu Gly Leu Arg Gln Tyr Phe Met Ser Ile Phe
                485                 490                 495

Asn Arg Phe Asp Cys Phe Val Val Cys Ser Gly Ile Leu Glu Ile Leu
            500                 505                 510

Leu Val Glu Ser Gly Ala Met Thr Pro Leu Gly Ile Ser Val Leu Arg
        515                 520                 525

Cys Ile Arg Leu Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Thr Ser
    530                 535                 540

Leu Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Ile Arg Ser Ile Ala
545                 550                 555                 560

Ser Leu Leu Leu Leu Leu Phe Leu Phe Ile Val Ile Phe Ala Leu Leu
                565                 570                 575

Gly Met Gln Leu Phe Gly Gly Arg Tyr Asp Phe Glu Asp Thr Glu Val
            580                 585                 590

Arg Arg Ser Asn Phe Asp Asn Phe Pro Gln Ala Leu Ile Ser Val Phe
        595                 600                 605

Gln Val Leu Thr Gly Glu Asp Trp Thr Ser Met Met Tyr Asn Gly Ile
    610                 615                 620

Met Ala Tyr Gly Gly Pro Ser Tyr Pro Gly Met Leu Val Cys Ile Tyr
625                 630                 635                 640

Phe Ile Ile Leu Phe Val Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe
                645                 650                 655
```

```
Leu Ala Ile Ala Val Asp Asn Leu Ala Glu Ala Glu Ser Leu Thr Ser
            660                 665                 670

Ala Gln Lys Ala Lys Ala Glu Glu Lys Lys Arg Arg Lys Met Ser Lys
        675                 680                 685

Gly Leu Pro Asp Lys Ser Glu Glu Glu Lys Ser Thr Met Ala Lys Lys
    690                 695                 700

Leu Glu Gln Lys Pro Lys Gly Glu Gly Ile Pro Thr Thr Ala Lys Leu
705                 710                 715                 720

Lys Ile Asp Glu Phe Glu Ser Asn Val Asn Glu Val Lys Asp Pro Tyr
                725                 730                 735

Pro Ser Ala Asp Phe Pro Gly Asp Asp Glu Glu Asp Glu Pro Glu Ile
            740                 745                 750

Pro Leu Ser Pro Arg Pro Arg Pro Leu Ala Glu Leu Gln Leu Lys Glu
        755                 760                 765

Lys Ala Val Pro Ile Pro Glu Ala Ser Ser Phe Phe Ile Phe Ser Pro
    770                 775                 780

Thr Asn Lys Ile Arg Val Leu Cys His Arg Ile Val Asn Ala Thr Trp
785                 790                 795                 800

Phe Thr Asn Phe Ile Leu Leu Phe Ile Leu Leu Ser Ser Ala Ala Leu
                805                 810                 815

Ala Ala Glu Asp Pro Ile Arg Ala Asp Ser Met Arg Asn Gln Ile Leu
            820                 825                 830

Lys His Phe Asp Ile Gly Phe Thr Ser Val Phe Thr Val Glu Ile Val
        835                 840                 845

Leu Lys Met Thr Thr Tyr Gly Ala Phe Leu His Lys Gly Ser Phe Cys
    850                 855                 860

Arg Asn Tyr Phe Asn Met Leu Asp Leu Leu Val Val Ala Val Ser Leu
865                 870                 875                 880

Ile Ser Met Gly Leu Glu Ser Ser Ala Ile Ser Val Val Lys Ile Leu
```

885 890 895

Arg Val Leu Arg Val Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys
900 905 910

Gly Leu Lys His Val Val Gln Cys Met Phe Val Ala Ile Ser Thr Ile
915 920 925

Gly Asn Ile Val Leu Val Thr Thr Leu Leu Gln Phe Met Phe Ala Cys
930 935 940

Ile Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Arg Cys Thr Asp Leu
945 950 955 960

Ser Lys Met Thr Glu Glu Glu Cys Arg Gly Tyr Tyr Tyr Val Tyr Lys
965 970 975

Asp Gly Asp Pro Met Gln Ile Glu Leu Arg His Arg Glu Trp Val His
980 985 990

Ser Asp Phe His Phe Asp Asn Val Leu Ser Ala Met Met Ser Leu
Phe
995 1000 1005

Thr Val Ser Thr Phe Glu Gly Trp Pro Gln Leu Leu Tyr Lys Ala
1010 1015 1020

Ile Asp Ser Asn Ala Glu Asp Val Gly Pro Ile Tyr Asn Asn Arg
1025 1030 1035

Val Glu Met Ala Ile Phe Phe Ile Ile Tyr Ile Ile Leu Ile Ala
1040 1045 1050

Phe Phe Met Met Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe
1055 1060 1065

Gln Glu Gln Gly Glu Thr Glu Tyr Lys Asn Cys Glu Leu Asp Lys
1070 1075 1080

Asn Gln Arg Gln Cys Val Gln Tyr Ala Leu Lys Ala Arg Pro Leu
1085 1090 1095

Arg Cys Tyr Ile Pro Lys Asn Pro Tyr Gln Tyr Gln Val Trp Tyr

1100 1105 1110

Ile Val Thr Ser Ser Tyr Phe Glu Tyr Leu Met Phe Ala Leu Ile
1115 1120 1125

Met Leu Asn Thr Ile Cys Leu Gly Met Gln His Tyr Asn Gln Ser
1130 1135 1140

Glu Gln Met Asn His Ile Ser Asp Ile Leu Asn Val Ala Phe Thr
1145 1150 1155

Ile Ile Phe Thr Leu Glu Met Ile Leu Lys Leu Met Ala Phe Lys
1160 1165 1170

Ala Arg Gly Tyr Phe Gly Asp Pro Trp Asn Val Phe Asp Phe Leu
1175 1180 1185

Ile Val Ile Gly Ser Ile Ile Asp Val Ile Leu Ser Glu Ile Asp
1190 1195 1200

Thr Phe Leu Ala Ser Ser Gly Gly Leu Tyr Cys Leu Gly Gly Gly
1205 1210 1215

Cys Gly Asn Val Asp Pro Asp Glu Ser Ala Arg Ile Ser Ser Ala
1220 1225 1230

Phe Phe Arg Leu Phe Arg Val Met Arg Leu Ile Lys Leu Leu Ser
1235 1240 1245

Arg Ala Glu Gly Val Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser
1250 1255 1260

Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val Met Leu Phe
1265 1270 1275

Phe Ile Tyr Ala Val Ile Gly Met Gln Met Phe Gly Lys Ile Ala
1280 1285 1290

Leu Val Asp Gly Thr Gln Ile Asn Arg Asn Asn Asn Phe Gln Thr
1295 1300 1305

Phe Pro Gln Ala Val Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu
1310 1315 1320

```
Ala Trp  Gln Glu Ile Leu Leu  Ala Cys Ser Tyr Gly  Lys Leu Cys
    1325                1330                1335

Asp Pro  Glu Ser Asp Tyr Ala  Pro Gly Glu Glu Tyr  Thr Cys Gly
    1340                1345                1350

Thr Asn  Phe Ala Tyr Tyr Tyr  Phe Ile Ser Phe Tyr  Met Leu Cys
    1355                1360                1365

Ala Phe  Leu Val Ile Asn Leu  Phe Val Ala Val Ile  Met Asp Asn
    1370                1375                1380

Phe Asp  Tyr Leu Thr Arg Asp  Trp Ser Ile Leu Gly  Pro His His
    1385                1390                1395

Leu Asp  Glu Phe Lys Ala Ile  Trp Ala Glu Tyr Asp  Pro Glu Ala
    1400                1405                1410

Lys Gly  Arg Ile Lys His Leu  Asp Val Val Thr Leu  Leu Arg Arg
    1415                1420                1425

Ile Gln  Pro Pro Leu Gly Phe  Gly Lys Phe Cys Pro  His Arg Val
    1430                1435                1440

Ala Cys  Lys Arg Leu Val Gly  Met Asn Met Pro Leu  Asn Ser Asp
    1445                1450                1455

Gly Thr  Val Thr Phe Asn Ala  Thr Leu Phe Ala Leu  Val Arg Thr
    1460                1465                1470

Ala Leu  Lys Ile Lys Thr Glu  Gly Asn Phe Glu Gln  Ala Asn Glu
    1475                1480                1485

Glu Leu  Arg Ala Ile Ile Lys  Lys Ile Trp Lys Arg  Thr Ser Met
    1490                1495                1500

Lys Leu  Leu Asp Gln Val Ile  Pro Pro Ile Gly Asp  Asp Glu Val
    1505                1510                1515

Thr Val  Gly Lys Phe Tyr Ala  Thr Phe Leu Ile Gln  Glu His Phe
    1520                1525                1530
```

```
Arg Lys  Phe Met Lys Arg Gln  Glu Glu Tyr Tyr Gly  Tyr Arg Pro
    1535                1540                1545

Lys Lys  Asp Ile Val Gln Ile  Gln Ala Gly Leu Arg  Thr Ile Glu
    1550                1555                1560

Glu Glu  Ala Ala Pro Glu Ile  Cys Arg Thr Val Ser  Gly Asp Leu
    1565                1570                1575

Ala Ala  Glu Glu Glu Leu Glu  Arg Ala Met Val Glu  Ala Ala Met
    1580                1585                1590

Glu Glu  Gly Ile Phe Arg Arg  Thr Gly Gly Leu Phe  Gly Gln Val
    1595                1600                1605

Asp Asn  Phe Leu Glu Arg Thr  Asn Ser Leu Pro Pro  Val Met Ala
    1610                1615                1620

Asn Gln  Arg Pro Leu Gln Phe  Ala Glu Ile Glu Met  Glu Glu Met
    1625                1630                1635

Glu Ser  Pro Val Phe Leu Glu  Asp Phe Pro Gln Asp  Pro Arg Thr
    1640                1645                1650

Asn Pro  Leu Ala Arg Ala Asn  Thr Asn Asn Ala Asn  Ala Asn Val
    1655                1660                1665

Ala Tyr  Gly Asn Ser Asn His  Ser Asn Ser His Val  Phe Ser Ser
    1670                1675                1680

Val His  Tyr Glu Arg Glu Phe  Pro Glu Glu Thr Glu  Thr Pro Ala
    1685                1690                1695

Thr Arg  Gly Arg Ala Leu Gly  Gln Pro Cys Arg Val  Leu Gly Pro
    1700                1705                1710

His Ser  Lys Pro Cys Val Glu  Met Leu Lys Gly Leu  Leu Thr Gln
    1715                1720                1725

Arg Ala  Met Pro Arg Gly Gln  Ala Pro Pro Ala Pro  Cys Gln Cys
    1730                1735                1740
```

```
Pro Arg  Val Glu Ser Ser Met  Pro Glu Asp Arg Lys  Ser Ser Thr
    1745                1750                1755

Pro Gly  Ser Leu His Glu Glu  Thr Pro His Ser Arg  Ser Thr Arg
    1760                1765                1770

Glu Asn  Thr Ser Arg Cys Ser  Ala Pro Ala Thr Ala  Leu Leu Ile
    1775                1780                1785

Gln Lys  Ala Leu Val Arg Gly  Gly Leu Gly Thr Leu  Ala Ala Asp
    1790                1795                1800

Ala Asn  Phe Ile Met Ala Thr  Gly Gln Ala Leu Ala  Asp Ala Cys
    1805                1810                1815

Gln Met  Glu Pro Glu Glu Val  Glu Ile Met Ala Thr  Glu Leu Leu
    1820                1825                1830

Lys Gly  Arg Glu Ala Pro Glu  Gly Met Ala Ser Ser  Leu Gly Cys
    1835                1840                1845

Leu Asn  Leu Gly Ser Ser Leu  Gly Ser Leu Asp Gln  His Gln Gly
    1850                1855                1860

Ser Gln  Glu Thr Leu Ile Pro  Pro Arg Leu
    1865                1870


<210> 10759
<211> 1854
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="ENSP ID: ENSP00000356307"

<400> 10759

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Met Glu Pro Ser Ser Pro Gln Asp Glu Gly Leu Arg Lys Lys Gln Pro
1               5                  10                  15

Lys Lys Pro Val Pro Glu Ile Leu Pro Arg Pro Pro Arg Ala Leu Phe
            20                  25                  30

Cys Leu Thr Leu Glu Asn Pro Leu Arg Lys Ala Cys Ile Ser Ile Val
        35                  40                  45

Glu Trp Lys Pro Phe Glu Thr Ile Ile Leu Leu Thr Ile Phe Ala Asn
    50                  55                  60

Cys Val Ala Leu Ala Val Tyr Leu Pro Met Pro Glu Asp Asp Asn Asn
65                  70                  75                  80

Ser Leu Asn Leu Gly Leu Glu Lys Leu Glu Tyr Phe Phe Leu Ile Val
                85                  90                  95

Phe Ser Ile Glu Ala Ala Met Lys Ile Ile Ala Tyr Gly Phe Leu Phe
            100                 105                 110

His Gln Asp Ala Tyr Leu Arg Ser Gly Trp Asn Val Leu Asp Phe Thr
        115                 120                 125

Ile Val Phe Leu Gly Val Phe Thr Val Ile Leu Glu Gln Val Asn Val
    130                 135                 140

Ile Gln Ser His Thr Ala Pro Met Ser Ser Lys Gly Ala Gly Leu Asp
145                 150                 155                 160

Val Lys Ala Leu Arg Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val
                165                 170                 175

Ser Gly Val Pro Ser Leu Gln Val Val Leu Asn Ser Ile Phe Lys Ala
            180                 185                 190

Met Leu Pro Leu Phe His Ile Ala Leu Leu Val Leu Phe Met Val Ile
        195                 200                 205

Ile Tyr Ala Ile Ile Gly Leu Glu Leu Phe Lys Gly Lys Met His Lys
    210                 215                 220
```

```
Thr Cys Tyr Phe Ile Gly Thr Asp Ile Val Ala Thr Val Glu Asn Glu
225                 230                 235                 240

Glu Pro Ser Pro Cys Ala Arg Thr Gly Ser Gly Arg Arg Cys Thr Ile
                245                 250                 255

Asn Gly Ser Glu Cys Arg Gly Gly Trp Pro Gly Pro Asn His Gly Ile
            260                 265                 270

Thr His Phe Asp Asn Phe Gly Phe Ser Met Leu Thr Val Tyr Gln Cys
        275                 280                 285

Ile Thr Met Glu Gly Trp Thr Asp Val Leu Tyr Trp Val Asn Asp Ala
    290                 295                 300

Ile Gly Asn Glu Trp Pro Trp Ile Tyr Phe Val Thr Leu Ile Leu Leu
305                 310                 315                 320

Gly Ser Phe Phe Ile Leu Asn Leu Val Leu Gly Val Leu Ser Gly Glu
                325                 330                 335

Phe Thr Lys Glu Arg Glu Lys Ala Lys Ser Arg Gly Thr Phe Gln Lys
            340                 345                 350

Leu Arg Glu Lys Gln Gln Leu Asp Glu Asp Leu Arg Gly Tyr Met Ser
        355                 360                 365

Trp Ile Thr Gln Gly Glu Val Met Asp Val Glu Asp Phe Arg Glu Gly
    370                 375                 380

Lys Leu Ser Leu Asp Glu Gly Gly Ser Asp Thr Glu Ser Leu Tyr Glu
385                 390                 395                 400

Ile Ala Gly Leu Asn Lys Ile Ile Gln Phe Ile Arg His Trp Arg Gln
                405                 410                 415

Trp Asn Arg Ile Phe Arg Trp Lys Cys His Asp Ile Val Lys Ser Lys
            420                 425                 430

Val Phe Tyr Trp Leu Val Ile Leu Ile Val Ala Leu Asn Thr Leu Ser
        435                 440                 445
```

```
Ile Ala Ser Glu His His Asn Gln Pro Leu Trp Leu Thr Arg Leu Gln
    450                 455                 460

Asp Ile Ala Asn Arg Val Leu Leu Ser Leu Phe Thr Thr Glu Met Leu
465                 470                 475                 480

Met Lys Met Tyr Gly Leu Gly Leu Arg Gln Tyr Phe Met Ser Ile Phe
                485                 490                 495

Asn Arg Phe Asp Cys Phe Val Val Cys Ser Gly Ile Leu Glu Ile Leu
            500                 505                 510

Leu Val Glu Ser Gly Ala Met Thr Pro Leu Gly Ile Ser Val Leu Arg
        515                 520                 525

Cys Ile Arg Leu Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Thr Ser
    530                 535                 540

Leu Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Ile Arg Ser Ile Ala
545                 550                 555                 560

Ser Leu Leu Leu Leu Leu Phe Leu Phe Ile Val Ile Phe Ala Leu Leu
                565                 570                 575

Gly Met Gln Leu Phe Gly Gly Arg Tyr Asp Phe Glu Asp Thr Glu Val
            580                 585                 590

Arg Arg Ser Asn Phe Asp Asn Phe Pro Gln Ala Leu Ile Ser Val Phe
        595                 600                 605

Gln Val Leu Thr Gly Glu Asp Trp Thr Ser Met Met Tyr Asn Gly Ile
    610                 615                 620

Met Ala Tyr Gly Gly Pro Ser Tyr Pro Gly Met Leu Val Cys Ile Tyr
625                 630                 635                 640

Phe Ile Ile Leu Phe Val Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe
                645                 650                 655

Leu Ala Ile Ala Val Asp Asn Leu Ala Glu Ala Glu Ser Leu Thr Ser
            660                 665                 670
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Ala Gln Lys Ala Lys Ala Glu Glu Lys Lys Arg Arg Lys Met Ser Lys
675 680 685

Gly Leu Pro Asp Lys Ser Glu Glu Glu Lys Ser Thr Met Ala Lys Lys
690 695 700

Leu Glu Gln Lys Pro Lys Gly Glu Gly Ile Pro Thr Thr Ala Lys Leu
705 710 715 720

Lys Ile Asp Glu Phe Glu Ser Asn Val Asn Glu Val Lys Asp Pro Tyr
725 730 735

Pro Ser Ala Asp Phe Pro Gly Asp Asp Glu Glu Asp Glu Pro Glu Ile
740 745 750

Pro Leu Ser Pro Arg Pro Arg Pro Leu Ala Glu Leu Gln Leu Lys Glu
755 760 765

Lys Ala Val Pro Ile Pro Glu Ala Ser Ser Phe Phe Ile Phe Ser Pro
770 775 780

Thr Asn Lys Ile Arg Val Leu Cys His Arg Ile Val Asn Ala Thr Trp
785 790 795 800

Phe Thr Asn Phe Ile Leu Leu Phe Ile Leu Leu Ser Ser Ala Ala Leu
805 810 815

Ala Ala Glu Asp Pro Ile Arg Ala Asp Ser Met Arg Asn Gln Ile Leu
820 825 830

Lys His Phe Asp Ile Gly Phe Thr Ser Val Phe Thr Val Glu Ile Val
835 840 845

Leu Lys Met Thr Thr Tyr Gly Ala Phe Leu His Lys Gly Ser Phe Cys
850 855 860

Arg Asn Tyr Phe Asn Met Leu Asp Leu Leu Val Val Ala Val Ser Leu
865 870 875 880

Ile Ser Met Gly Leu Glu Ser Ser Ala Ile Ser Val Val Lys Ile Leu
885 890 895

Arg Val Leu Arg Val Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys

900 905 910

Gly Leu Lys His Val Val Gln Cys Met Phe Val Ala Ile Ser Thr Ile
915 920 925

Gly Asn Ile Val Leu Val Thr Thr Leu Leu Gln Phe Met Phe Ala Cys
930 935 940

Ile Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Arg Cys Thr Asp Leu
945 950 955 960

Ser Lys Met Thr Glu Glu Glu Cys Arg Gly Tyr Tyr Tyr Val Tyr Lys
965 970 975

Asp Gly Asp Pro Met Gln Ile Glu Leu Arg His Arg Glu Trp Val His
980 985 990

Ser Asp Phe His Phe Asp Asn Val Leu Ser Ala Met Met Ser Leu
Phe
995 1000 1005

Thr Val Ser Thr Phe Glu Gly Trp Pro Gln Leu Leu Tyr Lys Ala
1010 1015 1020

Ile Asp Ser Asn Ala Glu Asp Val Gly Pro Ile Tyr Asn Asn Arg
1025 1030 1035

Val Glu Met Ala Ile Phe Phe Ile Ile Tyr Ile Ile Leu Ile Ala
1040 1045 1050

Phe Phe Met Met Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe
1055 1060 1065

Gln Glu Gln Gly Glu Thr Glu Tyr Lys Asn Cys Glu Leu Asp Lys
1070 1075 1080

Asn Gln Arg Gln Cys Val Gln Tyr Ala Leu Lys Ala Arg Pro Leu
1085 1090 1095

Arg Cys Tyr Ile Pro Lys Asn Pro Tyr Gln Tyr Gln Val Trp Tyr
1100 1105 1110

Ile Val Thr Ser Ser Tyr Phe Glu Tyr Leu Met Phe Ala Leu Ile

1115 1120 1125

Met Leu Asn Thr Ile Cys Leu Gly Met Gln His Tyr Asn Gln Ser
1130 1135 1140

Glu Gln Met Asn His Ile Ser Asp Ile Leu Asn Val Ala Phe Thr
1145 1150 1155

Ile Ile Phe Thr Leu Glu Met Ile Leu Lys Leu Met Ala Phe Lys
1160 1165 1170

Ala Arg Gly Tyr Phe Gly Asp Pro Trp Asn Val Phe Asp Phe Leu
1175 1180 1185

Ile Val Ile Gly Ser Ile Ile Asp Val Ile Leu Ser Glu Ile Asp
1190 1195 1200

Asp Pro Asp Glu Ser Ala Arg Ile Ser Ser Ala Phe Phe Arg Leu
1205 1210 1215

Phe Arg Val Met Arg Leu Ile Lys Leu Leu Ser Arg Ala Glu Gly
1220 1225 1230

Val Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln Ala Leu
1235 1240 1245

Pro Tyr Val Ala Leu Leu Ile Val Met Leu Phe Phe Ile Tyr Ala
1250 1255 1260

Val Ile Gly Met Gln Met Phe Gly Lys Ile Ala Leu Val Asp Gly
1265 1270 1275

Thr Gln Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala
1280 1285 1290

Val Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln Glu
1295 1300 1305

Ile Leu Leu Ala Cys Ser Tyr Gly Lys Leu Cys Asp Pro Glu Ser
1310 1315 1320

Asp Tyr Ala Pro Gly Glu Glu Tyr Thr Cys Gly Thr Asn Phe Ala
1325 1330 1335

```
Tyr Tyr  Tyr Phe Ile Ser Phe  Tyr Met Leu Cys Ala  Phe Leu Val
    1340                1345                1350

Ile Asn  Leu Phe Val Ala Val  Ile Met Asp Asn Phe  Asp Tyr Leu
    1355                1360                1365

Thr Arg  Asp Trp Ser Ile Leu  Gly Pro His His Leu  Asp Glu Phe
    1370                1375                1380

Lys Ala  Ile Trp Ala Glu Tyr  Asp Pro Glu Ala Lys  Gly Arg Ile
    1385                1390                1395

Lys His  Leu Asp Val Val Thr  Leu Leu Arg Arg Ile  Gln Pro Pro
    1400                1405                1410

Leu Gly  Phe Gly Lys Phe Cys  Pro His Arg Val Ala  Cys Lys Arg
    1415                1420                1425

Leu Val  Gly Met Asn Met Pro  Leu Asn Ser Asp Gly  Thr Val Thr
    1430                1435                1440

Phe Asn  Ala Thr Leu Phe Ala  Leu Val Arg Thr Ala  Leu Lys Ile
    1445                1450                1455

Lys Thr  Glu Gly Asn Phe Glu  Gln Ala Asn Glu Glu  Leu Arg Ala
    1460                1465                1470

Ile Ile  Lys Lys Ile Trp Lys  Arg Thr Ser Met Lys  Leu Leu Asp
    1475                1480                1485

Gln Val  Ile Pro Pro Ile Gly  Asp Asp Glu Val Thr  Val Gly Lys
    1490                1495                1500

Phe Tyr  Ala Thr Phe Leu Ile  Gln Glu His Phe Arg  Lys Phe Met
    1505                1510                1515

Lys Arg  Gln Glu Glu Tyr Tyr  Gly Tyr Arg Pro Lys  Lys Asp Ile
    1520                1525                1530

Val Gln  Ile Gln Ala Gly Leu  Arg Thr Ile Glu Glu  Glu Ala Ala
    1535                1540                1545
```

```
Pro Glu  Ile Cys Arg Thr Val  Ser Gly Asp Leu Ala  Ala Glu Glu
    1550                1555                1560

Glu Leu  Glu Arg Ala Met Val  Glu Ala Ala Met Glu  Glu Gly Ile
    1565                1570                1575

Phe Arg  Arg Thr Gly Gly Leu  Phe Gly Gln Val Asp  Asn Phe Leu
    1580                1585                1590

Glu Arg  Thr Asn Ser Leu Pro  Pro Val Met Ala Asn  Gln Arg Pro
    1595                1600                1605

Leu Gln  Phe Ala Glu Ile Glu  Met Glu Glu Met Glu  Ser Pro Val
    1610                1615                1620

Phe Leu  Glu Asp Phe Pro Gln  Asp Pro Arg Thr Asn  Pro Leu Ala
    1625                1630                1635

Arg Ala  Asn Thr Asn Asn Ala  Asn Ala Asn Val Ala  Tyr Gly Asn
    1640                1645                1650

Ser Asn  His Ser Asn Ser His  Val Phe Ser Ser Val  His Tyr Glu
    1655                1660                1665

Arg Glu  Phe Pro Glu Glu Thr  Glu Thr Pro Ala Thr  Arg Gly Arg
    1670                1675                1680

Ala Leu  Gly Gln Pro Cys Arg  Val Leu Gly Pro His  Ser Lys Pro
    1685                1690                1695

Cys Val  Glu Met Leu Lys Gly  Leu Leu Thr Gln Arg  Ala Met Pro
    1700                1705                1710

Arg Gly  Gln Ala Pro Pro Ala  Pro Cys Gln Cys Pro  Arg Val Glu
    1715                1720                1725

Ser Ser  Met Pro Glu Asp Arg  Lys Ser Ser Thr Pro  Gly Ser Leu
    1730                1735                1740

His Glu  Glu Thr Pro His Ser  Arg Ser Thr Arg Glu  Asn Thr Ser
    1745                1750                1755
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```
Arg Cys  Ser Ala Pro Ala Thr  Ala Leu Leu Ile Gln  Lys Ala Leu
    1760                 1765                 1770

Val Arg  Gly Gly Leu Gly Thr  Leu Ala Ala Asp Ala  Asn Phe Ile
    1775                 1780                 1785

Met Ala  Thr Gly Gln Ala Leu  Ala Asp Ala Cys Gln  Met Glu Pro
    1790                 1795                 1800

Glu Glu  Val Glu Ile Met Ala  Thr Glu Leu Leu Lys  Gly Arg Glu
    1805                 1810                 1815

Ala Pro  Glu Gly Met Ala Ser  Ser Leu Gly Cys Leu  Asn Leu Gly
    1820                 1825                 1830

Ser Ser  Leu Gly Ser Leu Asp  Gln His Gln Gly Ser  Gln Glu Thr
    1835                 1840                 1845

Leu Ile  Pro Pro Arg Leu
    1850


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<212> PRT
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<223> /note="Gene Symbol: CACNA1B; "

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      subunit; "

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Gly Gly Glu Arg Ala Arg Gly Gly Gly Ala Gly Gly Ala Gly Gly Pro
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            20                  25                  30

Gly Pro Gly Gly Leu Gln Pro Gly Gln Arg Val Leu Tyr Lys Gln Ser
        35                  40                  45

Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val
    50                  55                  60

Lys Gln Asn Cys Phe Thr Val Asn Arg Ser Leu Phe Val Phe Ser Glu
65                  70                  75                  80

Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro
                85                  90                  95

Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys Ile Val Leu
            100                 105                 110

Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu
        115                 120                 125

Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu
    130                 135                 140

Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser
145                 150                 155                 160

Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
                165                 170                 175

Gly Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg
            180                 185                 190

Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser
        195                 200                 205

Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu
    210                 215                 220

Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile
225                 230                 235                 240

Gly Leu Glu Phe Tyr Met Gly Lys Phe His Lys Ala Cys Phe Pro Asn
                245                 250                 255
```

```
Ser Thr Asp Ala Glu Pro Val Gly Asp Phe Pro Cys Gly Lys Glu Ala
            260                 265                 270

Pro Ala Arg Leu Cys Glu Gly Asp Thr Glu Cys Arg Glu Tyr Trp Pro
        275                 280                 285

Gly Pro Asn Phe Gly Ile Thr Asn Phe Asp Asn Ile Leu Phe Ala Ile
    290                 295                 300

Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Ile Leu
305                 310                 315                 320

Tyr Asn Thr Asn Asp Ala Ala Gly Asn Thr Trp Asn Trp Leu Tyr Phe
                325                 330                 335

Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu Asn Leu Val Leu
            340                 345                 350

Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn
        355                 360                 365

Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu
    370                 375                 380

Leu Asn Gly Tyr Leu Glu Trp Ile Phe Lys Ala Glu Glu Val Met Leu
385                 390                 395                 400

Ala Glu Glu Asp Arg Asn Ala Glu Glu Lys Ser Pro Leu Asp Val Leu
                405                 410                 415

Lys Arg Ala Ala Thr Lys Lys Ser Arg Asn Asp Leu Ile His Ala Glu
            420                 425                 430

Glu Gly Glu Asp Arg Phe Ala Asp Leu Cys Ala Val Gly Ser Pro Phe
        435                 440                 445

Ala Arg Ala Ser Leu Lys Ser Gly Lys Thr Glu Ser Ser Ser Tyr Phe
    450                 455                 460

Arg Arg Lys Glu Lys Met Phe Arg Phe Phe Ile Arg Arg Met Val Lys
465                 470                 475                 480
```

Ala Gln Ser Phe Tyr Trp Val Val Leu Cys Val Val Ala Leu Asn Thr
485 490 495

Leu Cys Val Ala Met Val His Tyr Asn Gln Pro Arg Arg Leu Thr Thr
500 505 510

Thr Leu Tyr Phe Ala Glu Phe Val Phe Leu Gly Leu Phe Leu Thr Glu
515 520 525

Met Ser Leu Lys Met Tyr Gly Leu Gly Pro Arg Ser Tyr Phe Arg Ser
530 535 540

Ser Phe Asn Cys Phe Asp Phe Gly Val Ile Val Gly Ser Val Phe Glu
545 550 555 560

Val Val Trp Ala Ala Ile Lys Pro Gly Ser Ser Phe Gly Ile Ser Val
565 570 575

Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val Thr Lys Tyr Trp
580 585 590

Ser Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn Ser Met Lys Ser
595 600 605

Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile Val Val Phe Ala
610 615 620

Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn Phe Gln Asp Glu
625 630 635 640

Thr Pro Thr Thr Asn Phe Asp Thr Phe Pro Ala Ala Ile Leu Thr Val
645 650 655

Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr His Gly
660 665 670

Ile Glu Ser Gln Gly Gly Val Ser Lys Gly Met Phe Ser Ser Phe Tyr
675 680 685

Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe
690 695 700

```
Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys
705                 710                 715                 720

Asp Glu Glu Glu Met Glu Glu Ala Ala Asn Gln Lys Leu Ala Leu Gln
                725                 730                 735

Lys Ala Lys Glu Val Ala Glu Val Ser Pro Met Ser Ala Ala Asn Ile
            740                 745                 750

Ser Ile Ala Ala Arg Gln Gln Asn Ser Ala Lys Ala Arg Ser Val Trp
        755                 760                 765

Glu Gln Arg Ala Ser Gln Leu Arg Leu Gln Asn Leu Arg Ala Ser Cys
    770                 775                 780

Glu Ala Leu Tyr Ser Glu Met Asp Pro Glu Glu Arg Leu Arg Phe Ala
785                 790                 795                 800

Thr Thr Arg His Leu Arg Pro Asp Met Lys Thr His Leu Asp Arg Pro
                805                 810                 815

Leu Val Val Glu Leu Gly Arg Asp Gly Ala Arg Gly Pro Val Gly Gly
            820                 825                 830

Lys Ala Arg Pro Glu Ala Ala Glu Ala Pro Glu Gly Val Asp Pro Pro
        835                 840                 845

Arg Arg His His Arg His Arg Asp Lys Asp Lys Thr Pro Ala Ala Gly
    850                 855                 860

Asp Gln Asp Arg Ala Glu Ala Pro Lys Ala Glu Ser Gly Glu Pro Gly
865                 870                 875                 880

Ala Arg Glu Glu Arg Pro Arg Pro His Arg Ser His Ser Lys Glu Ala
                885                 890                 895

Ala Gly Pro Pro Glu Ala Arg Ser Glu Arg Gly Arg Gly Pro Gly Pro
            900                 905                 910

Glu Gly Gly Arg Arg His His Arg Arg Gly Ser Pro Glu Glu Ala Ala
        915                 920                 925

Glu Arg Glu Pro Arg Arg His Arg Ala His Arg His Gln Asp Pro Ser
```

930 935 940

Lys Glu Cys Ala Gly Ala Lys Gly Glu Arg Arg Ala Arg His Arg Gly
945 950 955 960

Gly Pro Arg Ala Gly Pro Arg Glu Ala Glu Ser Gly Glu Glu Pro Ala
965 970 975

Arg Arg His Arg Ala Arg His Lys Ala Gln Pro Ala His Glu Ala Val
980 985 990

Glu Lys Glu Thr Thr Glu Lys Glu Ala Thr Glu Lys Glu Ala Glu
Ile
995 1000 1005

Val Glu Ala Asp Lys Glu Lys Glu Leu Arg Asn His Gln Pro Arg
1010 1015 1020

Glu Pro His Cys Asp Leu Glu Thr Ser Gly Thr Val Thr Val Gly
1025 1030 1035

Pro Met His Thr Leu Pro Ser Thr Cys Leu Gln Lys Val Glu Glu
1040 1045 1050

Gln Pro Glu Asp Ala Asp Asn Gln Arg Asn Val Thr Arg Met Gly
1055 1060 1065

Ser Gln Pro Pro Asp Pro Asn Thr Ile Val His Ile Pro Val Met
1070 1075 1080

Leu Thr Gly Pro Leu Gly Glu Ala Thr Val Val Pro Ser Gly Asn
1085 1090 1095

Val Asp Leu Glu Ser Gln Ala Glu Gly Lys Lys Glu Val Glu Ala
1100 1105 1110

Asp Asp Val Met Arg Ser Gly Pro Arg Pro Ile Val Pro Tyr Ser
1115 1120 1125

Ser Met Phe Cys Leu Ser Pro Thr Asn Leu Leu Arg Arg Phe Cys
1130 1135 1140

His Tyr Ile Val Thr Met Arg Tyr Phe Glu Val Val Ile Leu Val

1145 1150 1155

Val Ile Ala Leu Ser Ser Ile Ala Leu Ala Ala Glu Asp Pro Val
1160 1165 1170

Arg Thr Asp Ser Pro Arg Asn Asn Ala Leu Lys Tyr Leu Asp Tyr
1175 1180 1185

Ile Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile Lys Met Ile
1190 1195 1200

Asp Leu Gly Leu Leu Leu His Pro Gly Ala Tyr Phe Arg Asp Leu
1205 1210 1215

Trp Asn Ile Leu Asp Phe Ile Val Val Ser Gly Ala Leu Val Ala
1220 1225 1230

Phe Ala Phe Ser Gly Ser Lys Gly Lys Asp Ile Asn Thr Ile Lys
1235 1240 1245

Ser Leu Arg Val Leu Arg Val Leu Arg Pro Leu Lys Thr Ile Lys
1250 1255 1260

Arg Leu Pro Lys Leu Lys Ala Val Phe Asp Cys Val Val Asn Ser
1265 1270 1275

Leu Lys Asn Val Leu Asn Ile Leu Ile Val Tyr Met Leu Phe Met
1280 1285 1290

Phe Ile Phe Ala Val Ile Ala Val Gln Leu Phe Lys Gly Lys Phe
1295 1300 1305

Phe Tyr Cys Thr Asp Glu Ser Lys Glu Leu Glu Arg Asp Cys Arg
1310 1315 1320

Gly Gln Tyr Leu Asp Tyr Glu Lys Glu Glu Val Glu Ala Gln Pro
1325 1330 1335

Arg Gln Trp Lys Lys Tyr Asp Phe His Tyr Asp Asn Val Leu Trp
1340 1345 1350

Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly Glu Gly Trp Pro
1355 1360 1365

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Met Val  Leu Lys His Ser Val  Asp Ala Thr Tyr Glu  Glu Gln Gly
    1370                1375                1380

Pro Ser  Pro Gly Tyr Arg Met  Glu Leu Ser Ile Phe  Tyr Val Val
    1385                1390                1395

Tyr Phe  Val Val Phe Pro Phe  Phe Phe Val Asn Ile  Phe Val Ala
    1400                1405                1410

Leu Ile  Ile Ile Thr Phe Gln  Glu Gln Gly Asp Lys  Val Met Ser
    1415                1420                1425

Glu Cys  Ser Leu Glu Lys Asn  Glu Arg Ala Cys Ile  Asp Phe Ala
    1430                1435                1440

Ile Ser  Ala Lys Pro Leu Thr  Arg Tyr Met Pro Gln  Asn Arg Gln
    1445                1450                1455

Ser Phe  Gln Tyr Lys Thr Trp  Thr Phe Val Val Ser  Pro Pro Phe
    1460                1465                1470

Glu Tyr  Phe Ile Met Ala Met  Ile Ala Leu Asn Thr  Val Val Leu
    1475                1480                1485

Met Met  Lys Phe Tyr Asp Ala  Pro Tyr Glu Tyr Glu  Leu Met Leu
    1490                1495                1500

Lys Cys  Leu Asn Ile Val Phe  Thr Ser Met Phe Ser  Met Glu Cys
    1505                1510                1515

Val Leu  Lys Ile Ile Ala Phe  Gly Val Leu Asn Tyr  Phe Arg Asp
    1520                1525                1530

Ala Trp  Asn Val Phe Asp Phe  Val Thr Val Leu Gly  Ser Ile Thr
    1535                1540                1545

Asp Ile  Leu Val Thr Glu Ile  Ala Val Lys Asn Asn  Phe Ile Asn
    1550                1555                1560

Leu Ser  Phe Leu Arg Leu Phe  Arg Ala Ala Arg Leu  Ile Lys Leu
    1565                1570                1575
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Leu Arg  Gln Gly Tyr Thr Ile  Arg Ile Leu Leu Trp  Thr Phe Val
    1580                1585                1590

Gln Ser  Phe Lys Ala Leu Pro  Tyr Val Cys Leu Leu  Ile Ala Met
    1595                1600                1605

Leu Phe  Phe Ile Tyr Ala Ile  Ile Gly Met Gln Val  Phe Gly Asn
    1610                1615                1620

Ile Ala  Leu Asp Asp Asp Thr  Ser Ile Asn Arg His  Asn Asn Phe
    1625                1630                1635

Arg Thr  Phe Leu Gln Ala Leu  Met Leu Leu Phe Arg  Ser Ala Thr
    1640                1645                1650

Gly Glu  Ala Trp His Glu Ile  Met Leu Ser Cys Leu  Ser Asn Gln
    1655                1660                1665

Ala Cys  Asp Glu Gln Ala Asn  Ala Thr Glu Cys Gly  Ser Asp Phe
    1670                1675                1680

Ala Tyr  Phe Tyr Phe Val Ser  Phe Ile Phe Leu Cys  Ser Phe Leu
    1685                1690                1695

Met Leu  Asn Leu Phe Val Ala  Val Ile Met Asp Asn  Phe Glu Tyr
    1700                1705                1710

Leu Thr  Arg Asp Ser Ser Ile  Leu Gly Pro His His  Leu Asp Glu
    1715                1720                1725

Phe Ile  Arg Val Trp Ala Glu  Tyr Asp Pro Ala Ala  Cys Gly Arg
    1730                1735                1740

Ile Ser  Tyr Asn Asp Met Phe  Glu Met Leu Lys His  Met Ser Pro
    1745                1750                1755

Pro Leu  Gly Leu Gly Lys Lys  Cys Pro Ala Arg Val  Ala Tyr Lys
    1760                1765                1770

Arg Leu  Val Arg Met Asn Met  Pro Ile Ser Asn Glu  Asp Met Thr
    1775                1780                1785
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Val His  Phe Thr Ser Thr Leu  Met Ala Leu Ile Arg  Thr Ala Leu
     1790                1795                1800

Glu Ile  Lys Leu Ala Pro Ala  Gly Thr Lys Gln His  Gln Cys Asp
     1805                1810                1815

Ala Glu  Leu Arg Lys Glu Ile  Ser Val Val Trp Ala  Asn Leu Pro
     1820                1825                1830

Gln Lys  Thr Leu Asp Leu Leu  Val Pro Pro His Lys  Pro Asp Glu
     1835                1840                1845

Met Thr  Val Gly Lys Val Tyr  Ala Ala Leu Met Ile  Phe Asp Phe
     1850                1855                1860

Tyr Lys  Gln Asn Lys Thr Thr  Arg Asp Gln Met Gln  Gln Ala Pro
     1865                1870                1875

Gly Gly  Leu Ser Gln Met Gly  Pro Val Ser Leu Phe  His Pro Leu
     1880                1885                1890

Lys Ala  Thr Leu Glu Gln Thr  Gln Pro Ala Val Leu  Arg Gly Ala
     1895                1900                1905

Arg Val  Phe Leu Arg Gln Lys  Ser Ser Thr Ser Leu  Ser Asn Gly
     1910                1915                1920

Gly Ala  Ile Gln Asn Gln Glu  Ser Gly Ile Lys Glu  Ser Val Ser
     1925                1930                1935

Trp Gly  Thr Gln Arg Thr Gln  Asp Ala Pro His Glu  Ala Arg Pro
     1940                1945                1950

Pro Leu  Glu Arg Gly His Ser  Thr Glu Ile Pro Val  Gly Arg Ser
     1955                1960                1965

Gly Ala  Leu Ala Val Asp Val  Gln Met Gln Ser Ile  Thr Arg Arg
     1970                1975                1980

Gly Pro  Asp Gly Glu Pro Gln  Pro Gly Leu Glu Ser  Gln Gly Arg
     1985                1990                1995

Ala Ala  Ser Met Pro Arg Leu  Ala Ala Glu Thr Gln  Pro Val Thr
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2000 2005 2010

Asp Ala Ser Pro Met Lys Arg Ser Ile Ser Thr Leu Ala Gln Arg
2015 2020 2025

Pro Arg Gly Thr His Leu Cys Ser Thr Thr Pro Asp Arg Pro Pro
2030 2035 2040

Pro Ser Gln Ala Ser Ser His His His His His Arg Cys His Arg
2045 2050 2055

Arg Arg Asp Arg Lys Gln Arg Ser Leu Glu Lys Gly Pro Ser Leu
2060 2065 2070

Ser Ala Asp Met Asp Gly Ala Pro Ser Ser Ala Val Gly Pro Gly
2075 2080 2085

Leu Pro Pro Gly Glu Gly Pro Thr Gly Cys Arg Arg Glu Arg Glu
2090 2095 2100

Arg Arg Gln Glu Arg Gly Arg Ser Gln Glu Arg Arg Gln Pro Ser
2105 2110 2115

Ser Ser Ser Ser Glu Lys Gln Arg Phe Tyr Ser Cys Asp Arg Phe
2120 2125 2130

Gly Gly Arg Glu Pro Pro Lys Pro Lys Pro Ser Leu Ser Ser His
2135 2140 2145

Pro Thr Ser Pro Thr Ala Gly Gln Glu Pro Gly Pro His Pro Gln
2150 2155 2160

Ala Gly Ser Ala Val Gly Phe Pro Asn Thr Thr Pro Cys Cys Arg
2165 2170 2175

Glu Thr Pro Ser Ala Ser Pro Trp Pro Leu Ala Leu Glu Leu Ala
2180 2185 2190

Leu Thr Leu Thr Trp Gly Ser Val Trp Thr Val Arg Pro Leu Ser
2195 2200 2205

Thr Pro Cys Leu Arg Thr Leu Ser Leu Ser Arg Arg Leu Trp Pro
2210 2215 2220

Pro Thr Arg Ala Ala Pro Pro Gly Leu Pro Thr Cys Pro Pro
2225 2230 2235

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Gly Gly Glu Arg Ala Arg Gly Gly Gly Ala Gly Gly Ala Gly Gly Pro
20 25 30

Gly Pro Gly Gly Leu Gln Pro Gly Gln Arg Val Leu Tyr Lys Gln Ser
35 40 45

Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val
50 55 60

Lys Gln Asn Cys Phe Thr Val Asn Arg Ser Leu Phe Val Phe Ser Glu
65 70 75 80

Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro
85 90 95

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Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys Ile Val Leu
            100                 105                 110

Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu
        115                 120                 125

Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu
    130                 135                 140

Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser
145                 150                 155                 160

Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
                165                 170                 175

Gly Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg
            180                 185                 190

Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser
        195                 200                 205

Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu
    210                 215                 220

Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile
225                 230                 235                 240

Gly Leu Glu Phe Tyr Met Gly Lys Phe His Lys Ala Cys Phe Pro Asn
                245                 250                 255

Ser Thr Asp Ala Glu Pro Val Gly Asp Phe Pro Cys Gly Lys Glu Ala
            260                 265                 270

Pro Ala Arg Leu Cys Glu Gly Asp Thr Glu Cys Arg Glu Tyr Trp Pro
        275                 280                 285

Gly Pro Asn Phe Gly Ile Thr Asn Phe Asp Asn Ile Leu Phe Ala Ile
    290                 295                 300

Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Ile Leu
305                 310                 315                 320
```

```
Tyr Asn Thr Asn Asp Ala Ala Gly Asn Thr Trp Asn Trp Leu Tyr Phe
                325                 330                 335

Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu Asn Leu Val Leu
            340                 345                 350

Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn
        355                 360                 365

Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu
    370                 375                 380

Leu Asn Gly Tyr Leu Glu Trp Ile Phe Lys Ala Glu Glu Val Met Leu
385                 390                 395                 400

Ala Glu Glu Asp Arg Asn Ala Glu Glu Lys Ser Pro Leu Asp Val Leu
                405                 410                 415

Lys Arg Ala Ala Thr Lys Lys Ser Arg Asn Asp Leu Ile His Ala Glu
            420                 425                 430

Glu Gly Glu Asp Arg Phe Ala Asp Leu Cys Ala Val Gly Ser Pro Phe
        435                 440                 445

Ala Arg Ala Ser Leu Lys Ser Gly Lys Thr Glu Ser Ser Ser Tyr Phe
    450                 455                 460

Arg Arg Lys Glu Lys Met Phe Arg Phe Phe Ile Arg Arg Met Val Lys
465                 470                 475                 480

Ala Gln Ser Phe Tyr Trp Val Val Leu Cys Val Val Ala Leu Asn Thr
                485                 490                 495

Leu Cys Val Ala Met Val His Tyr Asn Gln Pro Arg Arg Leu Thr Thr
            500                 505                 510

Thr Leu Tyr Phe Ala Glu Phe Val Phe Leu Gly Leu Phe Leu Thr Glu
        515                 520                 525

Met Ser Leu Lys Met Tyr Gly Leu Gly Pro Arg Ser Tyr Phe Arg Ser
    530                 535                 540

Ser Phe Asn Cys Phe Asp Phe Gly Val Ile Val Gly Ser Val Phe Glu
```

545 550 555 560

Val Val Trp Ala Ala Ile Lys Pro Gly Ser Ser Phe Gly Ile Ser Val
565 570 575

Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val Thr Lys Tyr Trp
580 585 590

Ser Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn Ser Met Lys Ser
595 600 605

Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile Val Val Phe Ala
610 615 620

Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn Phe Gln Asp Glu
625 630 635 640

Thr Pro Thr Thr Asn Phe Asp Thr Phe Pro Ala Ala Ile Leu Thr Val
645 650 655

Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr His Gly
660 665 670

Ile Glu Ser Gln Gly Gly Val Ser Lys Gly Met Phe Ser Ser Phe Tyr
675 680 685

Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe
690 695 700

Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys
705 710 715 720

Asp Glu Glu Glu Met Glu Glu Ala Ala Asn Gln Lys Leu Ala Leu Gln
725 730 735

Lys Ala Lys Glu Val Ala Glu Val Ser Pro Met Ser Ala Ala Asn Ile
740 745 750

Ser Ile Ala Ala Arg Gln Gln Asn Ser Ala Lys Ala Arg Ser Val Trp
755 760 765

Glu Gln Arg Ala Ser Gln Leu Arg Leu Gln Asn Leu Arg Ala Ser Cys
770 775 780

```
Glu Ala Leu Tyr Ser Glu Met Asp Pro Glu Glu Arg Leu Arg Phe Ala
785                 790                 795                 800

Thr Thr Arg His Leu Arg Pro Asp Met Lys Thr His Leu Asp Arg Pro
                805                 810                 815

Leu Val Val Glu Leu Gly Arg Asp Gly Ala Arg Gly Pro Val Gly Gly
            820                 825                 830

Lys Ala Arg Pro Glu Ala Ala Glu Ala Pro Glu Gly Val Asp Pro Pro
        835                 840                 845

Arg Arg His His Arg His Arg Asp Lys Asp Lys Thr Pro Ala Ala Gly
    850                 855                 860

Asp Gln Asp Arg Ala Glu Ala Pro Lys Ala Glu Ser Gly Glu Pro Gly
865                 870                 875                 880

Ala Arg Glu Glu Arg Pro Arg Pro His Arg Ser His Ser Lys Glu Ala
                885                 890                 895

Ala Gly Pro Pro Glu Ala Arg Ser Glu Arg Gly Arg Gly Pro Gly Pro
            900                 905                 910

Glu Gly Gly Arg Arg His His Arg Arg Gly Ser Pro Glu Glu Ala Ala
        915                 920                 925

Glu Arg Glu Pro Arg Arg His Arg Ala His Arg His Gln Asp Pro Ser
    930                 935                 940

Lys Glu Cys Ala Gly Ala Lys Gly Glu Arg Arg Ala Arg His Arg Gly
945                 950                 955                 960

Gly Pro Arg Ala Gly Pro Arg Glu Ala Glu Ser Gly Glu Glu Pro Ala
                965                 970                 975

Arg Arg His Arg Ala Arg His Lys Ala Gln Pro Ala His Glu Ala Val
            980                 985                 990

Glu Lys Glu Thr Thr Glu Lys Glu  Ala Thr Glu Lys Glu  Ala Glu
Ile
        995                 1000                1005
```

```
Val Glu  Ala Asp Lys Glu Lys  Glu Leu Arg Asn His  Gln Pro Arg
    1010                1015                1020

Glu Pro  His Cys Asp Leu Glu  Thr Ser Gly Thr Val  Thr Val Gly
    1025                1030                1035

Pro Met  His Thr Leu Pro Ser  Thr Cys Leu Gln Lys  Val Glu Glu
    1040                1045                1050

Gln Pro  Glu Asp Ala Asp Asn  Gln Arg Asn Val Thr  Arg Met Gly
    1055                1060                1065

Ser Gln  Pro Pro Asp Pro Asn  Thr Ile Val His Ile  Pro Val Met
    1070                1075                1080

Leu Thr  Gly Pro Leu Gly Glu  Ala Thr Val Val Pro  Ser Gly Asn
    1085                1090                1095

Val Asp  Leu Glu Ser Gln Ala  Glu Gly Lys Lys Glu  Val Glu Ala
    1100                1105                1110

Asp Asp  Val Met Arg Ser Gly  Pro Arg Pro Ile Val  Pro Tyr Ser
    1115                1120                1125

Ser Met  Phe Cys Leu Ser Pro  Thr Asn Leu Leu Arg  Arg Phe Cys
    1130                1135                1140

His Tyr  Ile Val Thr Met Arg  Tyr Phe Glu Val Val  Ile Leu Val
    1145                1150                1155

Val Ile  Ala Leu Ser Ser Ile  Ala Leu Ala Ala Glu  Asp Pro Val
    1160                1165                1170

Arg Thr  Asp Ser Pro Arg Asn  Asn Ala Leu Lys Tyr  Leu Asp Tyr
    1175                1180                1185

Ile Phe  Thr Gly Val Phe Thr  Phe Glu Met Val Ile  Lys Met Ile
    1190                1195                1200

Asp Leu  Gly Leu Leu Leu His  Pro Gly Ala Tyr Phe  Arg Asp Leu
    1205                1210                1215
```

```
Trp Asn  Ile Leu Asp Phe Ile  Val Val Ser Gly Ala  Leu Val Ala
    1220                1225                1230

Phe Ala  Phe Ser Gly Ser Lys  Gly Lys Asp Ile Asn  Thr Ile Lys
    1235                1240                1245

Ser Leu  Arg Val Leu Arg Val  Leu Arg Pro Leu Lys  Thr Ile Lys
    1250                1255                1260

Arg Leu  Pro Lys Leu Lys Ala  Val Phe Asp Cys Val  Val Asn Ser
    1265                1270                1275

Leu Lys  Asn Val Leu Asn Ile  Leu Ile Val Tyr Met  Leu Phe Met
    1280                1285                1290

Phe Ile  Phe Ala Val Ile Ala  Val Gln Leu Phe Lys  Gly Lys Phe
    1295                1300                1305

Phe Tyr  Cys Thr Asp Glu Ser  Lys Glu Leu Glu Arg  Asp Cys Arg
    1310                1315                1320

Gly Gln  Tyr Leu Asp Tyr Glu  Lys Glu Glu Val Glu  Ala Gln Pro
    1325                1330                1335

Arg Gln  Trp Lys Lys Tyr Asp  Phe His Tyr Asp Asn  Val Leu Trp
    1340                1345                1350

Ala Leu  Leu Thr Leu Phe Thr  Val Ser Thr Gly Glu  Gly Trp Pro
    1355                1360                1365

Met Val  Leu Lys His Ser Val  Asp Ala Thr Tyr Glu  Glu Gln Gly
    1370                1375                1380

Pro Ser  Pro Gly Tyr Arg Met  Glu Leu Ser Ile Phe  Tyr Val Val
    1385                1390                1395

Tyr Phe  Val Val Phe Pro Phe  Phe Phe Val Asn Ile  Phe Val Ala
    1400                1405                1410

Leu Ile  Ile Ile Thr Phe Gln  Glu Gln Gly Asp Lys  Val Met Ser
    1415                1420                1425
```

```
Glu Cys  Ser Leu Glu Lys Asn  Glu Arg Ala Cys Ile  Asp Phe Ala
    1430                 1435                 1440

Ile Ser  Ala Lys Pro Leu Thr  Arg Tyr Met Pro Gln  Asn Arg Gln
    1445                 1450                 1455

Ser Phe  Gln Tyr Lys Thr Trp  Thr Phe Val Val Ser  Pro Pro Phe
    1460                 1465                 1470

Glu Tyr  Phe Ile Met Ala Met  Ile Ala Leu Asn Thr  Val Val Leu
    1475                 1480                 1485

Met Met  Lys Phe Tyr Asp Ala  Pro Tyr Glu Tyr Glu  Leu Met Leu
    1490                 1495                 1500

Lys Cys  Leu Asn Ile Val Phe  Thr Ser Met Phe Ser  Met Glu Cys
    1505                 1510                 1515

Val Leu  Lys Ile Ile Ala Phe  Gly Val Leu Asn Tyr  Phe Arg Asp
    1520                 1525                 1530

Ala Trp  Asn Val Phe Asp Phe  Val Thr Val Leu Gly  Ser Ile Thr
    1535                 1540                 1545

Asp Ile  Leu Val Thr Glu Ile  Ala Glu Thr Asn Asn  Phe Ile Asn
    1550                 1555                 1560

Leu Ser  Phe Leu Arg Leu Phe  Arg Ala Ala Arg Leu  Ile Lys Leu
    1565                 1570                 1575

Leu Arg  Gln Gly Tyr Thr Ile  Arg Ile Leu Leu Trp  Thr Phe Val
    1580                 1585                 1590

Gln Ser  Phe Lys Ala Leu Pro  Tyr Val Cys Leu Leu  Ile Ala Met
    1595                 1600                 1605

Leu Phe  Phe Ile Tyr Ala Ile  Ile Gly Met Gln Val  Phe Gly Asn
    1610                 1615                 1620

Ile Ala  Leu Asp Asp Asp Thr  Ser Ile Asn Arg His  Asn Asn Phe
    1625                 1630                 1635

Arg Thr  Phe Leu Gln Ala Leu  Met Leu Leu Phe Arg  Ser Ala Thr
```

1640 1645 1650

Gly Glu Ala Trp His Glu Ile Met Leu Ser Cys Leu Ser Asn Gln
1655 1660 1665

Ala Cys Asp Glu Gln Ala Asn Ala Thr Glu Cys Gly Ser Asp Phe
1670 1675 1680

Ala Tyr Phe Tyr Phe Val Ser Phe Ile Phe Leu Cys Ser Phe Leu
1685 1690 1695

Met Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu Tyr
1700 1705 1710

Leu Thr Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu
1715 1720 1725

Phe Ile Arg Val Trp Ala Glu Tyr Asp Pro Ala Ala Cys Gly Arg
1730 1735 1740

Ile Ser Tyr Asn Asp Met Phe Glu Met Leu Lys His Met Ser Pro
1745 1750 1755

Pro Leu Gly Leu Gly Lys Lys Cys Pro Ala Arg Val Ala Tyr Lys
1760 1765 1770

Arg Leu Val Arg Met Asn Met Pro Ile Ser Asn Glu Asp Met Thr
1775 1780 1785

Val His Phe Thr Ser Thr Leu Met Ala Leu Ile Arg Thr Ala Leu
1790 1795 1800

Glu Ile Lys Leu Ala Pro Ala Gly Thr Lys Gln His Gln Cys Asp
1805 1810 1815

Ala Glu Leu Arg Lys Glu Ile Ser Val Val Trp Ala Asn Leu Pro
1820 1825 1830

Gln Lys Thr Leu Asp Leu Leu Val Pro Pro His Lys Pro Asp Glu
1835 1840 1845

Met Thr Val Gly Lys Val Tyr Ala Ala Leu Met Ile Phe Asp Phe
1850 1855 1860

```
Tyr Lys  Gln Asn Lys Thr Thr  Arg Asp Gln Met Gln  Gln Ala Pro
    1865                1870                1875

Gly Gly  Leu Ser Gln Met Gly  Pro Val Ser Leu Phe  His Pro Leu
    1880                1885                1890

Lys Ala  Thr Leu Glu Gln Thr  Gln Pro Ala Val Leu  Arg Gly Ala
    1895                1900                1905

Arg Val  Phe Leu Arg Gln Lys  Ser Ser Thr Ser Leu  Ser Asn Gly
    1910                1915                1920

Gly Ala  Ile Gln Asn Gln Glu  Ser Gly Ile Lys Glu  Ser Val Ser
    1925                1930                1935

Trp Gly  Thr Gln Arg Thr Gln  Asp Ala Pro His Glu  Ala Arg Pro
    1940                1945                1950

Pro Leu  Glu Arg Gly His Ser  Thr Glu Ile Pro Val  Gly Arg Ser
    1955                1960                1965

Gly Ala  Leu Ala Val Asp Val  Gln Met Gln Ser Ile  Thr Arg Arg
    1970                1975                1980

Gly Pro  Asp Gly Glu Pro Gln  Pro Gly Leu Glu Ser  Gln Gly Arg
    1985                1990                1995

Ala Ala  Ser Met Pro Arg Leu  Ala Ala Glu Thr Gln  Pro Val Thr
    2000                2005                2010

Asp Ala  Ser Pro Met Lys Arg  Ser Ile Ser Thr Leu  Ala Gln Arg
    2015                2020                2025

Pro Arg  Gly Thr His Leu Cys  Ser Thr Thr Pro Asp  Arg Pro Pro
    2030                2035                2040

Pro Ser  Gln Ala Ser Ser His  His His His His Arg  Cys His Arg
    2045                2050                2055

Arg Arg  Asp Arg Lys Gln Arg  Ser Leu Glu Lys Gly  Pro Ser Leu
    2060                2065                2070
```

```
Ser Ala  Asp Met Asp Gly Ala  Pro Ser Ser Ala Val  Gly Pro Gly
    2075                2080                2085

Leu Pro  Pro Gly Glu Gly Pro  Thr Gly Cys Arg Arg  Glu Arg Glu
    2090                2095                2100

Arg Arg  Gln Glu Arg Gly Arg  Ser Gln Glu Arg Arg  Gln Pro Ser
    2105                2110                2115

Ser Ser  Ser Ser Glu Lys Gln  Arg Phe Tyr Ser Cys  Asp Arg Phe
    2120                2125                2130

Gly Gly  Arg Glu Pro Pro Lys  Pro Lys Pro Ser Leu  Ser Ser His
    2135                2140                2145

Pro Thr  Ser Pro Thr Ala Gly  Gln Glu Pro Gly Pro  His Pro Gln
    2150                2155                2160

Ala Gly  Ser Ala Val Gly Phe  Pro Asn Thr Thr Pro  Cys Cys Arg
    2165                2170                2175

Glu Thr  Pro Ser Ala Ser Pro  Trp Pro Leu Ala Leu  Glu Leu Ala
    2180                2185                2190

Leu Thr  Leu Thr Trp Gly Ser  Val Trp Thr Val Arg  Pro Leu Ser
    2195                2200                2205

Thr Pro  Cys Leu Arg Thr Leu  Ser Leu Ser Arg Arg  Leu Trp Pro
    2210                2215                2220

Pro Thr  Arg Ala Ala Pro Pro  Gly Leu Pro Thr Cys  Pro Pro
    2225                2230                2235


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Gly Gly Glu Arg Ala Arg Gly Gly Gly Ala Gly Gly Ala Gly Gly Pro
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Gly Pro Gly Gly Leu Gln Pro Gly Gln Arg Val Leu Tyr Lys Gln Ser
35 40 45

Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val
50 55 60

Lys Gln Asn Cys Phe Thr Val Asn Arg Ser Leu Phe Val Phe Ser Glu
65 70 75 80

Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro
85 90 95

Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys Ile Val Leu
100 105 110

Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu
115 120 125

Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu
130 135 140

Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser
145 150 155 160

Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
165 170 175

Gly Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg

```
            180                 185                 190

Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser
        195                 200                 205

Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu
    210                 215                 220

Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile
225                 230                 235                 240

Gly Leu Glu Phe Tyr Met Gly Lys Phe His Lys Ala Cys Phe Pro Asn
                245                 250                 255

Ser Thr Asp Ala Glu Pro Val Gly Asp Phe Pro Cys Gly Lys Glu Ala
            260                 265                 270

Pro Ala Arg Leu Cys Glu Gly Asp Thr Glu Cys Arg Glu Tyr Trp Pro
        275                 280                 285

Gly Pro Asn Phe Gly Ile Thr Asn Phe Asp Asn Ile Leu Phe Ala Ile
    290                 295                 300

Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Ile Leu
305                 310                 315                 320

Tyr Asn Thr Asn Asp Ala Ala Gly Asn Thr Trp Asn Trp Leu Tyr Phe
                325                 330                 335

Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu Asn Leu Val Leu
            340                 345                 350

Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn
        355                 360                 365

Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu
    370                 375                 380

Leu Asn Gly Tyr Leu Glu Trp Ile Phe Lys Ala Glu Glu Val Met Leu
385                 390                 395                 400

Ala Glu Glu Asp Arg Asn Ala Glu Glu Lys Ser Pro Leu Asp Ala Val
                405                 410                 415
```

```
Leu Lys Arg Ala Ala Thr Lys Lys Ser Arg Asn Asp Leu Ile His Ala
            420                 425                 430

Glu Glu Gly Glu Asp Arg Phe Ala Asp Leu Cys Ala Val Gly Ser Pro
        435                 440                 445

Phe Ala Arg Ala Ser Leu Lys Ser Gly Lys Thr Glu Ser Ser Ser Tyr
    450                 455                 460

Phe Arg Arg Lys Glu Lys Met Phe Arg Phe Phe Ile Arg Arg Met Val
465                 470                 475                 480

Lys Ala Gln Ser Phe Tyr Trp Val Val Leu Cys Val Val Ala Leu Asn
                485                 490                 495

Thr Leu Cys Val Ala Met Val His Tyr Asn Gln Pro Arg Arg Leu Thr
            500                 505                 510

Thr Thr Leu Tyr Phe Ala Glu Phe Val Phe Leu Gly Leu Phe Leu Thr
        515                 520                 525

Glu Met Ser Leu Lys Met Tyr Gly Leu Gly Pro Arg Ser Tyr Phe Arg
    530                 535                 540

Ser Ser Phe Asn Cys Phe Asp Phe Gly Val Ile Val Gly Ser Val Phe
545                 550                 555                 560

Glu Val Val Trp Ala Ala Ile Lys Pro Gly Ser Ser Phe Gly Ile Ser
                565                 570                 575

Val Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val Thr Lys Tyr
            580                 585                 590

Trp Ser Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn Ser Met Lys
        595                 600                 605

Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile Val Val Phe
    610                 615                 620

Ala Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn Phe Gln Asp
625                 630                 635                 640
```

```
Glu Thr Pro Thr Thr Asn Phe Asp Thr Phe Pro Ala Ala Ile Leu Thr
                645                 650                 655

Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr His
            660                 665                 670

Gly Ile Glu Ser Gln Gly Gly Val Ser Lys Gly Met Phe Ser Ser Phe
        675                 680                 685

Tyr Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu Leu Asn Val
    690                 695                 700

Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln Glu Leu Thr
705                 710                 715                 720

Lys Asp Glu Glu Glu Met Glu Glu Ala Ala Asn Gln Lys Leu Ala Leu
                725                 730                 735

Gln Lys Ala Lys Glu Val Ala Glu Val Ser Pro Met Ser Ala Ala Asn
            740                 745                 750

Ile Ser Ile Ala Ala Arg Gln Gln Asn Ser Ala Lys Ala Arg Ser Val
        755                 760                 765

Trp Glu Gln Arg Ala Ser Gln Leu Arg Leu Gln Asn Leu Arg Ala Ser
    770                 775                 780

Cys Glu Ala Leu Tyr Ser Glu Met Asp Pro Glu Glu Arg Leu Arg Phe
785                 790                 795                 800

Ala Thr Thr Arg His Leu Arg Pro Asp Met Lys Thr His Leu Asp Arg
                805                 810                 815

Pro Leu Val Val Glu Leu Gly Arg Asp Gly Ala Arg Gly Pro Val Gly
            820                 825                 830

Gly Lys Ala Arg Pro Glu Ala Ala Glu Ala Pro Glu Gly Val Asp Pro
        835                 840                 845

Pro Arg Arg His His Arg His Arg Asp Lys Asp Lys Thr Pro Ala Ala
    850                 855                 860
```

```
Gly Asp Gln Asp Arg Ala Glu Ala Pro Lys Ala Glu Ser Gly Glu Pro
865                 870                 875                 880

Gly Ala Arg Glu Glu Arg Pro Arg Pro His Arg Ser His Ser Lys Glu
                885                 890                 895

Ala Ala Gly Pro Pro Glu Ala Arg Ser Glu Arg Gly Arg Gly Pro Gly
            900                 905                 910

Pro Glu Gly Gly Arg Arg His His Arg Arg Gly Ser Pro Glu Glu Ala
        915                 920                 925

Ala Glu Arg Glu Pro Arg Arg His Arg Ala His Arg His Gln Asp Pro
    930                 935                 940

Ser Lys Glu Cys Ala Gly Ala Lys Gly Glu Arg Arg Ala Arg His Arg
945                 950                 955                 960

Gly Gly Pro Arg Ala Gly Pro Arg Glu Ala Glu Ser Gly Glu Glu Pro
                965                 970                 975

Ala Arg Arg His Arg Ala Arg His Lys Ala Gln Pro Ala His Glu Ala
            980                 985                 990

Val Glu Lys Glu Thr Thr Glu Lys  Glu Ala Thr Glu Lys  Glu Ala
Glu
        995                 1000                1005

Ile Val  Glu Ala Asp Lys Glu  Lys Glu Leu Arg Asn  His Gln Pro
    1010                1015                1020

Arg Glu  Pro His Cys Asp Leu  Glu Thr Ser Gly Thr  Val Thr Val
    1025                1030                1035

Gly Pro  Met His Thr Leu Pro  Ser Thr Cys Leu Gln  Lys Val Glu
    1040                1045                1050

Glu Gln  Pro Glu Asp Ala Asp  Asn Gln Arg Asn Val  Thr Arg Met
    1055                1060                1065

Gly Ser  Gln Pro Pro Asp Pro  Asn Thr Ile Val His  Ile Pro Val
    1070                1075                1080
```

```
Met Leu  Thr Gly Pro Leu Gly  Glu Ala Thr Val Val  Pro Ser Gly
    1085                1090                1095

Asn Val  Asp Leu Glu Ser Gln  Ala Glu Gly Lys Lys  Glu Val Glu
    1100                1105                1110

Ala Asp  Asp Val Met Arg Ser  Gly Pro Arg Pro Ile  Val Pro Tyr
    1115                1120                1125

Ser Ser  Met Phe Cys Leu Ser  Pro Thr Asn Leu Leu  Arg Arg Phe
    1130                1135                1140

Cys His  Tyr Ile Val Thr Met  Arg Tyr Phe Glu Val  Val Ile Leu
    1145                1150                1155

Val Val  Ile Ala Leu Ser Ser  Ile Ala Leu Ala Ala  Glu Asp Pro
    1160                1165                1170

Val Arg  Thr Asp Ser Pro Arg  Asn Asn Ala Leu Lys  Tyr Leu Asp
    1175                1180                1185

Tyr Ile  Phe Thr Gly Val Phe  Thr Phe Glu Met Val  Ile Lys Met
    1190                1195                1200

Ile Asp  Leu Gly Leu Leu Leu  His Pro Gly Ala Tyr  Phe Arg Asp
    1205                1210                1215

Leu Trp  Asn Ile Leu Asp Phe  Ile Val Val Ser Gly  Ala Leu Val
    1220                1225                1230

Ala Phe  Ala Phe Ser Gly Ser  Lys Gly Lys Asp Ile  Asn Thr Ile
    1235                1240                1245

Lys Ser  Leu Arg Val Leu Arg  Val Leu Arg Pro Leu  Lys Thr Ile
    1250                1255                1260

Lys Arg  Leu Pro Lys Leu Lys  Ala Val Phe Asp Cys  Val Val Asn
    1265                1270                1275

Ser Leu  Lys Asn Val Leu Asn  Ile Leu Ile Val Tyr  Met Leu Phe
    1280                1285                1290

Met Phe  Ile Phe Ala Val Ile  Ala Val Gln Leu Phe  Lys Gly Lys
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1295 1300 1305

Phe Phe Tyr Cys Thr Asp Glu Ser Lys Glu Leu Glu Arg Asp Cys
1310 1315 1320

Arg Gly Gln Tyr Leu Asp Tyr Glu Lys Glu Glu Val Glu Ala Gln
1325 1330 1335

Pro Arg Gln Trp Lys Lys Tyr Asp Phe His Tyr Asp Asn Val Leu
1340 1345 1350

Trp Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly Glu Gly Trp
1355 1360 1365

Pro Met Val Leu Lys His Ser Val Asp Ala Thr Tyr Glu Glu Gln
1370 1375 1380

Gly Pro Ser Pro Gly Tyr Arg Met Glu Leu Ser Ile Phe Tyr Val
1385 1390 1395

Val Tyr Phe Val Val Phe Pro Phe Phe Phe Val Asn Ile Phe Val
1400 1405 1410

Ala Leu Ile Ile Ile Thr Phe Gln Glu Gln Gly Asp Lys Val Met
1415 1420 1425

Ser Glu Cys Ser Leu Glu Lys Asn Glu Arg Ala Cys Ile Asp Phe
1430 1435 1440

Ala Ile Ser Ala Lys Pro Leu Thr Arg Tyr Met Pro Gln Asn Arg
1445 1450 1455

Gln Ser Phe Gln Tyr Lys Thr Trp Thr Phe Val Val Ser Pro Pro
1460 1465 1470

Phe Glu Tyr Phe Ile Met Ala Met Ile Ala Leu Asn Thr Val Val
1475 1480 1485

Leu Met Met Lys Phe Tyr Asp Ala Pro Tyr Glu Tyr Glu Leu Met
1490 1495 1500

Leu Lys Cys Leu Asn Ile Val Phe Thr Ser Met Phe Ser Met Glu
1505 1510 1515

```
Cys Val  Leu Lys Ile Ile Ala  Phe Gly Val Leu Asn  Tyr Phe Arg
    1520                1525                1530

Asp Ala  Trp Asn Val Phe Asp  Phe Val Thr Val Leu  Gly Ser Ile
    1535                1540                1545

Thr Asp  Ile Leu Val Thr Glu  Ile Ala Glu Thr Asn  Asn Phe Ile
    1550                1555                1560

Asn Leu  Ser Phe Leu Arg Leu  Phe Arg Ala Ala Arg  Leu Ile Lys
    1565                1570                1575

Leu Leu  Arg Gln Gly Tyr Thr  Ile Arg Ile Leu Leu  Trp Thr Phe
    1580                1585                1590

Val Gln  Ser Phe Lys Ala Leu  Pro Tyr Val Cys Leu  Leu Ile Ala
    1595                1600                1605

Met Leu  Phe Phe Ile Tyr Ala  Ile Ile Gly Met Gln  Val Phe Gly
    1610                1615                1620

Asn Ile  Ala Leu Asp Asp Asp  Thr Ser Ile Asn Arg  His Asn Asn
    1625                1630                1635

Phe Arg  Thr Phe Leu Gln Ala  Leu Met Leu Leu Phe  Arg Ser Ala
    1640                1645                1650

Thr Gly  Glu Ala Trp His Glu  Ile Met Leu Ser Cys  Leu Ser Asn
    1655                1660                1665

Gln Ala  Cys Asp Glu Gln Ala  Asn Ala Thr Glu Cys  Gly Ser Asp
    1670                1675                1680

Phe Ala  Tyr Phe Tyr Phe Val  Ser Phe Ile Phe Leu  Cys Ser Phe
    1685                1690                1695

Leu Met  Leu Asn Leu Phe Val  Ala Val Ile Met Asp  Asn Phe Glu
    1700                1705                1710

Tyr Leu  Thr Arg Asp Ser Ser  Ile Leu Gly Pro His  His Leu Asp
    1715                1720                1725
```

```
Glu Phe  Ile Arg Val Trp Ala  Glu Tyr Asp Pro Ala  Ala Cys Gly
    1730                1735                1740

Arg Ile  Ser Tyr Asn Asp Met  Phe Glu Met Leu Lys  His Met Ser
    1745                1750                1755

Pro Pro  Leu Gly Leu Gly Lys  Lys Cys Pro Ala Arg  Val Ala Tyr
    1760                1765                1770

Lys Arg  Leu Val Arg Met Asn  Met Pro Ile Ser Asn  Glu Asp Met
    1775                1780                1785

Thr Val  His Phe Thr Ser Thr  Leu Met Ala Leu Ile  Arg Thr Ala
    1790                1795                1800

Leu Glu  Ile Lys Leu Ala Pro  Ala Gly Thr Lys Gln  His Gln Cys
    1805                1810                1815

Asp Ala  Glu Leu Arg Lys Glu  Ile Ser Val Val Trp  Ala Asn Leu
    1820                1825                1830

Pro Gln  Lys Thr Leu Asp Leu  Leu Val Pro Pro His  Lys Pro Asp
    1835                1840                1845

Glu Met  Thr Val Gly Lys Val  Tyr Ala Ala Leu Met  Ile Phe Asp
    1850                1855                1860

Phe Tyr  Lys Gln Asn Lys Thr  Thr Arg Asp Gln Met  Gln Gln Ala
    1865                1870                1875

Pro Gly  Gly Leu Ser Gln Met  Gly Pro Val Ser Leu  Phe His Pro
    1880                1885                1890

Leu Lys  Ala Thr Leu Glu Gln  Thr Gln Pro Ala Val  Leu Arg Gly
    1895                1900                1905

Ala Arg  Val Phe Leu Arg Gln  Lys Ser Ser Thr Ser  Leu Ser Asn
    1910                1915                1920

Gly Gly  Ala Ile Gln Asn Gln  Glu Ser Gly Ile Lys  Glu Ser Val
    1925                1930                1935
```

```
Ser Trp  Gly Thr Gln Arg Thr  Gln Asp Ala Pro His  Glu Ala Arg
    1940                1945                1950

Pro Pro  Leu Glu Arg Gly His  Ser Thr Glu Ile Pro  Val Gly Arg
    1955                1960                1965

Ser Gly  Ala Leu Ala Val Asp  Val Gln Met Gln Ser  Ile Thr Arg
    1970                1975                1980

Arg Gly  Pro Asp Gly Glu Pro  Gln Pro Gly Leu Glu  Ser Gln Gly
    1985                1990                1995

Arg Ala  Ala Ser Met Pro Arg  Leu Ala Ala Glu Thr  Gln Pro Val
    2000                2005                2010

Thr Asp  Ala Ser Pro Met Lys  Arg Ser Ile Ser Thr  Leu Ala Gln
    2015                2020                2025

Arg Pro  Arg Gly Thr His Leu  Cys Ser Thr Thr Pro  Asp Arg Pro
    2030                2035                2040

Pro Pro  Ser Gln Ala Ser Ser  His His His His His  Arg Cys His
    2045                2050                2055

Arg Arg  Arg Asp Arg Lys Gln  Arg Ser Leu Glu Lys  Gly Pro Ser
    2060                2065                2070

Leu Ser  Ala Asp Met Asp Gly  Ala Pro Ser Ser Ala  Val Gly Pro
    2075                2080                2085

Gly Leu  Pro Pro Gly Glu Gly  Pro Thr Gly Cys Arg  Arg Glu Arg
    2090                2095                2100

Glu Arg  Arg Gln Glu Arg Gly  Arg Ser Gln Glu Arg  Arg Gln Pro
    2105                2110                2115

Ser Ser  Ser Ser Ser Glu Lys  Gln Arg Phe Tyr Ser  Cys Asp Arg
    2120                2125                2130

Phe Gly  Gly Arg Glu Pro Pro  Lys Pro Lys Pro Ser  Leu Ser Ser
    2135                2140                2145

His Pro  Thr Ser Pro Thr Ala  Gly Gln Glu Pro Gly  Pro His Pro
```

2150 2155 2160

Gln Gly Ser Gly Ser Val Asn Gly Ser Pro Leu Leu Ser Thr Ser
2165 2170 2175

Gly Ala Ser Thr Pro Gly Arg Gly Gly Arg Arg Gln Leu Pro Gln
2180 2185 2190

Thr Pro Leu Thr Pro Arg Pro Ser Ile Thr Tyr Lys Thr Ala Asn
2195 2200 2205

Ser Ser Pro Ile His Phe Ala Gly Ala Gln Thr Ser Leu Pro Ala
2210 2215 2220

Phe Ser Pro Gly Arg Leu Ser Arg Gly Leu Ser Glu His Asn Ala
2225 2230 2235

Leu Leu Gln Arg Asp Pro Leu Ser Gln Pro Leu Ala Pro Gly Ser
2240 2245 2250

Arg Ile Gly Ser Asp Pro Tyr Leu Gly Gln Arg Leu Asp Ser Glu
2255 2260 2265

Ala Ser Val His Ala Leu Pro Glu Asp Thr Leu Thr Phe Glu Glu
2270 2275 2280

Ala Val Ala Thr Asn Ser Gly Arg Ser Ser Arg Thr Ser Tyr Val
2285 2290 2295

Ser Ser Leu Thr Ser Gln Ser His Pro Leu Arg Arg Val Pro Asn
2300 2305 2310

Gly Tyr His Cys Thr Leu Gly Leu Ser Ser Gly Gly Arg Ala Arg
2315 2320 2325

His Ser Tyr His His Pro Asp Gln Asp His Trp Cys
2330 2335 2340

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Gly Gly Glu Arg Ala Arg Gly Gly Gly Ala Gly Gly Ala Gly Gly Pro
            20                  25                  30

Gly Pro Gly Gly Leu Gln Pro Gly Gln Arg Val Leu Tyr Lys Gln Ser
        35                  40                  45

Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val
    50                  55                  60

Lys Gln Asn Cys Phe Thr Val Asn Arg Ser Leu Phe Val Phe Ser Glu
65                  70                  75                  80

Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro
                85                  90                  95

Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys Ile Val Leu
            100                 105                 110

Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu
        115                 120                 125

Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu
    130                 135                 140

Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser
145                 150                 155                 160
```

```
Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
                165                 170                 175

Gly Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg
            180                 185                 190

Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser
        195                 200                 205

Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu
    210                 215                 220

Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile
225                 230                 235                 240

Gly Leu Glu Phe Tyr Met Gly Lys Phe His Lys Ala Cys Phe Pro Asn
                245                 250                 255

Ser Thr Asp Ala Glu Pro Val Gly Asp Phe Pro Cys Gly Lys Glu Ala
            260                 265                 270

Pro Ala Arg Leu Cys Glu Gly Asp Thr Glu Cys Arg Glu Tyr Trp Pro
        275                 280                 285

Gly Pro Asn Phe Gly Ile Thr Asn Phe Asp Asn Ile Leu Phe Ala Ile
    290                 295                 300

Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Ile Leu
305                 310                 315                 320

Tyr Asn Thr Asn Asp Ala Ala Gly Asn Thr Trp Asn Trp Leu Tyr Phe
                325                 330                 335

Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu Asn Leu Val Leu
            340                 345                 350

Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn
        355                 360                 365

Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu
    370                 375                 380
```

```
Leu Asn Gly Tyr Leu Glu Trp Ile Phe Lys Ala Glu Glu Val Met Leu
385                 390                 395                 400

Ala Glu Glu Asp Arg Asn Ala Glu Glu Lys Ser Pro Leu Asp Ala Val
                405                 410                 415

Leu Lys Arg Ala Ala Thr Lys Lys Ser Arg Asn Asp Leu Ile His Ala
            420                 425                 430

Glu Glu Gly Glu Asp Arg Phe Ala Asp Leu Cys Ala Val Gly Ser Pro
        435                 440                 445

Phe Ala Arg Ala Ser Leu Lys Ser Gly Lys Thr Glu Ser Ser Ser Tyr
    450                 455                 460

Phe Arg Arg Lys Glu Lys Met Phe Arg Phe Phe Ile Arg Arg Met Val
465                 470                 475                 480

Lys Ala Gln Ser Phe Tyr Trp Val Val Leu Cys Val Val Ala Leu Asn
                485                 490                 495

Thr Leu Cys Val Ala Met Val His Tyr Asn Gln Pro Arg Arg Leu Thr
            500                 505                 510

Thr Thr Leu Tyr Phe Ala Glu Phe Val Phe Leu Gly Leu Phe Leu Thr
        515                 520                 525

Glu Met Ser Leu Lys Met Tyr Gly Leu Gly Pro Arg Ser Tyr Phe Arg
    530                 535                 540

Ser Ser Phe Asn Cys Phe Asp Phe Gly Val Ile Val Gly Ser Val Phe
545                 550                 555                 560

Glu Val Val Trp Ala Ala Ile Lys Pro Gly Ser Ser Phe Gly Ile Ser
                565                 570                 575

Val Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val Thr Lys Tyr
            580                 585                 590

Trp Ser Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn Ser Met Lys
        595                 600                 605

Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile Val Val Phe
```

610 615 620

Ala Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn Phe Gln Asp
625 630 635 640

Glu Thr Pro Thr Thr Asn Phe Asp Thr Phe Pro Ala Ala Ile Leu Thr
645 650 655

Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr His
660 665 670

Gly Ile Glu Ser Gln Gly Gly Val Ser Lys Gly Met Phe Ser Ser Phe
675 680 685

Tyr Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu Leu Asn Val
690 695 700

Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln Glu Leu Thr
705 710 715 720

Lys Asp Glu Glu Glu Met Glu Glu Ala Ala Asn Gln Lys Leu Ala Leu
725 730 735

Gln Lys Ala Lys Glu Val Ala Glu Val Ser Pro Met Ser Ala Ala Asn
740 745 750

Ile Ser Ile Ala Ala Arg Gln Gln Asn Ser Ala Lys Ala Arg Ser Val
755 760 765

Trp Glu Gln Arg Ala Ser Gln Leu Arg Leu Gln Asn Leu Arg Ala Ser
770 775 780

Cys Glu Ala Leu Tyr Ser Glu Met Asp Pro Glu Glu Arg Leu Arg Phe
785 790 795 800

Ala Thr Thr Arg His Leu Arg Pro Asp Met Lys Thr His Leu Asp Arg
805 810 815

Pro Leu Val Val Glu Leu Gly Arg Asp Gly Ala Arg Gly Pro Val Gly
820 825 830

Gly Lys Ala Arg Pro Glu Ala Ala Glu Ala Pro Glu Gly Val Asp Pro
835 840 845

```
Pro Arg Arg His His Arg His Arg Asp Lys Asp Lys Thr Pro Ala Ala
    850                 855                 860

Gly Asp Gln Asp Arg Ala Glu Ala Pro Lys Ala Glu Ser Gly Glu Pro
865                 870                 875                 880

Gly Ala Arg Glu Glu Arg Pro Arg Pro His Arg Ser His Ser Lys Glu
                885                 890                 895

Ala Ala Gly Pro Pro Glu Ala Arg Ser Glu Arg Gly Arg Gly Pro Gly
            900                 905                 910

Pro Glu Gly Gly Arg Arg His His Arg Arg Gly Ser Pro Glu Glu Ala
        915                 920                 925

Ala Glu Arg Glu Pro Arg Arg His Arg Ala His Arg His Gln Asp Pro
    930                 935                 940

Ser Lys Glu Cys Ala Gly Ala Lys Gly Glu Arg Arg Ala Arg His Arg
945                 950                 955                 960

Gly Gly Pro Arg Ala Gly Pro Arg Glu Ala Glu Ser Gly Glu Glu Pro
                965                 970                 975

Ala Arg Arg His Arg Ala Arg His Lys Ala Gln Pro Ala His Glu Ala
            980                 985                 990

Val Glu Lys Glu Thr Thr Glu Lys  Glu Ala Thr Glu Lys  Glu Ala
Glu
        995                 1000                1005

Ile Val  Glu Ala Asp Lys Glu  Lys Glu Leu Arg Asn  His Gln Pro
    1010                1015                1020

Arg Glu  Pro His Cys Asp Leu  Glu Thr Ser Gly Thr  Val Thr Val
    1025                1030                1035

Gly Pro  Met His Thr Leu Pro  Ser Thr Cys Leu Gln  Lys Val Glu
    1040                1045                1050

Glu Gln  Pro Glu Asp Ala Asp  Asn Gln Arg Asn Val  Thr Arg Met
    1055                1060                1065
```

```
Gly Ser  Gln Pro Pro Asp Pro  Asn Thr Ile Val His  Ile Pro Val
    1070                1075                1080

Met Leu  Thr Gly Pro Leu Gly  Glu Ala Thr Val Val  Pro Ser Gly
    1085                1090                1095

Asn Val  Asp Leu Glu Ser Gln  Ala Glu Gly Lys Lys  Glu Val Glu
    1100                1105                1110

Ala Asp  Asp Val Met Arg Ser  Gly Pro Arg Pro Ile  Val Pro Tyr
    1115                1120                1125

Ser Ser  Met Phe Cys Leu Ser  Pro Thr Asn Leu Leu  Arg Arg Phe
    1130                1135                1140

Cys His  Tyr Ile Val Thr Met  Arg Tyr Phe Glu Val  Val Ile Leu
    1145                1150                1155

Val Val  Ile Ala Leu Ser Ser  Ile Ala Leu Ala Ala  Glu Asp Pro
    1160                1165                1170

Val Arg  Thr Asp Ser Pro Arg  Asn Asn Ala Leu Lys  Tyr Leu Asp
    1175                1180                1185

Tyr Ile  Phe Thr Gly Val Phe  Thr Phe Glu Met Val  Ile Lys Met
    1190                1195                1200

Ile Asp  Leu Gly Leu Leu Leu  His Pro Gly Ala Tyr  Phe Arg Asp
    1205                1210                1215

Leu Trp  Asn Ile Leu Asp Phe  Ile Val Val Ser Gly  Ala Leu Val
    1220                1225                1230

Ala Phe  Ala Phe Ser Gly Ser  Lys Gly Lys Asp Ile  Asn Thr Ile
    1235                1240                1245

Lys Ser  Leu Arg Val Leu Arg  Val Leu Arg Pro Leu  Lys Thr Ile
    1250                1255                1260

Lys Arg  Leu Pro Lys Leu Lys  Ala Val Phe Asp Cys  Val Val Asn
    1265                1270                1275
```

```
Ser Leu  Lys Asn Val Leu Asn  Ile Leu Ile Val Tyr  Met Leu Phe
    1280                1285                1290

Met Phe  Ile Phe Ala Val Ile  Ala Val Gln Leu Phe  Lys Gly Lys
    1295                1300                1305

Phe Phe  Tyr Cys Thr Asp Glu  Ser Lys Glu Leu Glu  Arg Asp Cys
    1310                1315                1320

Arg Gly  Gln Tyr Leu Asp Tyr  Glu Lys Glu Glu Val  Glu Ala Gln
    1325                1330                1335

Pro Arg  Gln Trp Lys Lys Tyr  Asp Phe His Tyr Asp  Asn Val Leu
    1340                1345                1350

Trp Ala  Leu Leu Thr Leu Phe  Thr Val Ser Thr Gly  Glu Gly Trp
    1355                1360                1365

Pro Met  Val Leu Lys His Ser  Val Asp Ala Thr Tyr  Glu Glu Gln
    1370                1375                1380

Gly Pro  Ser Pro Gly Tyr Arg  Met Glu Leu Ser Ile  Phe Tyr Val
    1385                1390                1395

Val Tyr  Phe Val Val Phe Pro  Phe Phe Phe Val Asn  Ile Phe Val
    1400                1405                1410

Ala Leu  Ile Ile Ile Thr Phe  Gln Glu Gln Gly Asp  Lys Val Met
    1415                1420                1425

Ser Glu  Cys Ser Leu Glu Lys  Asn Glu Arg Ala Cys  Ile Asp Phe
    1430                1435                1440

Ala Ile  Ser Ala Lys Pro Leu  Thr Arg Tyr Met Pro  Gln Asn Arg
    1445                1450                1455

Gln Ser  Phe Gln Tyr Lys Thr  Trp Thr Phe Val Val  Ser Pro Pro
    1460                1465                1470

Phe Glu  Tyr Phe Ile Met Ala  Met Ile Ala Leu Asn  Thr Val Val
    1475                1480                1485
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```
Leu Met  Met Lys Phe Tyr Asp  Ala Pro Tyr Glu Tyr  Glu Leu Met
    1490                1495                1500

Leu Lys  Cys Leu Asn Ile Val  Phe Thr Ser Met Phe  Ser Met Glu
    1505                1510                1515

Cys Val  Leu Lys Ile Ile Ala  Phe Gly Val Leu Asn  Tyr Phe Arg
    1520                1525                1530

Asp Ala  Trp Asn Val Phe Asp  Phe Val Thr Val Leu  Gly Ser Ile
    1535                1540                1545

Thr Asp  Ile Leu Val Thr Glu  Ile Ala Asn Asn Phe  Ile Asn Leu
    1550                1555                1560

Ser Phe  Leu Arg Leu Phe Arg  Ala Ala Arg Leu Ile  Lys Leu Leu
    1565                1570                1575

Arg Gln  Gly Tyr Thr Ile Arg  Ile Leu Leu Trp Thr  Phe Val Gln
    1580                1585                1590

Ser Phe  Lys Ala Leu Pro Tyr  Val Cys Leu Leu Ile  Ala Met Leu
    1595                1600                1605

Phe Phe  Ile Tyr Ala Ile Ile  Gly Met Gln Val Phe  Gly Asn Ile
    1610                1615                1620

Ala Leu  Asp Asp Asp Thr Ser  Ile Asn Arg His Asn  Asn Phe Arg
    1625                1630                1635

Thr Phe  Leu Gln Ala Leu Met  Leu Leu Phe Arg Ser  Ala Thr Gly
    1640                1645                1650

Glu Ala  Trp His Glu Ile Met  Leu Ser Cys Leu Ser  Asn Gln Ala
    1655                1660                1665

Cys Asp  Glu Gln Ala Asn Ala  Thr Glu Cys Gly Ser  Asp Phe Ala
    1670                1675                1680

Tyr Phe  Tyr Phe Val Ser Phe  Ile Phe Leu Cys Ser  Phe Leu Met
    1685                1690                1695

Leu Asn  Leu Phe Val Ala Val  Ile Met Asp Asn Phe  Glu Tyr Leu
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1700 1705 1710

Thr Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu Phe
1715 1720 1725

Ile Arg Val Trp Ala Glu Tyr Asp Pro Ala Ala Cys Gly Arg Ile
1730 1735 1740

Ser Tyr Asn Asp Met Phe Glu Met Leu Lys His Met Ser Pro Pro
1745 1750 1755

Leu Gly Leu Gly Lys Lys Cys Pro Ala Arg Val Ala Tyr Lys Arg
1760 1765 1770

Leu Val Arg Met Asn Met Pro Ile Ser Asn Glu Asp Met Thr Val
1775 1780 1785

His Phe Thr Ser Thr Leu Met Ala Leu Ile Arg Thr Ala Leu Glu
1790 1795 1800

Ile Lys Leu Ala Pro Ala Gly Thr Lys Gln His Gln Cys Asp Ala
1805 1810 1815

Glu Leu Arg Lys Glu Ile Ser Val Val Trp Ala Asn Leu Pro Gln
1820 1825 1830

Lys Thr Leu Asp Leu Leu Val Pro Pro His Lys Pro Asp Glu Met
1835 1840 1845

Thr Val Gly Lys Val Tyr Ala Ala Leu Met Ile Phe Asp Phe Tyr
1850 1855 1860

Lys Gln Asn Lys Thr Thr Arg Asp Gln Met Gln Gln Ala Pro Gly
1865 1870 1875

Gly Leu Ser Gln Met Gly Pro Val Ser Leu Phe His Pro Leu Lys
1880 1885 1890

Ala Thr Leu Glu Gln Thr Gln Pro Ala Val Leu Arg Gly Ala Arg
1895 1900 1905

Val Phe Leu Arg Gln Lys Ser Ser Thr Ser Leu Ser Asn Gly Gly
1910 1915 1920

```
Ala Ile  Gln Asn Gln Glu Ser  Gly Ile Lys Glu Ser  Val Ser Trp
    1925                1930                1935

Gly Thr  Gln Arg Thr Gln Asp  Ala Pro His Glu Ala  Arg Pro Pro
    1940                1945                1950

Leu Glu  Arg Gly His Ser Thr  Glu Ile Pro Val Gly  Arg Ser Gly
    1955                1960                1965

Ala Leu  Ala Val Asp Val Gln  Met Gln Ser Ile Thr  Arg Arg Gly
    1970                1975                1980

Pro Asp  Gly Glu Pro Gln Pro  Gly Leu Glu Ser Gln  Gly Arg Ala
    1985                1990                1995

Ala Ser  Met Pro Arg Leu Ala  Ala Glu Thr Gln Pro  Val Thr Asp
    2000                2005                2010

Ala Ser  Pro Met Lys Arg Ser  Ile Ser Thr Leu Ala  Gln Arg Pro
    2015                2020                2025

Arg Gly  Thr His Leu Cys Ser  Thr Thr Pro Asp Arg  Pro Pro Pro
    2030                2035                2040

Ser Gln  Ala Ser Ser His His  His His His Arg Cys  His Arg Arg
    2045                2050                2055

Arg Asp  Arg Lys Gln Arg Ser  Leu Glu Lys Gly Pro  Ser Leu Ser
    2060                2065                2070

Ala Asp  Met Asp Gly Ala Pro  Ser Ser Ala Val Gly  Pro Gly Leu
    2075                2080                2085

Pro Pro  Gly Glu Gly Pro Thr  Gly Cys Arg Arg Glu  Arg Glu Arg
    2090                2095                2100

Arg Gln  Glu Arg Gly Arg Ser  Gln Glu Arg Arg Gln  Pro Ser Ser
    2105                2110                2115

Ser Ser  Ser Glu Lys Gln Arg  Phe Tyr Ser Cys Asp  Arg Phe Gly
    2120                2125                2130
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Gly Arg Glu Pro Pro Lys Pro Lys Pro Ser Leu Ser Ser His Pro
2135 2140 2145

Thr Ser Pro Thr Ala Gly Gln Glu Pro Gly Pro His Pro Gln Gly
2150 2155 2160

Ser Gly Ser Val Asn Gly Ser Pro Leu Leu Ser Thr Ser Gly Ala
2165 2170 2175

Ser Thr Pro Gly Arg Gly Gly Arg Arg Gln Leu Pro Gln Thr Pro
2180 2185 2190

Leu Thr Pro Arg Pro Ser Ile Thr Tyr Lys Thr Ala Asn Ser Ser
2195 2200 2205

Pro Ile His Phe Ala Gly Ala Gln Thr Ser Leu Pro Ala Phe Ser
2210 2215 2220

Pro Gly Arg Leu Ser Arg Gly Leu Ser Glu His Asn Ala Leu Leu
2225 2230 2235

Gln Arg Asp Pro Leu Ser Gln Pro Leu Ala Pro Gly Ser Arg Ile
2240 2245 2250

Gly Ser Asp Pro Tyr Leu Gly Gln Arg Leu Asp Ser Glu Ala Ser
2255 2260 2265

Val His Ala Leu Pro Glu Asp Thr Leu Thr Phe Glu Glu Ala Val
2270 2275 2280

Ala Thr Asn Ser Gly Arg Ser Ser Arg Thr Ser Tyr Val Ser Ser
2285 2290 2295

Leu Thr Ser Gln Ser His Pro Leu Arg Arg Val Pro Asn Gly Tyr
2300 2305 2310

His Cys Thr Leu Gly Leu Ser Ser Gly Gly Arg Ala Arg His Ser
2315 2320 2325

Tyr His His Pro Asp Gln Asp His Trp Cys
2330 2335

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20 25 30

Gly Pro Gly Gly Leu Gln Pro Gly Gln Arg Val Leu Tyr Lys Gln Ser
35 40 45

Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val
50 55 60

Lys Gln Asn Cys Phe Thr Val Asn Arg Ser Leu Phe Val Phe Ser Glu
65 70 75 80

Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro
85 90 95

Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys Ile Val Leu
100 105 110

Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu
115 120 125

Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu

```
    130                 135                 140

Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser
145                 150                 155                 160

Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
                165                 170                 175

Gly Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg
            180                 185                 190

Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser
        195                 200                 205

Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu
    210                 215                 220

Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile
225                 230                 235                 240

Gly Leu Glu Phe Tyr Met Gly Lys Phe His Lys Ala Cys Phe Pro Asn
                245                 250                 255

Ser Thr Asp Ala Glu Pro Val Gly Asp Phe Pro Cys Gly Lys Glu Ala
            260                 265                 270

Pro Ala Arg Leu Cys Glu Gly Asp Thr Glu Cys Arg Glu Tyr Trp Pro
        275                 280                 285

Gly Pro Asn Phe Gly Ile Thr Asn Phe Asp Asn Ile Leu Phe Ala Ile
    290                 295                 300

Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Ile Leu
305                 310                 315                 320

Tyr Asn Thr Asn Asp Ala Ala Gly Asn Thr Trp Asn Trp Leu Tyr Phe
                325                 330                 335

Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu Asn Leu Val Leu
            340                 345                 350

Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn
        355                 360                 365
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Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu
    370                 375                 380

Leu Asn Gly Tyr Leu Glu Trp Ile Phe Lys Ala Glu Glu Val Met Leu
385                 390                 395                 400

Ala Glu Glu Asp Arg Asn Ala Glu Glu Lys Ser Pro Leu Asp Val Leu
                405                 410                 415

Lys Arg Ala Ala Thr Lys Lys Ser Arg Asn Asp Leu Ile His Ala Glu
            420                 425                 430

Glu Gly Glu Asp Arg Phe Ala Asp Leu Cys Ala Val Gly Ser Pro Phe
        435                 440                 445

Ala Arg Ala Ser Leu Lys Ser Gly Lys Thr Glu Ser Ser Ser Tyr Phe
    450                 455                 460

Arg Arg Lys Glu Lys Met Phe Arg Phe Phe Ile Arg Arg Met Val Lys
465                 470                 475                 480

Ala Gln Ser Phe Tyr Trp Val Val Leu Cys Val Val Ala Leu Asn Thr
                485                 490                 495

Leu Cys Val Ala Met Val His Tyr Asn Gln Pro Arg Arg Leu Thr Thr
            500                 505                 510

Thr Leu Tyr Phe Ala Glu Phe Val Phe Leu Gly Leu Phe Leu Thr Glu
        515                 520                 525

Met Ser Leu Lys Met Tyr Gly Leu Gly Pro Arg Ser Tyr Phe Arg Ser
    530                 535                 540

Ser Phe Asn Cys Phe Asp Phe Gly Val Ile Val Gly Ser Val Phe Glu
545                 550                 555                 560

Val Val Trp Ala Ala Ile Lys Pro Gly Ser Ser Phe Gly Ile Ser Val
                565                 570                 575

Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val Thr Lys Tyr Trp
            580                 585                 590
```

```
Ser Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn Ser Met Lys Ser
        595                 600                 605

Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile Val Val Phe Ala
    610                 615                 620

Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn Phe Gln Asp Glu
625                 630                 635                 640

Thr Pro Thr Thr Asn Phe Asp Thr Phe Pro Ala Ala Ile Leu Thr Val
                645                 650                 655

Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr His Gly
            660                 665                 670

Ile Glu Ser Gln Gly Gly Val Ser Lys Gly Met Phe Ser Ser Phe Tyr
        675                 680                 685

Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe
    690                 695                 700

Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys
705                 710                 715                 720

Asp Glu Glu Glu Met Glu Glu Ala Ala Asn Gln Lys Leu Ala Leu Gln
                725                 730                 735

Lys Ala Lys Glu Val Ala Glu Val Ser Pro Met Ser Ala Ala Asn Ile
            740                 745                 750

Ser Ile Ala Ala Arg Gln Gln Asn Ser Ala Lys Ala Arg Ser Val Trp
        755                 760                 765

Glu Gln Arg Ala Ser Gln Leu Arg Leu Gln Asn Leu Arg Ala Ser Cys
    770                 775                 780

Glu Ala Leu Tyr Ser Glu Met Asp Pro Glu Glu Arg Leu Arg Phe Ala
785                 790                 795                 800

Thr Thr Arg His Leu Arg Pro Asp Met Lys Thr His Leu Asp Arg Pro
                805                 810                 815
```

```
Leu Val Val Glu Leu Gly Arg Asp Gly Ala Arg Gly Pro Val Gly Gly
            820                 825                 830

Lys Ala Arg Pro Glu Ala Ala Glu Ala Pro Glu Gly Val Asp Pro Pro
        835                 840                 845

Arg Arg His His Arg His Arg Asp Lys Asp Lys Thr Pro Ala Ala Gly
    850                 855                 860

Asp Gln Asp Arg Ala Glu Ala Pro Lys Ala Glu Ser Gly Glu Pro Gly
865                 870                 875                 880

Ala Arg Glu Glu Arg Pro Arg Pro His Arg Ser His Ser Lys Glu Ala
                885                 890                 895

Ala Gly Pro Pro Glu Ala Arg Ser Glu Arg Gly Arg Gly Pro Gly Pro
            900                 905                 910

Glu Gly Gly Arg Arg His His Arg Arg Gly Ser Pro Glu Glu Ala Ala
        915                 920                 925

Glu Arg Glu Pro Arg Arg His Arg Ala His Arg His Gln Asp Pro Ser
    930                 935                 940

Lys Glu Cys Ala Gly Ala Lys Gly Glu Arg Arg Ala Arg His Arg Gly
945                 950                 955                 960

Gly Pro Arg Ala Gly Pro Arg Glu Ala Glu Ser Gly Glu Glu Pro Ala
                965                 970                 975

Arg Arg His Arg Ala Arg His Lys Ala Gln Pro Ala His Glu Ala Val
            980                 985                 990

Glu Lys Glu Thr Thr Glu Lys Glu  Ala Thr Glu Lys Glu  Ala Glu
Ile
        995                 1000                1005

Val Glu  Ala Asp Lys Glu Lys  Glu Leu Arg Asn His  Gln Pro Arg
    1010                1015                1020

Glu Pro  His Cys Asp Leu Glu  Thr Ser Gly Thr Val  Thr Val Gly
    1025                1030                1035
```

```
Pro Met  His Thr Leu Pro Ser  Thr Cys Leu Gln Lys  Val Glu Glu
    1040                1045                1050

Gln Pro  Glu Asp Ala Asp Asn  Gln Arg Asn Val Thr  Arg Met Gly
    1055                1060                1065

Ser Gln  Pro Pro Asp Pro Asn  Thr Ile Val His Ile  Pro Val Met
    1070                1075                1080

Leu Thr  Gly Pro Leu Gly Glu  Ala Thr Val Val Pro  Ser Gly Asn
    1085                1090                1095

Val Asp  Leu Glu Ser Gln Ala  Glu Gly Lys Lys Glu  Val Glu Ala
    1100                1105                1110

Asp Asp  Val Met Arg Ser Gly  Pro Arg Pro Ile Val  Pro Tyr Ser
    1115                1120                1125

Ser Met  Phe Cys Leu Ser Pro  Thr Asn Leu Leu Arg  Arg Phe Cys
    1130                1135                1140

His Tyr  Ile Val Thr Met Arg  Tyr Phe Glu Val Val  Ile Leu Val
    1145                1150                1155

Val Ile  Ala Leu Ser Ser Ile  Ala Leu Ala Ala Glu  Asp Pro Val
    1160                1165                1170

Arg Thr  Asp Ser Pro Arg Asn  Asn Ala Leu Lys Tyr  Leu Asp Tyr
    1175                1180                1185

Ile Phe  Thr Gly Val Phe Thr  Phe Glu Met Val Ile  Lys Met Ile
    1190                1195                1200

Asp Leu  Gly Leu Leu Leu His  Pro Gly Ala Tyr Phe  Arg Asp Leu
    1205                1210                1215

Trp Asn  Ile Leu Asp Phe Ile  Val Val Ser Gly Ala  Leu Val Ala
    1220                1225                1230

Phe Ala  Phe Ser Gly Ser Lys  Gly Lys Asp Ile Asn  Thr Ile Lys
    1235                1240                1245

Ser Leu  Arg Val Leu Arg Val  Leu Arg Pro Leu Lys  Thr Ile Lys
```

1250 1255 1260

Arg Leu Pro Lys Leu Lys Ala Val Phe Asp Cys Val Val Asn Ser
1265 1270 1275

Leu Lys Asn Val Leu Asn Ile Leu Ile Val Tyr Met Leu Phe Met
1280 1285 1290

Phe Ile Phe Ala Val Ile Ala Val Gln Leu Phe Lys Gly Lys Phe
1295 1300 1305

Phe Tyr Cys Thr Asp Glu Ser Lys Glu Leu Glu Arg Asp Cys Arg
1310 1315 1320

Gly Gln Tyr Leu Asp Tyr Glu Lys Glu Glu Val Glu Ala Gln Pro
1325 1330 1335

Arg Gln Trp Lys Lys Tyr Asp Phe His Tyr Asp Asn Val Leu Trp
1340 1345 1350

Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly Glu Gly Trp Pro
1355 1360 1365

Met Val Leu Lys His Ser Val Asp Ala Thr Tyr Glu Glu Gln Gly
1370 1375 1380

Pro Ser Pro Gly Tyr Arg Met Glu Leu Ser Ile Phe Tyr Val Val
1385 1390 1395

Tyr Phe Val Val Phe Pro Phe Phe Phe Val Asn Ile Phe Val Ala
1400 1405 1410

Leu Ile Ile Ile Thr Phe Gln Glu Gln Gly Asp Lys Val Met Ser
1415 1420 1425

Glu Cys Ser Leu Glu Lys Asn Glu Arg Ala Cys Ile Asp Phe Ala
1430 1435 1440

Ile Ser Ala Lys Pro Leu Thr Arg Tyr Met Pro Gln Asn Arg Gln
1445 1450 1455

Ser Phe Gln Tyr Lys Thr Trp Thr Phe Val Val Ser Pro Pro Phe
1460 1465 1470

```
Glu Tyr  Phe Ile Met Ala Met  Ile Ala Leu Asn Thr  Val Val Leu
    1475                1480                1485

Met Met  Lys Phe Tyr Asp Ala  Pro Tyr Glu Tyr Glu  Leu Met Leu
    1490                1495                1500

Lys Cys  Leu Asn Ile Val Phe  Thr Ser Met Phe Ser  Met Glu Cys
    1505                1510                1515

Val Leu  Lys Ile Ile Ala Phe  Gly Val Leu Asn Tyr  Phe Arg Asp
    1520                1525                1530

Ala Trp  Asn Val Phe Asp Phe  Val Thr Val Leu Gly  Ser Ile Thr
    1535                1540                1545

Asp Ile  Leu Val Thr Glu Ile  Ala Asn Asn Phe Ile  Asn Leu Ser
    1550                1555                1560

Phe Leu  Arg Leu Phe Arg Ala  Ala Arg Leu Ile Lys  Leu Leu Arg
    1565                1570                1575

Gln Gly  Tyr Thr Ile Arg Ile  Leu Leu Trp Thr Phe  Val Gln Ser
    1580                1585                1590

Phe Lys  Ala Leu Pro Tyr Val  Cys Leu Leu Ile Ala  Met Leu Phe
    1595                1600                1605

Phe Ile  Tyr Ala Ile Ile Gly  Met Gln Val Phe Gly  Asn Ile Ala
    1610                1615                1620

Leu Asp  Asp Asp Thr Ser Ile  Asn Arg His Asn Asn  Phe Arg Thr
    1625                1630                1635

Phe Leu  Gln Ala Leu Met Leu  Leu Phe Arg Ser Ala  Thr Gly Glu
    1640                1645                1650

Ala Trp  His Glu Ile Met Leu  Ser Cys Leu Ser Asn  Gln Ala Cys
    1655                1660                1665

Asp Glu  Gln Ala Asn Ala Thr  Glu Cys Gly Ser Asp  Phe Ala Tyr
    1670                1675                1680
```

```
Phe Tyr  Phe Val Ser Phe Ile  Phe Leu Cys Ser Phe  Leu Met Leu
    1685                1690                1695

Asn Leu  Phe Val Ala Val Ile  Met Asp Asn Phe Glu  Tyr Leu Thr
    1700                1705                1710

Arg Asp  Ser Ser Ile Leu Gly  Pro His His Leu Asp  Glu Phe Ile
    1715                1720                1725

Arg Val  Trp Ala Glu Tyr Asp  Pro Ala Ala Cys Gly  Arg Ile Ser
    1730                1735                1740

Tyr Asn  Asp Met Phe Glu Met  Leu Lys His Met Ser  Pro Pro Leu
    1745                1750                1755

Gly Leu  Gly Lys Lys Cys Pro  Ala Arg Val Ala Tyr  Lys Arg Leu
    1760                1765                1770

Val Arg  Met Asn Met Pro Ile  Ser Asn Glu Asp Met  Thr Val His
    1775                1780                1785

Phe Thr  Ser Thr Leu Met Ala  Leu Ile Arg Thr Ala  Leu Glu Ile
    1790                1795                1800

Lys Leu  Ala Pro Ala Gly Thr  Lys Gln His Gln Cys  Asp Ala Glu
    1805                1810                1815

Leu Arg  Lys Glu Ile Ser Val  Val Trp Ala Asn Leu  Pro Gln Lys
    1820                1825                1830

Thr Leu  Asp Leu Leu Val Pro  Pro His Lys Pro Asp  Glu Met Thr
    1835                1840                1845

Val Gly  Lys Val Tyr Ala Ala  Leu Met Ile Phe Asp  Phe Tyr Lys
    1850                1855                1860

Gln Asn  Lys Thr Thr Arg Asp  Gln Met Gln Gln Ala  Pro Gly Gly
    1865                1870                1875

Leu Ser  Gln Met Gly Pro Val  Ser Leu Phe His Pro  Leu Lys Ala
    1880                1885                1890
```

Thr Leu Glu Gln Thr Gln Pro Ala Val Leu Arg Gly Ala Arg Val
1895 1900 1905

Phe Leu Arg Gln Lys Ser Ser Thr Ser Leu Ser Asn Gly Gly Ala
1910 1915 1920

Ile Gln Asn Gln Glu Ser Gly Ile Lys Glu Ser Val Ser Trp Gly
1925 1930 1935

Thr Gln Arg Thr Gln Asp Ala Pro His Glu Ala Arg Pro Pro Leu
1940 1945 1950

Glu Arg Gly His Ser Thr Glu Ile Pro Val Gly Arg Ser Gly Ala
1955 1960 1965

Leu Ala Val Asp Val Gln Met Gln Ser Ile Thr Arg Arg Gly Pro
1970 1975 1980

Asp Gly Glu Pro Gln Pro Gly Leu Glu Ser Gln Gly Arg Ala Ala
1985 1990 1995

Ser Met Pro Arg Leu Ala Ala Glu Thr Gln Pro Val Thr Asp Ala
2000 2005 2010

Ser Pro Met Lys Arg Ser Ile Ser Thr Leu Ala Gln Arg Pro Arg
2015 2020 2025

Gly Thr His Leu Cys Ser Thr Thr Pro Asp Arg Pro Pro Pro Ser
2030 2035 2040

Gln Ala Ser Ser His His His His His Arg Cys His Arg Arg Arg
2045 2050 2055

Asp Arg Lys Gln Arg Ser Leu Glu Lys Gly Pro Ser Leu Ser Ala
2060 2065 2070

Asp Met Asp Gly Ala Pro Ser Ser Ala Val Gly Pro Gly Leu Pro
2075 2080 2085

Pro Gly Glu Gly Pro Thr Gly Cys Arg Arg Glu Arg Glu Arg Arg
2090 2095 2100

Gln Glu Arg Gly Arg Ser Gln Glu Arg Arg Gln Pro Ser Ser Ser

2105 2110 2115

Ser Ser Glu Lys Gln Arg Phe Tyr Ser Cys Asp Arg Phe Gly Gly
2120 2125 2130

Arg Glu Pro Pro Lys Pro Lys Pro Ser Leu Ser Ser His Pro Thr
2135 2140 2145

Ser Pro Thr Ala Gly Gln Glu Pro Gly Pro His Pro Gln Gly Ser
2150 2155 2160

Gly Ser Val Asn Gly Ser Pro Leu Leu Ser Thr Ser Gly Ala Ser
2165 2170 2175

Thr Pro Gly Arg Gly Gly Arg Arg Gln Leu Pro Gln Thr Pro Leu
2180 2185 2190

Thr Pro Arg Pro Ser Ile Thr Tyr Lys Thr Ala Asn Ser Ser Pro
2195 2200 2205

Ile His Phe Ala Gly Ala Gln Thr Ser Leu Pro Ala Phe Ser Pro
2210 2215 2220

Gly Arg Leu Ser Arg Gly Leu Ser Glu His Asn Ala Leu Leu Gln
2225 2230 2235

Arg Asp Pro Leu Ser Gln Pro Leu Ala Pro Gly Ser Arg Ile Gly
2240 2245 2250

Ser Asp Pro Tyr Leu Gly Gln Arg Leu Asp Ser Glu Ala Ser Val
2255 2260 2265

His Ala Leu Pro Glu Asp Thr Leu Thr Phe Glu Glu Ala Val Ala
2270 2275 2280

Thr Asn Ser Gly Arg Ser Ser Arg Thr Ser Tyr Val Ser Ser Leu
2285 2290 2295

Thr Ser Gln Ser His Pro Leu Arg Arg Val Pro Asn Gly Tyr His
2300 2305 2310

Cys Thr Leu Gly Leu Ser Ser Gly Gly Arg Ala Arg His Ser Tyr
2315 2320 2325

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His His  Pro Asp Gln Asp His  Trp Cys
    2330                2335


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Gly Gly Glu Arg Ala Arg Gly Gly Gly Ala Gly Gly Ala Gly Gly Pro
            20                  25                  30


Gly Pro Gly Gly Leu Gln Pro Gly Gln Arg Val Leu Tyr Lys Gln Ser
        35                  40                  45


Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val
    50                  55                  60


Lys Gln Asn Cys Phe Thr Val Asn Arg Ser Leu Phe Val Phe Ser Glu
65                  70                  75                  80


Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro
                85                  90                  95
```

```
Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys Ile Val Leu
            100                 105                 110

Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu
        115                 120                 125

Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu
    130                 135                 140

Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser
145                 150                 155                 160

Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
                165                 170                 175

Gly Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg
            180                 185                 190

Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser
        195                 200                 205

Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu
    210                 215                 220

Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile
225                 230                 235                 240

Gly Leu Glu Phe Tyr Met Gly Lys Phe His Lys Ala Cys Phe Pro Asn
                245                 250                 255

Ser Thr Asp Ala Glu Pro Val Gly Asp Phe Pro Cys Gly Lys Glu Ala
            260                 265                 270

Pro Ala Arg Leu Cys Glu Gly Asp Thr Glu Cys Arg Glu Tyr Trp Pro
        275                 280                 285

Gly Pro Asn Phe Gly Ile Thr Asn Phe Asp Asn Ile Leu Phe Ala Ile
    290                 295                 300

Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Ile Leu
305                 310                 315                 320
```

```
Tyr Asn Thr Asn Asp Ala Ala Gly Asn Thr Trp Asn Trp Leu Tyr Phe
                325                 330                 335

Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu Asn Leu Val Leu
            340                 345                 350

Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn
        355                 360                 365

Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu
    370                 375                 380

Leu Asn Gly Tyr Leu Glu Trp Ile Phe Lys Ala Glu Glu Val Met Leu
385                 390                 395                 400

Ala Glu Glu Asp Arg Asn Ala Glu Glu Lys Ser Pro Leu Asp Val Leu
                405                 410                 415

Lys Arg Ala Ala Thr Lys Lys Ser Arg Asn Asp Leu Ile His Ala Glu
            420                 425                 430

Glu Gly Glu Asp Arg Phe Ala Asp Leu Cys Ala Val Gly Ser Pro Phe
        435                 440                 445

Ala Arg Ala Ser Leu Lys Ser Gly Lys Thr Glu Ser Ser Ser Tyr Phe
    450                 455                 460

Arg Arg Lys Glu Lys Met Phe Arg Phe Phe Ile Arg Arg Met Val Lys
465                 470                 475                 480

Ala Gln Ser Phe Tyr Trp Val Val Leu Cys Val Val Ala Leu Asn Thr
                485                 490                 495

Leu Cys Val Ala Met Val His Tyr Asn Gln Pro Arg Arg Leu Thr Thr
            500                 505                 510

Thr Leu Tyr Phe Ala Glu Phe Val Phe Leu Gly Leu Phe Leu Thr Glu
        515                 520                 525

Met Ser Leu Lys Met Tyr Gly Leu Gly Pro Arg Ser Tyr Phe Arg Ser
    530                 535                 540

Ser Phe Asn Cys Phe Asp Phe Gly Val Ile Val Gly Ser Val Phe Glu
```

545 550 555 560

Val Val Trp Ala Ala Ile Lys Pro Gly Ser Ser Phe Gly Ile Ser Val
565 570 575

Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val Thr Lys Tyr Trp
580 585 590

Ser Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn Ser Met Lys Ser
595 600 605

Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile Val Val Phe Ala
610 615 620

Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn Phe Gln Asp Glu
625 630 635 640

Thr Pro Thr Thr Asn Phe Asp Thr Phe Pro Ala Ala Ile Leu Thr Val
645 650 655

Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr His Gly
660 665 670

Ile Glu Ser Gln Gly Gly Val Ser Lys Gly Met Phe Ser Ser Phe Tyr
675 680 685

Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe
690 695 700

Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys
705 710 715 720

Asp Glu Glu Glu Met Glu Glu Ala Ala Asn Gln Lys Leu Ala Leu Gln
725 730 735

Lys Ala Lys Glu Val Ala Glu Val Ser Pro Met Ser Ala Ala Asn Ile
740 745 750

Ser Ile Ala Ala Arg Gln Gln Asn Ser Ala Lys Ala Arg Ser Val Trp
755 760 765

Glu Gln Arg Ala Ser Gln Leu Arg Leu Gln Asn Leu Arg Ala Ser Cys
770 775 780

```
Glu Ala Leu Tyr Ser Glu Met Asp Pro Glu Glu Arg Leu Arg Phe Ala
785                 790                 795                 800

Thr Thr Arg His Leu Arg Pro Asp Met Lys Thr His Leu Asp Arg Pro
                805                 810                 815

Leu Val Val Glu Leu Gly Arg Asp Gly Ala Arg Gly Pro Val Gly Gly
            820                 825                 830

Lys Ala Arg Pro Glu Ala Ala Glu Ala Pro Glu Gly Val Asp Pro Pro
        835                 840                 845

Arg Arg His His Arg His Arg Asp Lys Asp Lys Thr Pro Ala Ala Gly
    850                 855                 860

Asp Gln Asp Arg Ala Glu Ala Pro Lys Ala Glu Ser Gly Glu Pro Gly
865                 870                 875                 880

Ala Arg Glu Glu Arg Pro Arg Pro His Arg Ser His Ser Lys Glu Ala
                885                 890                 895

Ala Gly Pro Pro Glu Ala Arg Ser Glu Arg Gly Arg Gly Pro Gly Pro
            900                 905                 910

Glu Gly Gly Arg Arg His His Arg Arg Gly Ser Pro Glu Glu Ala Ala
        915                 920                 925

Glu Arg Glu Pro Arg Arg His Arg Ala His Arg His Gln Asp Pro Ser
    930                 935                 940

Lys Glu Cys Ala Gly Ala Lys Gly Glu Arg Arg Ala Arg His Arg Gly
945                 950                 955                 960

Gly Pro Arg Ala Gly Pro Arg Glu Ala Glu Ser Gly Glu Glu Pro Ala
                965                 970                 975

Arg Arg His Arg Ala Arg His Lys Ala Gln Pro Ala His Glu Ala Val
            980                 985                 990

Glu Lys Glu Thr Thr Glu Lys Glu  Ala Thr Glu Lys Glu  Ala Glu
Ile
        995                 1000                1005
```

```
Val Glu  Ala Asp Lys Glu Lys  Glu Leu Arg Asn His  Gln Pro Arg
    1010                1015                1020

Glu Pro  His Cys Asp Leu Glu  Thr Ser Gly Thr Val  Thr Val Gly
    1025                1030                1035

Pro Met  His Thr Leu Pro Ser  Thr Cys Leu Gln Lys  Val Glu Glu
    1040                1045                1050

Gln Pro  Glu Asp Ala Asp Asn  Gln Arg Asn Val Thr  Arg Met Gly
    1055                1060                1065

Ser Gln  Pro Pro Asp Pro Asn  Thr Ile Val His Ile  Pro Val Met
    1070                1075                1080

Leu Thr  Gly Pro Leu Gly Glu  Ala Thr Val Val Pro  Ser Gly Asn
    1085                1090                1095

Val Asp  Leu Glu Ser Gln Ala  Glu Gly Lys Lys Glu  Val Glu Ala
    1100                1105                1110

Asp Asp  Val Met Arg Ser Gly  Pro Arg Pro Ile Val  Pro Tyr Ser
    1115                1120                1125

Ser Met  Phe Cys Leu Ser Pro  Thr Asn Leu Leu Arg  Arg Phe Cys
    1130                1135                1140

His Tyr  Ile Val Thr Met Arg  Tyr Phe Glu Val Val  Ile Leu Val
    1145                1150                1155

Val Ile  Ala Leu Ser Ser Ile  Ala Leu Ala Ala Glu  Asp Pro Val
    1160                1165                1170

Arg Thr  Asp Ser Pro Arg Asn  Asn Ala Leu Lys Tyr  Leu Asp Tyr
    1175                1180                1185

Ile Phe  Thr Gly Val Phe Thr  Phe Glu Met Val Ile  Lys Met Ile
    1190                1195                1200

Asp Leu  Gly Leu Leu Leu His  Pro Gly Ala Tyr Phe  Arg Asp Leu
    1205                1210                1215
```

```
Trp Asn  Ile Leu Asp Phe Ile  Val Val Ser Gly Ala  Leu Val Ala
    1220                1225                1230

Phe Ala  Phe Ser Gly Ser Lys  Gly Lys Asp Ile Asn  Thr Ile Lys
    1235                1240                1245

Ser Leu  Arg Val Leu Arg Val  Leu Arg Pro Leu Lys  Thr Ile Lys
    1250                1255                1260

Arg Leu  Pro Lys Leu Lys Ala  Val Phe Asp Cys Val  Val Asn Ser
    1265                1270                1275

Leu Lys  Asn Val Leu Asn Ile  Leu Ile Val Tyr Met  Leu Phe Met
    1280                1285                1290

Phe Ile  Phe Ala Val Ile Ala  Val Gln Leu Phe Lys  Gly Lys Phe
    1295                1300                1305

Phe Tyr  Cys Thr Asp Glu Ser  Lys Glu Leu Glu Arg  Asp Cys Arg
    1310                1315                1320

Gly Gln  Tyr Leu Asp Tyr Glu  Lys Glu Glu Val Glu  Ala Gln Pro
    1325                1330                1335

Arg Gln  Trp Lys Lys Tyr Asp  Phe His Tyr Asp Asn  Val Leu Trp
    1340                1345                1350

Ala Leu  Leu Thr Leu Phe Thr  Val Ser Thr Gly Glu  Gly Trp Pro
    1355                1360                1365

Met Val  Leu Lys His Ser Val  Asp Ala Thr Tyr Glu  Glu Gln Gly
    1370                1375                1380

Pro Ser  Pro Gly Tyr Arg Met  Glu Leu Ser Ile Phe  Tyr Val Val
    1385                1390                1395

Tyr Phe  Val Val Phe Pro Phe  Phe Phe Val Asn Ile  Phe Val Ala
    1400                1405                1410

Leu Ile  Ile Ile Thr Phe Gln  Glu Gln Gly Asp Lys  Val Met Ser
    1415                1420                1425
```

Glu Cys Ser Leu Glu Lys Asn Glu Arg Ala Cys Ile Asp Phe Ala
1430 1435 1440

Ile Ser Ala Lys Pro Leu Thr Arg Tyr Met Pro Gln Asn Arg Gln
1445 1450 1455

Ser Phe Gln Tyr Lys Thr Trp Thr Phe Val Val Ser Pro Pro Phe
1460 1465 1470

Glu Tyr Phe Ile Met Ala Met Ile Ala Leu Asn Thr Val Val Leu
1475 1480 1485

Met Met Lys Phe Tyr Asp Ala Pro Tyr Glu Tyr Glu Leu Met Leu
1490 1495 1500

Lys Cys Leu Asn Ile Val Phe Thr Ser Met Phe Ser Met Glu Cys
1505 1510 1515

Val Leu Lys Ile Ile Ala Phe Gly Val Leu Asn Tyr Phe Arg Asp
1520 1525 1530

Ala Trp Asn Val Phe Asp Phe Val Thr Val Leu Gly Ser Ile Thr
1535 1540 1545

Asp Ile Leu Val Thr Glu Ile Ala Glu Thr Asn Asn Phe Ile Asn
1550 1555 1560

Leu Ser Phe Leu Arg Leu Phe Arg Ala Ala Arg Leu Ile Lys Leu
1565 1570 1575

Leu Arg Gln Gly Tyr Thr Ile Arg Ile Leu Leu Trp Thr Phe Val
1580 1585 1590

Gln Ser Phe Lys Ala Leu Pro Tyr Val Cys Leu Leu Ile Ala Met
1595 1600 1605

Leu Phe Phe Ile Tyr Ala Ile Ile Gly Met Gln Val Phe Gly Asn
1610 1615 1620

Ile Ala Leu Asp Asp Asp Thr Ser Ile Asn Arg His Asn Asn Phe
1625 1630 1635

Arg Thr Phe Leu Gln Ala Leu Met Leu Leu Phe Arg Ser Ala Thr

1640 1645 1650

Gly Glu Ala Trp His Glu Ile Met Leu Ser Cys Leu Ser Asn Gln
1655 1660 1665

Ala Cys Asp Glu Gln Ala Asn Ala Thr Glu Cys Gly Ser Asp Phe
1670 1675 1680

Ala Tyr Phe Tyr Phe Val Ser Phe Ile Phe Leu Cys Ser Phe Leu
1685 1690 1695

Met Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu Tyr
1700 1705 1710

Leu Thr Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu
1715 1720 1725

Phe Ile Arg Val Trp Ala Glu Tyr Asp Pro Ala Ala Cys Gly Arg
1730 1735 1740

Ile Ser Tyr Asn Asp Met Phe Glu Met Leu Lys His Met Ser Pro
1745 1750 1755

Pro Leu Gly Leu Gly Lys Lys Cys Pro Ala Arg Val Ala Tyr Lys
1760 1765 1770

Arg Leu Val Arg Met Asn Met Pro Ile Ser Asn Glu Asp Met Thr
1775 1780 1785

Val His Phe Thr Ser Thr Leu Met Ala Leu Ile Arg Thr Ala Leu
1790 1795 1800

Glu Ile Lys Leu Ala Pro Ala Gly Thr Lys Gln His Gln Cys Asp
1805 1810 1815

Ala Glu Leu Arg Lys Glu Ile Ser Val Val Trp Ala Asn Leu Pro
1820 1825 1830

Gln Lys Thr Leu Asp Leu Leu Val Pro Pro His Lys Pro Asp Glu
1835 1840 1845

Met Thr Val Gly Lys Val Tyr Ala Ala Leu Met Ile Phe Asp Phe
1850 1855 1860

```
Tyr Lys  Gln Asn Lys Thr Thr  Arg Asp Gln Met Gln  Gln Ala Pro
    1865                1870                1875

Gly Gly  Leu Ser Gln Met Gly  Pro Val Ser Leu Phe  His Pro Leu
    1880                1885                1890

Lys Ala  Thr Leu Glu Gln Thr  Gln Pro Ala Val Leu  Arg Gly Ala
    1895                1900                1905

Arg Val  Phe Leu Arg Gln Lys  Ser Ser Thr Ser Leu  Ser Asn Gly
    1910                1915                1920

Gly Ala  Ile Gln Asn Gln Glu  Ser Gly Ile Lys Glu  Ser Val Ser
    1925                1930                1935

Trp Gly  Thr Gln Arg Thr Gln  Asp Ala Pro His Glu  Ala Arg Pro
    1940                1945                1950

Pro Leu  Glu Arg Gly His Ser  Thr Glu Ile Pro Val  Gly Arg Ser
    1955                1960                1965

Gly Ala  Leu Ala Val Asp Val  Gln Met Gln Ser Ile  Thr Arg Arg
    1970                1975                1980

Gly Pro  Asp Gly Glu Pro Gln  Pro Gly Leu Glu Ser  Gln Gly Arg
    1985                1990                1995

Ala Ala  Ser Met Pro Arg Leu  Ala Ala Glu Thr Gln  Pro Val Thr
    2000                2005                2010

Asp Ala  Ser Pro Met Lys Arg  Ser Ile Ser Thr Leu  Ala Gln Arg
    2015                2020                2025

Pro Arg  Gly Thr His Leu Cys  Ser Thr Thr Pro Asp  Arg Pro Pro
    2030                2035                2040

Pro Ser  Gln Ala Ser Ser His  His His His His Arg  Cys His Arg
    2045                2050                2055

Arg Arg  Asp Arg Lys Gln Arg  Ser Leu Glu Lys Gly  Pro Ser Leu
    2060                2065                2070
```

Ser Ala Asp Met Asp Gly Ala Pro Ser Ser Ala Val Gly Pro Gly
2075 2080 2085

Leu Pro Pro Gly Glu Gly Pro Thr Gly Cys Arg Arg Glu Arg Glu
2090 2095 2100

Arg Arg Gln Glu Arg Gly Arg Ser Gln Glu Arg Arg Gln Pro Ser
2105 2110 2115

Ser Ser Ser Ser Glu Lys Gln Arg Phe Tyr Ser Cys Asp Arg Phe
2120 2125 2130

Gly Gly Arg Glu Pro Pro Lys Pro Lys Pro Ser Leu Ser Ser His
2135 2140 2145

Pro Thr Ser Pro Thr Ala Gly Gln Glu Pro Gly Pro His Pro Gln
2150 2155 2160

Gly Ser Gly Ser Val Asn Gly Ser Pro Leu Leu Ser Thr Ser Gly
2165 2170 2175

Ala Ser Thr Pro Gly Arg Gly Gly Arg Arg Gln Leu Pro Gln Thr
2180 2185 2190

Pro Leu Thr Pro Arg Pro Ser Ile Thr Tyr Lys Thr Ala Asn Ser
2195 2200 2205

Ser Pro Ile His Phe Ala Gly Ala Gln Thr Ser Leu Pro Ala Phe
2210 2215 2220

Ser Pro Gly Arg Leu Ser Arg Gly Leu Ser Glu His Asn Ala Leu
2225 2230 2235

Leu Gln Arg Asp Pro Leu Ser Gln Pro Leu Ala Pro Gly Ser Arg
2240 2245 2250

Ile Gly Ser Asp Pro Tyr Leu Gly Gln Arg Leu Asp Ser Glu Ala
2255 2260 2265

Ser Val His Ala Leu Pro Glu Asp Thr Leu Thr Phe Glu Glu Ala
2270 2275 2280

```
Val Ala  Thr Asn Ser Gly Arg  Ser Ser Arg Thr Ser  Tyr Val Ser
    2285                 2290                 2295


Ser Leu  Thr Ser Gln Ser His  Pro Leu Arg Arg Val  Pro Asn Gly
    2300                 2305                 2310


Tyr His  Cys Thr Leu Gly Leu  Ser Ser Gly Gly Arg  Ala Arg His
    2315                 2320                 2325


Ser Tyr  His His Pro Asp Gln  Asp His Trp Cys
    2330                 2335


<210> 10766
<211> 164
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      subunit; "

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10766
Xaa Asn Phe Arg Thr Phe Leu Gln Ala Leu Met Leu Leu Phe Arg Ser
1               5                  10                  15


Ala Thr Gly Glu Ala Trp His Glu Ile Met Leu Ser Cys Leu Ser Asn
            20                  25                  30


Gln Ala Cys Asp Glu Gln Ala Asn Ala Thr Glu Cys Gly Ser Asp Phe
        35                  40                  45
```

```
Ala Tyr Phe Tyr Phe Val Ser Phe Ile Phe Leu Cys Ser Phe Leu Met
    50                  55                  60

Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu Tyr Leu Thr
65                  70                  75                  80

Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Ile Arg
                85                  90                  95

Val Trp Ala Glu Tyr Asp Pro Ala Ala Cys Cys Arg Ile His Tyr Lys
            100                 105                 110

Asp Met Tyr Ser Leu Leu Arg Cys Ile Ala Pro Pro Val Gly Leu Gly
        115                 120                 125

Lys Asn Cys Pro Arg Arg Leu Ala Tyr Lys Arg Leu Val Arg Met Asn
    130                 135                 140

Met Pro Ile Ser Asn Glu Asp Met Thr Val His Phe Thr Ser Thr Leu
145                 150                 155                 160

Met Ala Leu Ile
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<210> 10767
<211> 2506
<212> PRT
<213> Homo sapiens

<220>
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type, alpha 1A
subunit; "

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<223> /note="Uniprot ID: O00555; "

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<400> 10767
Met Ala Arg Phe Gly Asp Glu Met Pro Ala Arg Tyr Gly Gly Gly Gly
1 5 10 15

Ser Gly Ala Ala Ala Gly Val Val Val Gly Ser Gly Gly Gly Arg Gly
20 25 30

Ala Gly Gly Ser Arg Gln Gly Gly Gln Pro Gly Ala Gln Arg Met Tyr
35 40 45

Lys Gln Ser Met Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro
50 55 60

Ile Pro Val Arg Gln Asn Cys Leu Thr Val Asn Arg Ser Leu Phe Leu
65 70 75 80

Phe Ser Glu Asp Asn Val Val Arg Lys Tyr Ala Lys Lys Ile Thr Glu
85 90 95

Trp Pro Pro Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys
100 105 110

Ile Val Leu Ala Leu Glu Gln His Leu Pro Asp Asp Asp Lys Thr Pro
115 120 125

Met Ser Glu Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe
130 135 140

Cys Phe Glu Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Ala Phe His
145 150 155 160

Lys Gly Ser Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val
165 170 175

Val Leu Thr Gly Ile Leu Ala Thr Val Gly Thr Glu Phe Asp Leu Arg
180 185 190

Thr Leu Arg Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly
195 200 205

Ile Pro Ser Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Ile

```
    210                 215                 220

Pro Leu Leu Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Ile Phe
225                 230                 235                 240

Ala Ile Ile Gly Leu Glu Phe Tyr Met Gly Lys Phe His Thr Thr Cys
                245                 250                 255

Phe Glu Glu Gly Thr Asp Asp Ile Gln Gly Glu Ser Pro Ala Pro Cys
            260                 265                 270

Gly Thr Glu Glu Pro Ala Arg Thr Cys Pro Asn Gly Thr Lys Cys Gln
        275                 280                 285

Pro Tyr Trp Glu Gly Pro Asn Asn Gly Ile Thr Gln Phe Asp Asn Ile
    290                 295                 300

Leu Phe Ala Val Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp
305                 310                 315                 320

Thr Asp Leu Leu Tyr Asn Ser Asn Asp Ala Ser Gly Asn Thr Trp Asn
                325                 330                 335

Trp Leu Tyr Phe Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu
            340                 345                 350

Asn Leu Val Leu Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu
        355                 360                 365

Arg Val Glu Asn Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln
    370                 375                 380

Ile Glu Arg Glu Leu Asn Gly Tyr Met Glu Trp Ile Ser Lys Ala Glu
385                 390                 395                 400

Glu Val Ile Leu Ala Glu Asp Glu Thr Asp Gly Glu Gln Arg His Pro
                405                 410                 415

Phe Asp Ala Leu Arg Arg Thr Thr Ile Lys Lys Ser Lys Thr Asp Leu
            420                 425                 430

Leu Asn Pro Glu Glu Ala Glu Asp Gln Leu Ala Asp Ile Ala Ser Val
        435                 440                 445
```

Gly Ser Pro Phe Ala Arg Ala Ser Ile Lys Ser Ala Lys Leu Glu Asn
450 455 460

Ser Thr Phe Phe His Lys Lys Glu Arg Arg Met Arg Phe Tyr Ile Arg
465 470 475 480

Arg Met Val Lys Thr Gln Ala Phe Tyr Trp Thr Val Leu Ser Leu Val
485 490 495

Ala Leu Asn Thr Leu Cys Val Ala Ile Val His Tyr Asn Gln Pro Glu
500 505 510

Trp Leu Ser Asp Phe Leu Tyr Tyr Ala Glu Phe Ile Phe Leu Gly Leu
515 520 525

Phe Met Ser Glu Met Phe Ile Lys Met Tyr Gly Leu Gly Thr Arg Pro
530 535 540

Tyr Phe His Ser Ser Phe Asn Cys Phe Asp Cys Gly Val Ile Ile Gly
545 550 555 560

Ser Ile Phe Glu Val Ile Trp Ala Val Ile Lys Pro Gly Thr Ser Phe
565 570 575

Gly Ile Ser Val Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val
580 585 590

Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn
595 600 605

Ser Met Lys Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile
610 615 620

Val Val Phe Ala Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn
625 630 635 640

Phe Asp Glu Gly Thr Pro Pro Thr Asn Phe Asp Thr Phe Pro Ala Ala
645 650 655

Ile Met Thr Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Glu Val
660 665 670

Met Tyr Asp Gly Ile Lys Ser Gln Gly Gly Val Gln Gly Gly Met Val
675 680 685

Phe Ser Ile Tyr Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu
690 695 700

Leu Asn Val Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln
705 710 715 720

Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu Glu Ala Ala Asn Gln Lys
725 730 735

Leu Ala Leu Gln Lys Ala Lys Glu Val Ala Glu Val Ser Pro Leu Ser
740 745 750

Ala Ala Asn Met Ser Ile Ala Val Lys Glu Gln Gln Lys Asn Gln Lys
755 760 765

Pro Ala Lys Ser Val Trp Glu Gln Arg Thr Ser Glu Met Arg Lys Gln
770 775 780

Asn Leu Leu Ala Ser Arg Glu Ala Leu Tyr Asn Glu Met Asp Pro Asp
785 790 795 800

Glu Arg Trp Lys Ala Ala Tyr Thr Arg His Leu Arg Pro Asp Met Lys
805 810 815

Thr His Leu Asp Arg Pro Leu Val Val Asp Pro Gln Glu Asn Arg Asn
820 825 830

Asn Asn Thr Asn Lys Ser Arg Ala Ala Glu Pro Thr Val Asp Gln Arg
835 840 845

Leu Gly Gln Gln Arg Ala Glu Asp Phe Leu Arg Lys Gln Ala Arg Tyr
850 855 860

His Asp Arg Ala Arg Asp Pro Ser Gly Ser Ala Gly Leu Asp Ala Arg
865 870 875 880

Arg Pro Trp Ala Gly Ser Gln Glu Ala Glu Leu Ser Arg Glu Gly Pro
885 890 895

```
Tyr Gly Arg Glu Ser Asp His His Ala Arg Glu Gly Ser Leu Glu Gln
            900                 905                 910

Pro Gly Phe Trp Glu Gly Glu Ala Glu Arg Gly Lys Ala Gly Asp Pro
        915                 920                 925

His Arg Arg His Val His Arg Gln Gly Gly Ser Arg Glu Ser Arg Ser
    930                 935                 940

Gly Ser Pro Arg Thr Gly Ala Asp Gly Glu His Arg Arg His Arg Ala
945                 950                 955                 960

His Arg Arg Pro Gly Glu Glu Gly Pro Glu Asp Lys Ala Glu Arg Arg
                965                 970                 975

Ala Arg His Arg Glu Gly Ser Arg Pro Ala Arg Gly Gly Glu Gly Glu
            980                 985                 990

Gly Glu Gly Pro Asp Gly Gly Glu  Arg Arg Arg Arg His  Arg His
Gly
        995                 1000                1005

Ala Pro  Ala Thr Tyr Glu Gly  Asp Ala Arg Arg Glu  Asp Lys Glu
    1010                1015                1020

Arg Arg  His Arg Arg Arg Lys  Glu Asn Gln Gly Ser  Gly Val Pro
    1025                1030                1035

Val Ser  Gly Pro Asn Leu Ser  Thr Thr Arg Pro Ile  Gln Gln Asp
    1040                1045                1050

Leu Gly  Arg Gln Asp Pro Pro  Leu Ala Glu Asp Ile  Asp Asn Met
    1055                1060                1065

Lys Asn  Asn Lys Leu Ala Thr  Ala Glu Ser Ala Ala  Pro His Gly
    1070                1075                1080

Ser Leu  Gly His Ala Gly Leu  Pro Gln Ser Pro Ala  Lys Met Gly
    1085                1090                1095

Asn Ser  Thr Asp Pro Gly Pro  Met Leu Ala Ile Pro  Ala Met Ala
    1100                1105                1110
```

```
Thr Asn  Pro Gln Asn Ala Ala  Ser Arg Arg Thr Pro  Asn Asn Pro
    1115                1120                1125

Gly Asn  Pro Ser Asn Pro Gly  Pro Pro Lys Thr Pro  Glu Asn Ser
    1130                1135                1140

Leu Ile  Val Thr Asn Pro Ser  Gly Thr Gln Thr Asn  Ser Ala Lys
    1145                1150                1155

Thr Ala  Arg Lys Pro Asp His  Thr Thr Val Asp Ile  Pro Pro Ala
    1160                1165                1170

Cys Pro  Pro Pro Leu Asn His  Thr Val Val Gln Val  Asn Lys Asn
    1175                1180                1185

Ala Asn  Pro Asp Pro Leu Pro  Lys Lys Glu Glu Glu  Lys Lys Glu
    1190                1195                1200

Glu Glu  Glu Asp Asp Arg Gly  Glu Asp Gly Pro Lys  Pro Met Pro
    1205                1210                1215

Pro Tyr  Ser Ser Met Phe Ile  Leu Ser Thr Thr Asn  Pro Leu Arg
    1220                1225                1230

Arg Leu  Cys His Tyr Ile Leu  Asn Leu Arg Tyr Phe  Glu Met Cys
    1235                1240                1245

Ile Leu  Met Val Ile Ala Met  Ser Ser Ile Ala Leu  Ala Ala Glu
    1250                1255                1260

Asp Pro  Val Gln Pro Asn Ala  Pro Arg Asn Asn Val  Leu Arg Tyr
    1265                1270                1275

Phe Asp  Tyr Val Phe Thr Gly  Val Phe Thr Phe Glu  Met Val Ile
    1280                1285                1290

Lys Met  Ile Asp Leu Gly Leu  Val Leu His Gln Gly  Ala Tyr Phe
    1295                1300                1305

Arg Asp  Leu Trp Asn Ile Leu  Asp Phe Ile Val Val  Ser Gly Ala
    1310                1315                1320

Leu Val  Ala Phe Ala Phe Thr  Gly Asn Ser Lys Gly  Lys Asp Ile
```

1325 1330 1335

Asn Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu Arg Pro Leu
1340 1345 1350

Lys Thr Ile Lys Arg Leu Pro Lys Leu Lys Ala Val Phe Asp Cys
1355 1360 1365

Val Val Asn Ser Leu Lys Asn Val Phe Asn Ile Leu Ile Val Tyr
1370 1375 1380

Met Leu Phe Met Phe Ile Phe Ala Val Val Ala Val Gln Leu Phe
1385 1390 1395

Lys Gly Lys Phe Phe His Cys Thr Asp Glu Ser Lys Glu Phe Glu
1400 1405 1410

Lys Asp Cys Arg Gly Lys Tyr Leu Leu Tyr Glu Lys Asn Glu Val
1415 1420 1425

Lys Ala Arg Asp Arg Glu Trp Lys Lys Tyr Glu Phe His Tyr Asp
1430 1435 1440

Asn Val Leu Trp Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly
1445 1450 1455

Glu Gly Trp Pro Gln Val Leu Lys His Ser Val Asp Ala Thr Phe
1460 1465 1470

Glu Asn Gln Gly Pro Ser Pro Gly Tyr Arg Met Glu Met Ser Ile
1475 1480 1485

Phe Tyr Val Val Tyr Phe Val Val Phe Pro Phe Phe Phe Val Asn
1490 1495 1500

Ile Phe Val Ala Leu Ile Ile Ile Thr Phe Gln Glu Gln Gly Asp
1505 1510 1515

Lys Met Met Glu Glu Tyr Ser Leu Glu Lys Asn Glu Arg Ala Cys
1520 1525 1530

Ile Asp Phe Ala Ile Ser Ala Lys Pro Leu Thr Arg His Met Pro
1535 1540 1545

```
Gln Asn  Lys Gln Ser Phe Gln  Tyr Arg Met Trp Gln  Phe Val Val
    1550                1555                1560

Ser Pro  Pro Phe Glu Tyr Thr  Ile Met Ala Met Ile  Ala Leu Asn
    1565                1570                1575

Thr Ile  Val Leu Met Met Lys  Phe Tyr Gly Ala Ser  Val Ala Tyr
    1580                1585                1590

Glu Asn  Ala Leu Arg Val Phe  Asn Ile Val Phe Thr  Ser Leu Phe
    1595                1600                1605

Ser Leu  Glu Cys Val Leu Lys  Val Met Ala Phe Gly  Ile Leu Asn
    1610                1615                1620

Tyr Phe  Arg Asp Ala Trp Asn  Ile Phe Asp Phe Val  Thr Val Leu
    1625                1630                1635

Gly Ser  Ile Thr Asp Ile Leu  Val Thr Glu Phe Gly  Asn Asn Phe
    1640                1645                1650

Ile Asn  Leu Ser Phe Leu Arg  Leu Phe Arg Ala Ala  Arg Leu Ile
    1655                1660                1665

Lys Leu  Leu Arg Gln Gly Tyr  Thr Ile Arg Ile Leu  Leu Trp Thr
    1670                1675                1680

Phe Val  Gln Ser Phe Lys Ala  Leu Pro Tyr Val Cys  Leu Leu Ile
    1685                1690                1695

Ala Met  Leu Phe Phe Ile Tyr  Ala Ile Ile Gly Met  Gln Val Phe
    1700                1705                1710

Gly Asn  Ile Gly Ile Asp Val  Glu Asp Glu Asp Ser  Asp Glu Asp
    1715                1720                1725

Glu Phe  Gln Ile Thr Glu His  Asn Asn Phe Arg Thr  Phe Phe Gln
    1730                1735                1740

Ala Leu  Met Leu Leu Phe Arg  Ser Ala Thr Gly Glu  Ala Trp His
    1745                1750                1755
```

```
Asn Ile  Met Leu Ser Cys Leu  Ser Gly Lys Pro Cys  Asp Lys Asn
    1760                1765                1770

Ser Gly  Ile Leu Thr Arg Glu  Cys Gly Asn Glu Phe  Ala Tyr Phe
    1775                1780                1785

Tyr Phe  Val Ser Phe Ile Phe  Leu Cys Ser Phe Leu  Met Leu Asn
    1790                1795                1800

Leu Phe  Val Ala Val Ile Met  Asp Asn Phe Glu Tyr  Leu Thr Arg
    1805                1810                1815

Asp Ser  Ser Ile Leu Gly Pro  His His Leu Asp Glu  Tyr Val Arg
    1820                1825                1830

Val Trp  Ala Glu Tyr Asp Pro  Ala Ala Trp Gly Arg  Met Pro Tyr
    1835                1840                1845

Leu Asp  Met Tyr Gln Met Leu  Arg His Met Ser Pro  Pro Leu Gly
    1850                1855                1860

Leu Gly  Lys Lys Cys Pro Ala  Arg Val Ala Tyr Lys  Arg Leu Leu
    1865                1870                1875

Arg Met  Asp Leu Pro Val Ala  Asp Asp Asn Thr Val  His Phe Asn
    1880                1885                1890

Ser Thr  Leu Met Ala Leu Ile  Arg Thr Ala Leu Asp  Ile Lys Ile
    1895                1900                1905

Ala Lys  Gly Gly Ala Asp Lys  Gln Gln Met Asp Ala  Glu Leu Arg
    1910                1915                1920

Lys Glu  Met Met Ala Ile Trp  Pro Asn Leu Ser Gln  Lys Thr Leu
    1925                1930                1935

Asp Leu  Leu Val Thr Pro His  Lys Ser Thr Asp Leu  Thr Val Gly
    1940                1945                1950

Lys Ile  Tyr Ala Ala Met Met  Ile Met Glu Tyr Tyr  Arg Gln Ser
    1955                1960                1965
```

Lys Ala Lys Lys Leu Gln Ala Met Arg Glu Glu Gln Asp Arg Thr
1970 1975 1980

Pro Leu Met Phe Gln Arg Met Glu Pro Pro Ser Pro Thr Gln Glu
1985 1990 1995

Gly Gly Pro Gly Gln Asn Ala Leu Pro Ser Thr Gln Leu Asp Pro
2000 2005 2010

Gly Gly Ala Leu Met Ala His Glu Ser Gly Leu Lys Glu Ser Pro
2015 2020 2025

Ser Trp Val Thr Gln Arg Ala Gln Glu Met Phe Gln Lys Thr Gly
2030 2035 2040

Thr Trp Ser Pro Glu Gln Gly Pro Pro Thr Asp Met Pro Asn Ser
2045 2050 2055

Gln Pro Asn Ser Gln Ser Val Glu Met Arg Glu Met Gly Arg Asp
2060 2065 2070

Gly Tyr Ser Asp Ser Glu His Tyr Leu Pro Met Glu Gly Gln Gly
2075 2080 2085

Arg Ala Ala Ser Met Pro Arg Leu Pro Ala Glu Asn Gln Arg Arg
2090 2095 2100

Arg Gly Arg Pro Arg Gly Asn Asn Leu Ser Thr Ile Ser Asp Thr
2105 2110 2115

Ser Pro Met Lys Arg Ser Ala Ser Val Leu Gly Pro Lys Ala Arg
2120 2125 2130

Arg Leu Asp Asp Tyr Ser Leu Glu Arg Val Pro Pro Glu Glu Asn
2135 2140 2145

Gln Arg His His Gln Arg Arg Arg Asp Arg Ser His Arg Ala Ser
2150 2155 2160

Glu Arg Ser Leu Gly Arg Tyr Thr Asp Val Asp Thr Gly Leu Gly
2165 2170 2175

Thr Asp Leu Ser Met Thr Thr Gln Ser Gly Asp Leu Pro Ser Lys

2180 2185 2190

Glu Arg Asp Gln Glu Arg Gly Arg Pro Lys Asp Arg Lys His Arg
2195 2200 2205

Gln His His His His His His His His His His Pro Pro Pro Pro
2210 2215 2220

Asp Lys Asp Arg Tyr Ala Gln Glu Arg Pro Asp His Gly Arg Ala
2225 2230 2235

Arg Ala Arg Asp Gln Arg Trp Ser Arg Ser Pro Ser Glu Gly Arg
2240 2245 2250

Glu His Met Ala His Arg Gln Gly Ser Ser Ser Val Ser Gly Ser
2255 2260 2265

Pro Ala Pro Ser Thr Ser Gly Thr Ser Thr Pro Arg Arg Gly Arg
2270 2275 2280

Arg Gln Leu Pro Gln Thr Pro Ser Thr Pro Arg Pro His Val Ser
2285 2290 2295

Tyr Ser Pro Val Ile Arg Lys Ala Gly Gly Ser Gly Pro Pro Gln
2300 2305 2310

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Ala Val Ala
2315 2320 2325

Arg Pro Gly Arg Ala Ala Thr Ser Gly Pro Arg Arg Tyr Pro Gly
2330 2335 2340

Pro Thr Ala Glu Pro Leu Ala Gly Asp Arg Pro Pro Thr Gly Gly
2345 2350 2355

His Ser Ser Gly Arg Ser Pro Arg Met Glu Arg Arg Val Pro Gly
2360 2365 2370

Pro Ala Arg Ser Glu Ser Pro Arg Ala Cys Arg His Gly Gly Ala
2375 2380 2385

Arg Trp Pro Ala Ser Gly Pro His Val Ser Glu Gly Pro Pro Gly
2390 2395 2400

```
Pro Arg  His His Gly Tyr Tyr  Arg Gly Ser Asp Tyr  Asp Glu Ala
    2405                2410                2415

Asp Gly  Pro Gly Ser Gly Gly  Gly Glu Glu Ala Met  Ala Gly Ala
    2420                2425                2430

Tyr Asp  Ala Pro Pro Pro Val  Arg His Ala Ser Ser  Gly Ala Thr
    2435                2440                2445

Gly Arg  Ser Pro Arg Thr Pro  Arg Ala Ser Gly Pro  Ala Cys Ala
    2450                2455                2460

Ser Pro  Ser Arg His Gly Arg  Arg Leu Pro Asn Gly  Tyr Tyr Pro
    2465                2470                2475

Ala His  Gly Leu Ala Arg Pro  Arg Gly Pro Gly Ser  Arg Lys Gly
    2480                2485                2490

Leu His  Glu Pro Tyr Ser Glu  Ser Asp Asp Asp Trp  Cys
    2495                2500                2505


<210> 10768
<211> 103
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2143; "

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<223> /note="Gene Symbol: CACNA1A; "

<220>
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      subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000459963"

<400> 10768
Met Ser Ser Trp Pro Thr Arg Pro Thr Lys Ser Thr Ala Pro Pro Arg
1               5                  10                  15
```

```
Pro Gly Gly Lys Asn Gly Thr Thr Ile Ile Ala Asn Cys Ile Val Leu
            20                  25                  30

Ala Leu Glu Gln His Leu Pro Asp Asp Asp Lys Thr Pro Met Ser Glu
        35                  40                  45

Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu
    50                  55                  60

Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Ala Phe His Lys Gly Ser
65                  70                  75                  80

Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
                85                  90                  95

Gly Ile Leu Ala Thr Val Gly
            100


<210> 10769
<211> 2261
<212> PRT
<213> Homo sapiens

<220>
<221> source
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      subunit; "

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<223> /note="Uniprot ID:  O00555; "

<220>
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<223> /note="ENSP ID: ENSP00000460092"

<400> 10769
Met Ala Arg Phe Gly Asp Glu Met Pro Ala Arg Tyr Gly Gly Gly Gly
1               5                   10                  15
```

```
Ser Gly Ala Ala Ala Gly Val Val Val Gly Ser Gly Gly Gly Arg Gly
            20                  25                  30

Ala Gly Gly Ser Arg Gln Gly Gly Gln Pro Gly Ala Gln Arg Met Tyr
        35                  40                  45

Lys Gln Ser Met Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro
    50                  55                  60

Ile Pro Val Arg Gln Asn Cys Leu Thr Val Asn Arg Ser Leu Phe Leu
65                  70                  75                  80

Phe Ser Glu Asp Asn Val Val Arg Lys Tyr Ala Lys Lys Ile Thr Glu
                85                  90                  95

Trp Pro Pro Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys
            100                 105                 110

Ile Val Leu Ala Leu Glu Gln His Leu Pro Asp Asp Asp Lys Thr Pro
        115                 120                 125

Met Ser Glu Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe
    130                 135                 140

Cys Phe Glu Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Ala Phe His
145                 150                 155                 160

Lys Gly Ser Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val
                165                 170                 175

Val Leu Thr Gly Ile Leu Ala Thr Val Gly Thr Glu Phe Asp Leu Arg
            180                 185                 190

Thr Leu Arg Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly
        195                 200                 205

Ile Pro Ser Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Ile
    210                 215                 220

Pro Leu Leu Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Ile Phe
225                 230                 235                 240

Ala Ile Ile Gly Leu Glu Phe Tyr Met Gly Lys Phe His Thr Thr Cys
```

```
                245                 250                 255

Phe Glu Glu Gly Thr Asp Asp Ile Gln Gly Glu Ser Pro Ala Pro Cys
            260                 265                 270

Gly Thr Glu Glu Pro Ala Arg Thr Cys Pro Asn Gly Thr Lys Cys Gln
        275                 280                 285

Pro Tyr Trp Glu Gly Pro Asn Asn Gly Ile Thr Gln Phe Asp Asn Ile
    290                 295                 300

Leu Phe Ala Val Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp
305                 310                 315                 320

Thr Asp Leu Leu Tyr Asn Ser Asn Asp Ala Ser Gly Asn Thr Trp Asn
                325                 330                 335

Trp Leu Tyr Phe Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu
            340                 345                 350

Asn Leu Val Leu Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu
        355                 360                 365

Arg Val Glu Asn Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln
    370                 375                 380

Ile Glu Arg Glu Leu Asn Gly Tyr Met Glu Trp Ile Ser Lys Ala Glu
385                 390                 395                 400

Glu Val Ile Leu Ala Glu Asp Glu Thr Asp Gly Glu Gln Arg His Pro
                405                 410                 415

Phe Asp Gly Ala Leu Arg Arg Thr Thr Ile Lys Lys Ser Lys Thr Asp
            420                 425                 430

Leu Leu Asn Pro Glu Glu Ala Glu Asp Gln Leu Ala Asp Ile Ala Ser
        435                 440                 445

Val Gly Ser Pro Phe Ala Arg Ala Ser Ile Lys Ser Ala Lys Leu Glu
    450                 455                 460

Asn Ser Thr Phe Phe His Lys Lys Glu Arg Arg Met Arg Phe Tyr Ile
465                 470                 475                 480
```

```
Arg Arg Met Val Lys Thr Gln Ala Phe Tyr Trp Thr Val Leu Ser Leu
                485                 490                 495

Val Ala Leu Asn Thr Leu Cys Val Ala Ile Val His Tyr Asn Gln Pro
            500                 505                 510

Glu Trp Leu Ser Asp Phe Leu Tyr Tyr Ala Glu Phe Ile Phe Leu Gly
        515                 520                 525

Leu Phe Met Ser Glu Met Phe Ile Lys Met Tyr Gly Leu Gly Thr Arg
    530                 535                 540

Pro Tyr Phe His Ser Ser Phe Asn Cys Phe Asp Cys Gly Val Ile Ile
545                 550                 555                 560

Gly Ser Ile Phe Glu Val Ile Trp Ala Val Ile Lys Pro Gly Thr Ser
                565                 570                 575

Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys
            580                 585                 590

Val Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu Val Val Ser Leu Leu
        595                 600                 605

Asn Ser Met Lys Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe
    610                 615                 620

Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe
625                 630                 635                 640

Asn Phe Asp Glu Gly Thr Pro Pro Thr Asn Phe Asp Thr Phe Pro Ala
                645                 650                 655

Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Glu
            660                 665                 670

Val Met Tyr Asp Gly Ile Lys Ser Gln Gly Gly Val Gln Gly Gly Met
        675                 680                 685

Val Phe Ser Ile Tyr Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr
    690                 695                 700
```

```
Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala
705                 710                 715                 720

Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu Glu Ala Ala Asn Gln
                725                 730                 735

Lys Leu Ala Leu Gln Lys Ala Lys Glu Val Ala Glu Val Ser Pro Leu
            740                 745                 750

Ser Ala Ala Asn Met Ser Ile Ala Val Lys Glu Gln Gln Lys Asn Gln
        755                 760                 765

Lys Pro Ala Lys Ser Val Trp Glu Gln Arg Thr Ser Glu Met Arg Lys
    770                 775                 780

Gln Asn Leu Leu Ala Ser Arg Glu Ala Leu Tyr Asn Glu Met Asp Pro
785                 790                 795                 800

Asp Glu Arg Trp Lys Ala Ala Tyr Thr Arg His Leu Arg Pro Asp Met
                805                 810                 815

Lys Thr His Leu Asp Arg Pro Leu Val Val Asp Pro Gln Glu Asn Arg
            820                 825                 830

Asn Asn Asn Thr Asn Lys Ser Arg Ala Ala Glu Pro Thr Val Asp Gln
        835                 840                 845

Arg Leu Gly Gln Gln Arg Ala Glu Asp Phe Leu Arg Lys Gln Ala Arg
    850                 855                 860

Tyr His Asp Arg Ala Arg Asp Pro Ser Gly Ser Ala Gly Leu Asp Ala
865                 870                 875                 880

Arg Arg Pro Trp Ala Gly Ser Gln Glu Ala Glu Leu Ser Arg Glu Gly
                885                 890                 895

Pro Tyr Gly Arg Glu Ser Asp His His Ala Arg Glu Gly Ser Leu Glu
            900                 905                 910

Gln Pro Gly Phe Trp Glu Gly Glu Ala Glu Arg Gly Lys Ala Gly Asp
        915                 920                 925
```

```
Pro His Arg Arg His Val His Arg Gln Gly Gly Ser Arg Glu Ser Arg
    930                 935                 940

Ser Gly Ser Pro Arg Thr Gly Ala Asp Gly Glu His Arg Arg His Arg
945                 950                 955                 960

Ala His Arg Arg Pro Gly Glu Glu Gly Pro Glu Asp Lys Ala Glu Arg
                965                 970                 975

Arg Ala Arg His Arg Glu Gly Ser Arg Pro Ala Arg Gly Gly Glu Gly
            980                 985                 990

Glu Gly Glu Gly Pro Asp Gly Gly  Glu Arg Arg Arg Arg  His Arg
His
        995                 1000                1005

Gly Ala  Pro Ala Thr Tyr Glu  Gly Asp Ala Arg Arg  Glu Asp Lys
    1010                1015                1020

Glu Arg  Arg His Arg Arg Arg  Lys Glu Asn Gln Gly  Ser Gly Val
    1025                1030                1035

Pro Val  Ser Gly Pro Asn Leu  Ser Thr Thr Arg Pro  Ile Gln Gln
    1040                1045                1050

Asp Leu  Gly Arg Gln Asp Pro  Pro Leu Ala Glu Asp  Ile Asp Asn
    1055                1060                1065

Met Lys  Asn Asn Lys Leu Ala  Thr Ala Glu Ser Ala  Ala Pro His
    1070                1075                1080

Gly Ser  Leu Gly His Ala Gly  Leu Pro Gln Ser Pro  Ala Lys Met
    1085                1090                1095

Gly Asn  Ser Thr Asp Pro Gly  Pro Met Leu Ala Ile  Pro Ala Met
    1100                1105                1110

Ala Thr  Asn Pro Gln Asn Ala  Ala Ser Arg Arg Thr  Pro Asn Asn
    1115                1120                1125

Pro Gly  Asn Pro Ser Asn Pro  Gly Pro Pro Lys Thr  Pro Glu Asn
    1130                1135                1140
```

```
Ser Leu  Ile Val Thr Asn Pro  Ser Gly Thr Gln Thr  Asn Ser Ala
    1145                1150                1155

Lys Thr  Ala Arg Lys Pro Asp  His Thr Thr Val Asp  Ile Pro Pro
    1160                1165                1170

Ala Cys  Pro Pro Pro Leu Asn  His Thr Val Val Gln  Val Asn Lys
    1175                1180                1185

Asn Ala  Asn Pro Asp Pro Leu  Pro Lys Lys Glu Glu  Glu Lys Lys
    1190                1195                1200

Glu Glu  Glu Glu Asp Asp Arg  Gly Glu Asp Gly Pro  Lys Pro Met
    1205                1210                1215

Pro Pro  Tyr Ser Ser Met Phe  Ile Leu Ser Thr Thr  Asn Pro Leu
    1220                1225                1230

Arg Arg  Leu Cys His Tyr Ile  Leu Asn Leu Arg Tyr  Phe Glu Met
    1235                1240                1245

Cys Ile  Leu Met Val Ile Ala  Met Ser Ser Ile Ala  Leu Ala Ala
    1250                1255                1260

Glu Asp  Pro Val Gln Pro Asn  Ala Pro Arg Asn Asn  Val Leu Arg
    1265                1270                1275

Tyr Phe  Asp Tyr Val Phe Thr  Gly Val Phe Thr Phe  Glu Met Val
    1280                1285                1290

Ile Lys  Met Ile Asp Leu Gly  Leu Val Leu His Gln  Gly Ala Tyr
    1295                1300                1305

Phe Arg  Asp Leu Trp Asn Ile  Leu Asp Phe Ile Val  Val Ser Gly
    1310                1315                1320

Ala Leu  Val Ala Phe Ala Phe  Thr Gly Asn Ser Lys  Gly Lys Asp
    1325                1330                1335

Ile Asn  Thr Ile Lys Ser Leu  Arg Val Leu Arg Val  Leu Arg Pro
    1340                1345                1350

Leu Lys  Thr Ile Lys Arg Leu  Pro Lys Leu Lys Ala  Val Phe Asp
```

1355 1360 1365

Cys Val Val Asn Ser Leu Lys Asn Val Phe Asn Ile Leu Ile Val
1370 1375 1380

Tyr Met Leu Phe Met Phe Ile Phe Ala Val Val Ala Val Gln Leu
1385 1390 1395

Phe Lys Gly Lys Phe Phe His Cys Thr Asp Glu Ser Lys Glu Phe
1400 1405 1410

Glu Lys Asp Cys Arg Gly Lys Tyr Leu Leu Tyr Glu Lys Asn Glu
1415 1420 1425

Val Lys Ala Arg Asp Arg Glu Trp Lys Lys Tyr Glu Phe His Tyr
1430 1435 1440

Asp Asn Val Leu Trp Ala Leu Leu Thr Leu Phe Thr Val Ser Thr
1445 1450 1455

Gly Glu Gly Trp Pro Gln Val Leu Lys His Ser Val Asp Ala Thr
1460 1465 1470

Phe Glu Asn Gln Gly Pro Ser Pro Gly Tyr Arg Met Glu Met Ser
1475 1480 1485

Ile Phe Tyr Val Val Tyr Phe Val Val Phe Pro Phe Phe Phe Val
1490 1495 1500

Asn Ile Phe Val Ala Leu Ile Ile Ile Thr Phe Gln Glu Gln Gly
1505 1510 1515

Asp Lys Met Met Glu Glu Tyr Ser Leu Glu Lys Asn Glu Arg Ala
1520 1525 1530

Cys Ile Asp Phe Ala Ile Ser Ala Lys Pro Leu Thr Arg His Met
1535 1540 1545

Pro Gln Asn Lys Gln Ser Phe Gln Tyr Arg Met Trp Gln Phe Val
1550 1555 1560

Val Ser Pro Pro Phe Glu Tyr Thr Ile Met Ala Met Ile Ala Leu
1565 1570 1575

```
Asn Thr  Ile Val Leu Met Met  Lys Phe Tyr Gly Ala  Ser Val Ala
    1580                1585                1590

Tyr Glu  Asn Ala Leu Arg Val  Phe Asn Ile Val Phe  Thr Ser Leu
    1595                1600                1605

Phe Ser  Leu Glu Cys Val Leu  Lys Val Met Ala Phe  Gly Ile Leu
    1610                1615                1620

Asn Tyr  Phe Arg Asp Ala Trp  Asn Ile Phe Asp Phe  Val Thr Val
    1625                1630                1635

Leu Gly  Ser Ile Thr Asp Ile  Leu Val Thr Glu Phe  Gly Asn Asn
    1640                1645                1650

Phe Ile  Asn Leu Ser Phe Leu  Arg Leu Phe Arg Ala  Ala Arg Leu
    1655                1660                1665

Ile Lys  Leu Leu Arg Gln Gly  Tyr Thr Ile Arg Ile  Leu Leu Trp
    1670                1675                1680

Thr Phe  Val Gln Ser Phe Lys  Ala Leu Pro Tyr Val  Cys Leu Leu
    1685                1690                1695

Ile Ala  Met Leu Phe Phe Ile  Tyr Ala Ile Ile Gly  Met Gln Val
    1700                1705                1710

Phe Gly  Asn Ile Gly Ile Asp  Val Glu Asp Glu Asp  Ser Asp Glu
    1715                1720                1725

Asp Glu  Phe Gln Ile Thr Glu  His Asn Asn Phe Arg  Thr Phe Phe
    1730                1735                1740

Gln Ala  Leu Met Leu Leu Phe  Arg Ser Ala Thr Gly  Glu Ala Trp
    1745                1750                1755

His Asn  Ile Met Leu Ser Cys  Leu Ser Gly Lys Pro  Cys Asp Lys
    1760                1765                1770

Asn Ser  Gly Ile Leu Thr Arg  Glu Cys Gly Asn Glu  Phe Ala Tyr
    1775                1780                1785
```

```
Phe Tyr  Phe Val Ser Phe Ile  Phe Leu Cys Ser Phe  Leu Met Leu
    1790                1795                1800

Asn Leu  Phe Val Ala Val Ile  Met Asp Asn Phe Glu  Tyr Leu Thr
    1805                1810                1815

Arg Asp  Ser Ser Ile Leu Gly  Pro His His Leu Asp  Glu Tyr Val
    1820                1825                1830

Arg Val  Trp Ala Glu Tyr Asp  Pro Ala Ala Cys Gly  Arg Ile His
    1835                1840                1845

Tyr Lys  Asp Met Tyr Ser Leu  Leu Arg Val Ile Ser  Pro Pro Leu
    1850                1855                1860

Gly Leu  Gly Lys Lys Cys Pro  His Arg Val Ala Cys  Lys Arg Leu
    1865                1870                1875

Leu Arg  Met Asp Leu Pro Val  Ala Asp Asp Asn Thr  Val His Phe
    1880                1885                1890

Asn Ser  Thr Leu Met Ala Leu  Ile Arg Thr Ala Leu  Asp Ile Lys
    1895                1900                1905

Ile Ala  Lys Gly Gly Ala Asp  Lys Gln Gln Met Asp  Ala Glu Leu
    1910                1915                1920

Arg Lys  Glu Met Met Ala Ile  Trp Pro Asn Leu Ser  Gln Lys Thr
    1925                1930                1935

Leu Asp  Leu Leu Val Thr Pro  His Lys Ser Thr Asp  Leu Thr Val
    1940                1945                1950

Gly Lys  Ile Tyr Ala Ala Met  Met Ile Met Glu Tyr  Tyr Arg Gln
    1955                1960                1965

Ser Lys  Ala Lys Lys Leu Gln  Ala Met Arg Glu Glu  Gln Asp Arg
    1970                1975                1980

Thr Pro  Leu Met Phe Gln Arg  Met Glu Pro Pro Ser  Pro Thr Gln
    1985                1990                1995
```

Glu Gly Gly Pro Gly Gln Asn Ala Leu Pro Ser Thr Gln Leu Asp
2000 2005 2010

Pro Gly Gly Ala Leu Met Ala His Glu Ser Gly Leu Lys Glu Ser
2015 2020 2025

Pro Ser Trp Val Thr Gln Arg Ala Gln Glu Met Phe Gln Lys Thr
2030 2035 2040

Gly Thr Trp Ser Pro Glu Gln Gly Pro Pro Thr Asp Met Pro Asn
2045 2050 2055

Ser Gln Pro Asn Ser Gln Ser Val Glu Met Arg Glu Met Gly Arg
2060 2065 2070

Asp Gly Tyr Ser Asp Ser Glu His Tyr Leu Pro Met Glu Gly Gln
2075 2080 2085

Gly Arg Ala Ala Ser Met Pro Arg Leu Pro Ala Glu Asn Gln Arg
2090 2095 2100

Arg Arg Gly Arg Pro Arg Gly Asn Asn Leu Ser Thr Ile Ser Asp
2105 2110 2115

Thr Ser Pro Met Lys Arg Ser Ala Ser Val Leu Gly Pro Lys Ala
2120 2125 2130

Arg Arg Leu Asp Asp Tyr Ser Leu Glu Arg Val Pro Pro Glu Glu
2135 2140 2145

Asn Gln Arg His His Gln Arg Arg Arg Asp Arg Ser His Arg Ala
2150 2155 2160

Ser Glu Arg Ser Leu Gly Arg Tyr Thr Asp Val Asp Thr Gly Leu
2165 2170 2175

Gly Thr Asp Leu Ser Met Thr Thr Gln Ser Gly Asp Leu Pro Ser
2180 2185 2190

Lys Glu Arg Asp Gln Glu Arg Gly Arg Pro Lys Asp Arg Lys His
2195 2200 2205

Arg Gln His His His His His His His His His His Pro Pro Pro

```
    2210                2215                2220

Pro Asp  Lys Asp Arg Tyr Ala  Gln Glu Arg Pro Asp  His Gly Arg
    2225                2230                2235

Ala Arg  Ala Arg Asp Gln Arg  Trp Ser Arg Ser Pro  Ser Glu Gly
    2240                2245                2250

Arg Glu  His Met Ala His Arg  Gln
    2255                2260
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<210> 10770
<211> 79
<212> PRT
<213> Homo sapiens

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10770

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Xaa Lys Phe Tyr Gly Ala Ser Val Ala Tyr Glu Asn Ala Leu Arg Val
1               5                   10                  15

Phe Asn Ile Val Phe Thr Ser Leu Phe Ser Leu Glu Cys Val Leu Lys
            20                  25                  30

Val Met Ala Phe Gly Ile Leu Asn Tyr Phe Arg Asp Ala Trp Asn Ile
        35                  40                  45
```

Phe Asp Phe Val Thr Val Leu Gly Ser Ile Thr Asp Ile Leu Val Thr
    50   55   60

Glu Phe Gly Ala Trp Ser Arg Ala Thr Pro Pro Ser Pro Arg Ser
65   70   75

<210> 10771
<211> 35
<212> PRT
<213> Homo sapiens

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<400> 10771
Met Ser Ser Trp Pro Thr Arg Pro Thr Lys Ser Thr Ala Pro Pro Arg
1   5   10   15

Pro Gly Gly Lys Asn Gly Arg Ser Tyr Gln Arg Met Cys Phe Thr Gln
            20   25   30

Thr Arg Glu
        35

<210> 10772
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<400> 10772
Leu Asp Phe Ile Val Val Ser Gly Ala Leu Val Ala Phe Ala Phe Thr
1 5 10 15

Gly Asn Ser Lys Gly Lys Asp Ile Asn Thr Ile Lys Ser Leu Arg Val
20 25 30

Leu Arg Val Leu Arg Pro Leu Lys Thr Ile Lys Arg Leu Pro Lys Leu
35 40 45

Lys Ala Val Phe Asp Cys Val Val Asn Ser Leu Lys Asn Val Phe Asn
50 55 60

Ile Leu Ile Val Tyr Met Leu Phe Met Phe Ile Phe Ala Val Val Ala
65 70 75 80

Val Gln Leu Phe Lys Gly Lys Phe Phe His Cys Thr Asp Glu Ser Lys
85 90 95

Glu Phe Glu Lys Asp Cys Arg Gly Lys Tyr Leu Leu Tyr Glu Lys Asn
100 105 110

Glu Val Lys Ala Arg Asp Arg Glu Trp Lys Lys Tyr Glu Phe His Tyr
115 120 125

Asp Asn Val Leu Trp Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly
130 135 140

Glu Gly Trp Pro Gln Val Leu Lys His Ser Val Asp Ala Thr Phe Glu
145 150 155 160

Asn Gln Gly Pro Ser Pro Gly Tyr Arg Met Glu Met Ser Ile Phe Tyr
165 170 175

Val Val Tyr Phe Val Val Phe Pro Phe Phe Phe Val Asn Ile Phe Val
180 185 190

```
Ala Leu Ile Ile Ile Thr Phe Gln Glu Gln Gly Asp Lys Met Met Glu
        195                 200                 205

Glu Tyr Ser Leu Glu Lys Asn Glu Arg Ala Cys Ile Asp Phe Ala Ile
    210                 215                 220

Ser Ala Lys Pro Leu Thr Arg His Met Pro Gln Asn Lys Gln Ser Phe
225                 230                 235                 240

Gln Tyr Arg Met Trp Gln Phe Val Val Ser Pro Pro Phe Glu Tyr Thr
                245                 250                 255

Ile Met Ala Met Ile Ala Leu Asn Thr Ile Val Leu Met Met Lys Phe
            260                 265                 270

Tyr Gly Ala Ser Val Ala Tyr Glu Asn Ala Leu Arg Val Phe Asn Ile
        275                 280                 285

Val Phe Thr Ser Leu Phe Ser Leu Glu Cys Val Leu Lys Val Met Ala
    290                 295                 300

Phe Gly Ile Leu Asn Tyr Phe Arg Asp Ala Trp Asn Ile Phe Asp Phe
305                 310                 315                 320

Val Thr Val Leu Gly Ser Ile Thr Asp Ile Leu Val Thr Glu Phe Gly
                325                 330                 335

Asn Asn Phe Ile Asn Leu Ser Phe Leu Arg Leu Phe Arg Ala Ala Arg
            340                 345                 350

Leu Ile Lys Leu Leu Arg Gln Gly Tyr Thr Ile Arg Ile Leu Leu Trp
        355                 360                 365

Thr Phe Val Gln Ser Phe Lys Ala Leu Pro Tyr Val Cys Leu Leu Ile
    370                 375                 380

Ala Met Leu Phe Phe Ile Tyr Ala Ile Ile Gly Met Gln Val Phe Gly
385                 390                 395                 400

Asn Ile Gly Ile Asp Val Glu Asp Glu Asp Ser Asp Glu Asp Glu Phe
                405                 410                 415
```

```
Gln Ile Thr Glu His Asn Asn Phe Arg Thr Phe Phe Gln Ala Leu Met
            420                 425                 430

Leu Leu Phe Arg Ser Ala Thr Gly Glu Ala Trp His Asn Ile Met Leu
        435                 440                 445

Ser Cys Leu Ser Gly Lys Pro Cys Asp Lys Asn Ser Gly Ile Leu Thr
    450                 455                 460

Arg Glu Cys Gly Asn Glu Phe Ala Tyr Phe Tyr Phe Val Ser Phe Ile
465                 470                 475                 480

Phe Leu Cys Ser Phe Leu Met Leu Asn Leu Phe Val Ala Val Ile Met
                485                 490                 495

Asp Asn Phe Glu Tyr Leu Thr Arg Asp Ser Ser Ile Leu Gly Pro His
            500                 505                 510

His Leu Asp Glu Tyr Val Arg Val Trp Ala Glu Tyr Asp Pro Ala Ala
        515                 520                 525

Trp Gly Arg Met Pro Tyr Leu Asp Met Tyr Gln Met Leu Arg His Met
    530                 535                 540

Ser Pro Pro Leu Gly Leu Gly Lys Lys Cys Pro Ala Arg Val Ala Tyr
545                 550                 555                 560

Lys Arg Leu Leu Arg Met Asp Leu Pro Val Ala Asp Asp Asn Thr Val
                565                 570                 575

His Phe Asn Ser Thr Leu Met Ala Leu Ile Arg Thr Ala Leu Asp Ile
            580                 585                 590

Lys Ile Ala Lys Gly Gly Ala Asp Lys Gln Gln Met Asp Ala Glu Leu
        595                 600                 605

Arg Lys Glu Met Met Ala Ile Trp Pro Asn Leu Ser Gln Lys Thr Leu
    610                 615                 620

Asp Leu Leu Val Thr Pro His Lys Ser Thr Asp Leu Thr Val Gly Lys
625                 630                 635                 640
```

```
Ile Tyr Ala Ala Met Met Ile Met Glu Tyr Tyr Arg Gln Ser Lys Ala
                645                 650                 655

Lys Lys Leu Gln Ala Met Arg Glu Glu Gln Asp Arg Thr Pro Leu Met
            660                 665                 670

Phe Gln Arg Met Glu Pro Pro Ser Pro Thr Gln Glu Gly Gly Pro Gly
        675                 680                 685

Gln Asn Ala Leu Pro Ser Thr Gln Leu Asp Pro Gly Gly Ala Leu Met
    690                 695                 700

Ala His Glu Ser Gly Leu Lys Glu Ser Pro Ser Trp Val Thr Gln Arg
705                 710                 715                 720

Ala Gln Glu Met Phe Gln Lys Thr Gly Thr Trp Ser Pro Glu Gln Gly
                725                 730                 735

Pro Pro Thr Asp Met Pro Asn Ser Gln Pro Asn Ser Gln Ser Val Glu
            740                 745                 750

Met Arg Glu Met Gly Arg Asp Gly Tyr Ser Asp Ser Glu His Tyr Leu
        755                 760                 765

Pro Met Glu Gly Gln Gly Arg Ala Ala Ser Met Pro Arg Leu Pro Ala
    770                 775                 780

Glu Asn Gln Thr Ile Ser Asp Thr Ser Pro Met Lys Arg Ser Ala Ser
785                 790                 795                 800

Val Leu Gly Pro Lys Ala Arg Arg Leu Asp Asp Tyr Ser Leu Glu Arg
                805                 810                 815

Val Pro Pro Glu Glu Asn Gln Arg His His Gln Arg Arg Arg Asp Arg
            820                 825                 830

Ser His Arg Ala Ser Glu Arg Ser Leu Gly Arg Tyr Thr Asp Val Asp
        835                 840                 845

Thr Gly Leu Gly Thr Asp Leu Ser Met Thr Thr Gln Ser Gly Asp Leu
    850                 855                 860

Pro Ser Lys Glu Arg Asp Gln Glu Arg Gly Arg Pro Lys Asp Arg Lys
```

865 870 875 880

His Arg Gln His His His His His His His His His Pro Pro Pro
885 890 895

Pro Asp Lys Asp Arg Tyr Ala Gln Glu Arg Pro Asp His Gly Arg Ala
900 905 910

Arg Ala Arg Asp Gln Arg Trp Ser Arg Ser Pro Ser Glu Gly Arg Glu
915 920 925

His Met Ala His Arg Gln Gly Ser Ser Ser Val Ser Gly Ser Pro Ala
930 935 940

Pro Ser Thr Ser Gly Thr Ser Thr Pro Arg Arg Gly Arg Arg Gln Leu
945 950 955 960

Pro Gln Thr Pro Ser Thr Pro Arg Pro His Val Ser Tyr Ser Pro Val
965 970 975

Ile Arg Lys Ala Gly Gly Ser Gly Pro Pro Gln Gln Gln Gln Gln Gln
980 985 990

Gln Gln Gln Gln Gln Gln Gln Ala Val Ala Arg Pro Gly Arg Ala
Ala
995 1000 1005

Thr Ser Gly Pro Arg Arg Tyr Pro Gly Pro Thr Ala Glu Pro Leu
1010 1015 1020

Ala Gly Asp Arg Pro Pro Thr Gly Gly His Ser Ser Gly Arg Ser
1025 1030 1035

Pro Arg Met Glu Arg Arg Val Pro Gly Pro Ala Arg Ser Glu Ser
1040 1045 1050

Pro Arg Ala Cys Arg His Gly Gly Ala Arg Trp Pro Ala Ser Gly
1055 1060 1065

Pro His Val Ser Glu Gly Pro Pro Gly Pro Arg His His Gly Tyr
1070 1075 1080

Tyr Arg Gly Ser Asp Tyr Asp Glu Ala Asp Gly Pro Gly Ser Gly

```
    1085                1090                1095

Gly Gly  Glu Glu Ala Met Ala  Gly Ala Tyr Asp Ala  Pro Pro Pro
    1100                1105                1110

Val Arg  His Ala Ser Ser Gly  Ala Thr Gly Arg Ser  Pro Arg Thr
    1115                1120                1125

Pro Arg  Ala Ser Gly Pro Ala  Cys Ala Ser Pro Ser  Arg His Gly
    1130                1135                1140

Arg Arg  Leu Pro Asn Gly Tyr  Tyr Pro Ala His Gly  Leu Ala Arg
    1145                1150                1155

Pro Arg  Gly Pro Gly Ser Arg  Lys Gly Leu His Glu  Pro Tyr Ser
    1160                1165                1170

Glu Ser  Asp Asp Asp Trp Cys
    1175                1180


<210> 10773
<211> 981
<212> PRT
<213> Homo sapiens

<220>
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<220>
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Gln Glu Gln Gly Asp Lys Met Met Glu Glu Tyr Ser Leu Glu Lys Asn
1               5                  10                  15

Glu Arg Ala Cys Ile Asp Phe Ala Ile Ser Ala Lys Pro Leu Thr Arg
            20                  25                  30
```

```
His Met Pro Gln Asn Lys Gln Ser Phe Gln Tyr Arg Met Trp Gln Phe
        35                  40                  45

Val Val Ser Pro Pro Phe Glu Tyr Thr Ile Met Ala Met Ile Ala Leu
    50                  55                  60

Asn Thr Ile Val Leu Met Met Lys Phe Tyr Gly Ala Ser Val Ala Tyr
65                  70                  75                  80

Glu Asn Ala Leu Arg Val Phe Asn Ile Val Phe Thr Ser Leu Phe Ser
                85                  90                  95

Leu Glu Cys Val Leu Lys Val Met Ala Phe Gly Ile Leu Asn Tyr Phe
            100                 105                 110

Arg Asp Ala Trp Asn Ile Phe Asp Phe Val Thr Val Leu Gly Ser Ile
        115                 120                 125

Thr Asp Ile Leu Val Thr Glu Phe Gly Asn Asn Phe Ile Asn Leu Ser
    130                 135                 140

Phe Leu Arg Leu Phe Arg Ala Ala Arg Leu Ile Lys Leu Leu Arg Gln
145                 150                 155                 160

Gly Tyr Thr Ile Arg Ile Leu Leu Trp Thr Phe Val Gln Ser Phe Lys
                165                 170                 175

Ala Leu Pro Tyr Val Cys Leu Leu Ile Ala Met Leu Phe Phe Ile Tyr
            180                 185                 190

Ala Ile Ile Gly Met Gln Val Phe Gly Asn Ile Gly Ile Asp Val Glu
        195                 200                 205

Asp Glu Asp Ser Asp Glu Asp Glu Phe Gln Ile Thr Glu His Asn Asn
    210                 215                 220

Phe Arg Thr Phe Phe Gln Ala Leu Met Leu Leu Phe Arg Ser Ala Thr
225                 230                 235                 240

Gly Glu Ala Trp His Asn Ile Met Leu Ser Cys Leu Ser Gly Lys Pro
                245                 250                 255
```

```
Cys Asp Lys Asn Ser Gly Ile Leu Thr Arg Glu Cys Gly Asn Glu Phe
            260                 265                 270

Ala Tyr Phe Tyr Phe Val Ser Phe Ile Phe Leu Cys Ser Phe Leu Met
        275                 280                 285

Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu Tyr Leu Thr
    290                 295                 300

Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu Tyr Val Arg
305                 310                 315                 320

Val Trp Ala Glu Tyr Asp Pro Ala Ala Cys Gly Arg Ile His Tyr Lys
                325                 330                 335

Asp Met Tyr Ser Leu Leu Arg Val Ile Ser Pro Pro Leu Gly Leu Gly
            340                 345                 350

Lys Lys Cys Pro His Arg Val Ala Cys Lys Arg Leu Leu Arg Met Asp
        355                 360                 365

Leu Pro Val Ala Asp Asp Asn Thr Val His Phe Asn Ser Thr Leu Met
    370                 375                 380

Ala Leu Ile Arg Thr Ala Leu Asp Ile Lys Ile Ala Lys Gly Gly Ala
385                 390                 395                 400

Asp Lys Gln Gln Met Asp Ala Glu Leu Arg Lys Glu Met Met Ala Ile
                405                 410                 415

Trp Pro Asn Leu Ser Gln Lys Thr Leu Asp Leu Leu Val Thr Pro His
            420                 425                 430

Lys Ser Thr Asp Leu Thr Val Gly Lys Ile Tyr Ala Ala Met Met Ile
        435                 440                 445

Met Glu Tyr Tyr Arg Gln Ser Lys Ala Lys Lys Leu Gln Ala Met Arg
    450                 455                 460

Glu Glu Gln Asp Arg Thr Pro Leu Met Phe Gln Arg Met Glu Pro Pro
465                 470                 475                 480
```

Ser Pro Thr Gln Glu Gly Gly Pro Gly Gln Asn Ala Leu Pro Ser Thr
485 490 495

Gln Leu Asp Pro Gly Gly Ala Leu Met Ala His Glu Ser Gly Leu Lys
500 505 510

Glu Ser Pro Ser Trp Val Thr Gln Arg Ala Gln Glu Met Phe Gln Lys
515 520 525

Thr Gly Thr Trp Ser Pro Glu Gln Gly Pro Pro Thr Asp Met Pro Asn
530 535 540

Ser Gln Pro Asn Ser Gln Ser Val Glu Met Arg Glu Met Gly Arg Asp
545 550 555 560

Gly Tyr Ser Asp Ser Glu His Tyr Leu Pro Met Glu Gly Gln Gly Arg
565 570 575

Ala Ala Ser Met Pro Arg Leu Pro Ala Glu Asn Gln Thr Ile Ser Asp
580 585 590

Thr Ser Pro Met Lys Arg Ser Ala Ser Val Leu Gly Pro Lys Ala Arg
595 600 605

Arg Leu Asp Asp Tyr Ser Leu Glu Arg Val Pro Pro Glu Glu Asn Gln
610 615 620

Arg His His Gln Arg Arg Arg Asp Arg Ser His Arg Ala Ser Glu Arg
625 630 635 640

Ser Leu Gly Arg Tyr Thr Asp Val Asp Thr Gly Leu Gly Thr Asp Leu
645 650 655

Ser Met Thr Thr Gln Ser Gly Asp Leu Pro Ser Lys Glu Arg Asp Gln
660 665 670

Glu Arg Gly Arg Pro Lys Asp Arg Lys His Arg Gln His His His His
675 680 685

His His His His His His Pro Pro Pro Pro Asp Lys Asp Arg Tyr Ala
690 695 700

Gln Glu Arg Pro Asp His Gly Arg Ala Arg Ala Arg Asp Gln Arg Trp

705 710 715 720

Ser Arg Ser Pro Ser Glu Gly Arg Glu His Met Ala His Arg Gln Gly
725 730 735

Ser Ser Ser Val Ser Gly Ser Pro Ala Pro Ser Thr Ser Gly Thr Ser
740 745 750

Thr Pro Arg Arg Gly Arg Arg Gln Leu Pro Gln Thr Pro Ser Thr Pro
755 760 765

Arg Pro His Val Ser Tyr Ser Pro Val Ile Arg Lys Ala Gly Gly Ser
770 775 780

Gly Pro Pro Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
785 790 795 800

Ala Val Ala Arg Pro Gly Arg Ala Ala Thr Ser Gly Pro Arg Arg Tyr
805 810 815

Pro Gly Pro Thr Ala Glu Pro Leu Ala Gly Asp Arg Pro Pro Thr Gly
820 825 830

Gly His Ser Ser Gly Arg Ser Pro Arg Met Glu Arg Arg Val Pro Gly
835 840 845

Pro Ala Arg Ser Glu Ser Pro Arg Ala Cys Arg His Gly Gly Ala Arg
850 855 860

Trp Pro Ala Ser Gly Pro His Val Ser Glu Gly Pro Pro Gly Pro Arg
865 870 875 880

His His Gly Tyr Tyr Arg Gly Ser Asp Tyr Asp Glu Ala Asp Gly Pro
885 890 895

Gly Ser Gly Gly Gly Glu Glu Ala Met Ala Gly Ala Tyr Asp Ala Pro
900 905 910

Pro Pro Val Arg His Ala Ser Ser Gly Ala Thr Gly Arg Ser Pro Arg
915 920 925

Thr Pro Arg Ala Ser Gly Pro Ala Cys Ala Ser Pro Ser Arg His Gly
930 935 940

```
Arg Arg Leu Pro Asn Gly Tyr Tyr Pro Ala His Gly Leu Ala Arg Pro
945                 950                 955                 960


Arg Gly Pro Gly Ser Arg Lys Gly Leu His Glu Pro Tyr Ser Glu Ser
                965                 970                 975


Asp Asp Asp Trp Cys
            980


<210> 10774
<211> 2512
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<213> Homo sapiens

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<223> /note="Gene Symbol: CACNA1A; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, P/Q
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      subunit; "

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Met Ala Arg Phe Gly Asp Glu Met Pro Ala Arg Tyr Gly Gly Gly Gly
1               5                   10                  15


Ser Gly Ala Ala Ala Gly Val Val Val Gly Ser Gly Gly Gly Arg Gly
            20                  25                  30


Ala Gly Gly Ser Arg Gln Gly Gly Gln Pro Gly Ala Gln Arg Met Tyr
        35                  40                  45


Lys Gln Ser Met Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro
    50                  55                  60


Ile Pro Val Arg Gln Asn Cys Leu Thr Val Asn Arg Ser Leu Phe Leu
65                  70                  75                  80
```

```
Phe Ser Glu Asp Asn Val Val Arg Lys Tyr Ala Lys Lys Ile Thr Glu
                85                  90                  95

Trp Pro Pro Phe Glu Tyr Met Ile Leu Ala Thr Ile Ile Ala Asn Cys
            100                 105                 110

Ile Val Leu Ala Leu Glu Gln His Leu Pro Asp Asp Asp Lys Thr Pro
        115                 120                 125

Met Ser Glu Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe
    130                 135                 140

Cys Phe Glu Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Ala Phe His
145                 150                 155                 160

Lys Gly Ser Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val
                165                 170                 175

Val Leu Thr Gly Ile Leu Ala Thr Val Gly Thr Glu Phe Asp Leu Arg
            180                 185                 190

Thr Leu Arg Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly
        195                 200                 205

Ile Pro Ser Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Ile
    210                 215                 220

Pro Leu Leu Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Ile Phe
225                 230                 235                 240

Ala Ile Ile Gly Leu Glu Phe Tyr Met Gly Lys Phe His Thr Thr Cys
                245                 250                 255

Phe Glu Glu Gly Thr Asp Asp Ile Gln Gly Glu Ser Pro Ala Pro Cys
            260                 265                 270

Gly Thr Glu Glu Pro Ala Arg Thr Cys Pro Asn Gly Thr Lys Cys Gln
        275                 280                 285

Pro Tyr Trp Glu Gly Pro Asn Asn Gly Ile Thr Gln Phe Asp Asn Ile
    290                 295                 300
```

```
Leu Phe Ala Val Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp
305                 310                 315                 320

Thr Asp Leu Leu Tyr Asn Ser Asn Asp Ala Ser Gly Asn Thr Trp Asn
                325                 330                 335

Trp Leu Tyr Phe Ile Pro Leu Ile Ile Ile Gly Ser Phe Phe Met Leu
            340                 345                 350

Asn Leu Val Leu Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu
        355                 360                 365

Arg Val Glu Asn Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln
    370                 375                 380

Ile Glu Arg Glu Leu Asn Gly Tyr Met Glu Trp Ile Ser Lys Ala Glu
385                 390                 395                 400

Glu Val Ile Leu Ala Glu Asp Glu Thr Asp Gly Glu Gln Arg His Pro
                405                 410                 415

Phe Asp Gly Ala Leu Arg Arg Thr Thr Ile Lys Lys Ser Lys Thr Asp
            420                 425                 430

Leu Leu Asn Pro Glu Glu Ala Glu Asp Gln Leu Ala Asp Ile Ala Ser
        435                 440                 445

Val Gly Ser Pro Phe Ala Arg Ala Ser Ile Lys Ser Ala Lys Leu Glu
    450                 455                 460

Asn Ser Thr Phe Phe His Lys Lys Glu Arg Arg Met Arg Phe Tyr Ile
465                 470                 475                 480

Arg Arg Met Val Lys Thr Gln Ala Phe Tyr Trp Thr Val Leu Ser Leu
                485                 490                 495

Val Ala Leu Asn Thr Leu Cys Val Ala Ile Val His Tyr Asn Gln Pro
            500                 505                 510

Glu Trp Leu Ser Asp Phe Leu Tyr Tyr Ala Glu Phe Ile Phe Leu Gly
        515                 520                 525

Leu Phe Met Ser Glu Met Phe Ile Lys Met Tyr Gly Leu Gly Thr Arg
```

530 535 540

Pro Tyr Phe His Ser Ser Phe Asn Cys Phe Asp Cys Gly Val Ile Ile
545 550 555 560

Gly Ser Ile Phe Glu Val Ile Trp Ala Val Ile Lys Pro Gly Thr Ser
565 570 575

Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys
580 585 590

Val Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu Val Val Ser Leu Leu
595 600 605

Asn Ser Met Lys Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe
610 615 620

Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe
625 630 635 640

Asn Phe Asp Glu Gly Thr Pro Pro Thr Asn Phe Asp Thr Phe Pro Ala
645 650 655

Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Glu
660 665 670

Val Met Tyr Asp Gly Ile Lys Ser Gln Gly Gly Val Gln Gly Gly Met
675 680 685

Val Phe Ser Ile Tyr Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr
690 695 700

Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala
705 710 715 720

Gln Glu Leu Thr Lys Val Glu Ala Asp Glu Gln Glu Glu Glu Glu Ala
725 730 735

Ala Asn Gln Lys Leu Ala Leu Gln Lys Ala Lys Glu Val Ala Glu Val
740 745 750

Ser Pro Leu Ser Ala Ala Asn Met Ser Ile Ala Val Lys Glu Gln Gln
755 760 765

```
Lys Asn Gln Lys Pro Ala Lys Ser Val Trp Glu Gln Arg Thr Ser Glu
    770                 775                 780

Met Arg Lys Gln Asn Leu Leu Ala Ser Arg Glu Ala Leu Tyr Asn Glu
785                 790                 795                 800

Met Asp Pro Asp Glu Arg Trp Lys Ala Ala Tyr Thr Arg His Leu Arg
                805                 810                 815

Pro Asp Met Lys Thr His Leu Asp Arg Pro Leu Val Val Asp Pro Gln
            820                 825                 830

Glu Asn Arg Asn Asn Asn Thr Asn Lys Ser Arg Ala Ala Glu Pro Thr
        835                 840                 845

Val Asp Gln Arg Leu Gly Gln Gln Arg Ala Glu Asp Phe Leu Arg Lys
    850                 855                 860

Gln Ala Arg Tyr His Asp Arg Ala Arg Asp Pro Ser Gly Ser Ala Gly
865                 870                 875                 880

Leu Asp Ala Arg Arg Pro Trp Ala Gly Ser Gln Glu Ala Glu Leu Ser
                885                 890                 895

Arg Glu Gly Pro Tyr Gly Arg Glu Ser Asp His His Ala Arg Glu Gly
            900                 905                 910

Ser Leu Glu Gln Pro Gly Phe Trp Glu Gly Glu Ala Glu Arg Gly Lys
        915                 920                 925

Ala Gly Asp Pro His Arg Arg His Val His Arg Gln Gly Gly Ser Arg
    930                 935                 940

Glu Ser Arg Ser Gly Ser Pro Arg Thr Gly Ala Asp Gly Glu His Arg
945                 950                 955                 960

Arg His Arg Ala His Arg Arg Pro Gly Glu Glu Gly Pro Glu Asp Lys
                965                 970                 975

Ala Glu Arg Arg Ala Arg His Arg Glu Gly Ser Arg Pro Ala Arg Gly
            980                 985                 990
```

Gly Glu Gly Glu Gly Glu Gly Pro Asp Gly Gly Glu Arg Arg Arg Arg
995 1000 1005

His Arg His Gly Ala Pro Ala Thr Tyr Glu Gly Asp Ala Arg Arg
1010 1015 1020

Glu Asp Lys Glu Arg Arg His Arg Arg Arg Lys Glu Asn Gln Gly
1025 1030 1035

Ser Gly Val Pro Val Ser Gly Pro Asn Leu Ser Thr Thr Arg Pro
1040 1045 1050

Ile Gln Gln Asp Leu Gly Arg Gln Asp Pro Pro Leu Ala Glu Asp
1055 1060 1065

Ile Asp Asn Met Lys Asn Asn Lys Leu Ala Thr Ala Glu Ser Ala
1070 1075 1080

Ala Pro His Gly Ser Leu Gly His Ala Gly Leu Pro Gln Ser Pro
1085 1090 1095

Ala Lys Met Gly Asn Ser Thr Asp Pro Gly Pro Met Leu Ala Ile
1100 1105 1110

Pro Ala Met Ala Thr Asn Pro Gln Asn Ala Ala Ser Arg Arg Thr
1115 1120 1125

Pro Asn Asn Pro Gly Asn Pro Ser Asn Pro Gly Pro Pro Lys Thr
1130 1135 1140

Pro Glu Asn Ser Leu Ile Val Thr Asn Pro Ser Gly Thr Gln Thr
1145 1150 1155

Asn Ser Ala Lys Thr Ala Arg Lys Pro Asp His Thr Thr Val Asp
1160 1165 1170

Ile Pro Pro Ala Cys Pro Pro Pro Leu Asn His Thr Val Val Gln
1175 1180 1185

Val Asn Lys Asn Ala Asn Pro Asp Pro Leu Pro Lys Lys Glu Glu
1190 1195 1200

```
Glu Lys  Lys Glu Glu Glu Glu  Asp Asp Arg Gly Glu  Asp Gly Pro
    1205                 1210                 1215

Lys Pro  Met Pro Pro Tyr Ser  Ser Met Phe Ile Leu  Ser Thr Thr
    1220                 1225                 1230

Asn Pro  Leu Arg Arg Leu Cys  His Tyr Ile Leu Asn  Leu Arg Tyr
    1235                 1240                 1245

Phe Glu  Met Cys Ile Leu Met  Val Ile Ala Met Ser  Ser Ile Ala
    1250                 1255                 1260

Leu Ala  Ala Glu Asp Pro Val  Gln Pro Asn Ala Pro  Arg Asn Asn
    1265                 1270                 1275

Val Leu  Arg Tyr Phe Asp Tyr  Val Phe Thr Gly Val  Phe Thr Phe
    1280                 1285                 1290

Glu Met  Val Ile Lys Met Ile  Asp Leu Gly Leu Val  Leu His Gln
    1295                 1300                 1305

Gly Ala  Tyr Phe Arg Asp Leu  Trp Asn Ile Leu Asp  Phe Ile Val
    1310                 1315                 1320

Val Ser  Gly Ala Leu Val Ala  Phe Ala Phe Thr Gly  Asn Ser Lys
    1325                 1330                 1335

Gly Lys  Asp Ile Asn Thr Ile  Lys Ser Leu Arg Val  Leu Arg Val
    1340                 1345                 1350

Leu Arg  Pro Leu Lys Thr Ile  Lys Arg Leu Pro Lys  Leu Lys Ala
    1355                 1360                 1365

Val Phe  Asp Cys Val Val Asn  Ser Leu Lys Asn Val  Phe Asn Ile
    1370                 1375                 1380

Leu Ile  Val Tyr Met Leu Phe  Met Phe Ile Phe Ala  Val Val Ala
    1385                 1390                 1395

Val Gln  Leu Phe Lys Gly Lys  Phe Phe His Cys Thr  Asp Glu Ser
    1400                 1405                 1410
```

Lys Glu Phe Glu Lys Asp Cys Arg Gly Lys Tyr Leu Leu Tyr Glu
1415 1420 1425

Lys Asn Glu Val Lys Ala Arg Asp Arg Glu Trp Lys Lys Tyr Glu
1430 1435 1440

Phe His Tyr Asp Asn Val Leu Trp Ala Leu Leu Thr Leu Phe Thr
1445 1450 1455

Val Ser Thr Gly Glu Gly Trp Pro Gln Val Leu Lys His Ser Val
1460 1465 1470

Asp Ala Thr Phe Glu Asn Gln Gly Pro Ser Pro Gly Tyr Arg Met
1475 1480 1485

Glu Met Ser Ile Phe Tyr Val Val Tyr Phe Val Val Phe Pro Phe
1490 1495 1500

Phe Phe Val Asn Ile Phe Val Ala Leu Ile Ile Ile Thr Phe Gln
1505 1510 1515

Glu Gln Gly Asp Lys Met Met Glu Glu Tyr Ser Leu Glu Lys Asn
1520 1525 1530

Glu Arg Ala Cys Ile Asp Phe Ala Ile Ser Ala Lys Pro Leu Thr
1535 1540 1545

Arg His Met Pro Gln Asn Lys Gln Ser Phe Gln Tyr Arg Met Trp
1550 1555 1560

Gln Phe Val Val Ser Pro Pro Phe Glu Tyr Thr Ile Met Ala Met
1565 1570 1575

Ile Ala Leu Asn Thr Ile Val Leu Met Met Lys Phe Tyr Gly Ala
1580 1585 1590

Ser Val Ala Tyr Glu Asn Ala Leu Arg Val Phe Asn Ile Val Phe
1595 1600 1605

Thr Ser Leu Phe Ser Leu Glu Cys Val Leu Lys Val Met Ala Phe
1610 1615 1620

Gly Ile Leu Asn Tyr Phe Arg Asp Ala Trp Asn Ile Phe Asp Phe

1625 1630 1635

Val Thr Val Leu Gly Ser Ile Thr Asp Ile Leu Val Thr Glu Phe
1640 1645 1650

Gly Asn Pro Asn Asn Phe Ile Asn Leu Ser Phe Leu Arg Leu Phe
1655 1660 1665

Arg Ala Ala Arg Leu Ile Lys Leu Leu Arg Gln Gly Tyr Thr Ile
1670 1675 1680

Arg Ile Leu Leu Trp Thr Phe Val Gln Ser Phe Lys Ala Leu Pro
1685 1690 1695

Tyr Val Cys Leu Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala Ile
1700 1705 1710

Ile Gly Met Gln Val Phe Gly Asn Ile Gly Ile Asp Val Glu Asp
1715 1720 1725

Glu Asp Ser Asp Glu Asp Glu Phe Gln Ile Thr Glu His Asn Asn
1730 1735 1740

Phe Arg Thr Phe Phe Gln Ala Leu Met Leu Leu Phe Arg Ser Ala
1745 1750 1755

Thr Gly Glu Ala Trp His Asn Ile Met Leu Ser Cys Leu Ser Gly
1760 1765 1770

Lys Pro Cys Asp Lys Asn Ser Gly Ile Leu Thr Arg Glu Cys Gly
1775 1780 1785

Asn Glu Phe Ala Tyr Phe Tyr Phe Val Ser Phe Ile Phe Leu Cys
1790 1795 1800

Ser Phe Leu Met Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn
1805 1810 1815

Phe Glu Tyr Leu Thr Arg Asp Ser Ser Ile Leu Gly Pro His His
1820 1825 1830

Leu Asp Glu Tyr Val Arg Val Trp Ala Glu Tyr Asp Pro Ala Ala
1835 1840 1845

```
Trp Gly  Arg Met Pro Tyr Leu  Asp Met Tyr Gln Met  Leu Arg His
    1850                1855                1860

Met Ser  Pro Pro Leu Gly Leu  Gly Lys Lys Cys Pro  Ala Arg Val
    1865                1870                1875

Ala Tyr  Lys Arg Leu Leu Arg  Met Asp Leu Pro Val  Ala Asp Asp
    1880                1885                1890

Asn Thr  Val His Phe Asn Ser  Thr Leu Met Ala Leu  Ile Arg Thr
    1895                1900                1905

Ala Leu  Asp Ile Lys Ile Ala  Lys Gly Gly Ala Asp  Lys Gln Gln
    1910                1915                1920

Met Asp  Ala Glu Leu Arg Lys  Glu Met Met Ala Ile  Trp Pro Asn
    1925                1930                1935

Leu Ser  Gln Lys Thr Leu Asp  Leu Leu Val Thr Pro  His Lys Ser
    1940                1945                1950

Thr Asp  Leu Thr Val Gly Lys  Ile Tyr Ala Ala Met  Met Ile Met
    1955                1960                1965

Glu Tyr  Tyr Arg Gln Ser Lys  Ala Lys Lys Leu Gln  Ala Met Arg
    1970                1975                1980

Glu Glu  Gln Asp Arg Thr Pro  Leu Met Phe Gln Arg  Met Glu Pro
    1985                1990                1995

Pro Ser  Pro Thr Gln Glu Gly  Gly Pro Gly Gln Asn  Ala Leu Pro
    2000                2005                2010

Ser Thr  Gln Leu Asp Pro Gly  Gly Ala Leu Met Ala  His Glu Ser
    2015                2020                2025

Gly Leu  Lys Glu Ser Pro Ser  Trp Val Thr Gln Arg  Ala Gln Glu
    2030                2035                2040

Met Phe  Gln Lys Thr Gly Thr  Trp Ser Pro Glu Gln  Gly Pro Pro
    2045                2050                2055
```

```
Thr Asp  Met Pro Asn Ser Gln  Pro Asn Ser Gln Ser  Val Glu Met
    2060                2065                2070

Arg Glu  Met Gly Arg Asp Gly  Tyr Ser Asp Ser Glu  His Tyr Leu
    2075                2080                2085

Pro Met  Glu Gly Gln Gly Arg  Ala Ala Ser Met Pro  Arg Leu Pro
    2090                2095                2100

Ala Glu  Asn Gln Arg Arg Arg  Gly Arg Pro Arg Gly  Asn Asn Leu
    2105                2110                2115

Ser Thr  Ile Ser Asp Thr Ser  Pro Met Lys Arg Ser  Ala Ser Val
    2120                2125                2130

Leu Gly  Pro Lys Ala Arg Arg  Leu Asp Asp Tyr Ser  Leu Glu Arg
    2135                2140                2145

Val Pro  Pro Glu Glu Asn Gln  Arg His His Gln Arg  Arg Arg Asp
    2150                2155                2160

Arg Ser  His Arg Ala Ser Glu  Arg Ser Leu Gly Arg  Tyr Thr Asp
    2165                2170                2175

Val Asp  Thr Gly Leu Gly Thr  Asp Leu Ser Met Thr  Thr Gln Ser
    2180                2185                2190

Gly Asp  Leu Pro Ser Lys Glu  Arg Asp Gln Glu Arg  Gly Arg Pro
    2195                2200                2205

Lys Asp  Arg Lys His Arg Gln  His His His His His  His His His
    2210                2215                2220

His His  Pro Pro Pro Pro Asp  Lys Asp Arg Tyr Ala  Gln Glu Arg
    2225                2230                2235

Pro Asp  His Gly Arg Ala Arg  Ala Arg Asp Gln Arg  Trp Ser Arg
    2240                2245                2250

Ser Pro  Ser Glu Gly Arg Glu  His Met Ala His Arg  Gln Gly Ser
    2255                2260                2265
```

Ser Ser Val Ser Gly Ser Pro Ala Pro Ser Thr Ser Gly Thr Ser
2270 2275 2280

Thr Pro Arg Arg Gly Arg Arg Gln Leu Pro Gln Thr Pro Ser Thr
2285 2290 2295

Pro Arg Pro His Val Ser Tyr Ser Pro Val Ile Arg Lys Ala Gly
2300 2305 2310

Gly Ser Gly Pro Pro Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
2315 2320 2325

Gln Gln Gln Ala Val Ala Arg Pro Gly Arg Ala Ala Thr Ser Gly
2330 2335 2340

Pro Arg Arg Tyr Pro Gly Pro Thr Ala Glu Pro Leu Ala Gly Asp
2345 2350 2355

Arg Pro Pro Thr Gly Gly His Ser Ser Gly Arg Ser Pro Arg Met
2360 2365 2370

Glu Arg Arg Val Pro Gly Pro Ala Arg Ser Glu Ser Pro Arg Ala
2375 2380 2385

Cys Arg His Gly Gly Ala Arg Trp Pro Ala Ser Gly Pro His Val
2390 2395 2400

Ser Glu Gly Pro Pro Gly Pro Arg His His Gly Tyr Tyr Arg Gly
2405 2410 2415

Ser Asp Tyr Asp Glu Ala Asp Gly Pro Gly Ser Gly Gly Gly Glu
2420 2425 2430

Glu Ala Met Ala Gly Ala Tyr Asp Ala Pro Pro Pro Val Arg His
2435 2440 2445

Ala Ser Ser Gly Ala Thr Gly Arg Ser Pro Arg Thr Pro Arg Ala
2450 2455 2460

Ser Gly Pro Ala Cys Ala Ser Pro Ser Arg His Gly Arg Arg Leu
2465 2470 2475

Pro Asn Gly Tyr Tyr Pro Ala His Gly Leu Ala Arg Pro Arg Gly

2480 2485 2490

Pro Gly Ser Arg Lys Gly Leu His Glu Pro Tyr Ser Glu Ser Asp
2495 2500 2505

Asp Asp Trp Cys
2510

<210> 10775
<211> 2312
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: CACNA1E; "

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type, alpha 1E
subunit; "

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Met Ala Arg Phe Gly Glu Ala Val Val Ala Arg Pro Gly Ser Gly Asp
1 5 10 15

Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
20 25 30

Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
35 40 45

Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
50 55 60

Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65 70 75 80

Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
85 90 95

```
Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
            100                 105                 110

Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
        115                 120                 125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
    130                 135                 140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145                 150                 155                 160

Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165                 170                 175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180                 185                 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320
```

```
Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385                 390                 395                 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
                405                 410                 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
            420                 425                 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
        435                 440                 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
    450                 455                 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465                 470                 475                 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
                485                 490                 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
            500                 505                 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
        515                 520                 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
    530                 535                 540
```

```
Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545                 550                 555                 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
                565                 570                 575

Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
            580                 585                 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
        595                 600                 605

Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
    610                 615                 620

Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625                 630                 635                 640

Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
                645                 650                 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
            660                 665                 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
        675                 680                 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
    690                 695                 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705                 710                 715                 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
                725                 730                 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Asp Arg Arg Arg
            740                 745                 750

Arg His His Met Ser Met Trp Glu Pro Arg Ser Ser His Leu Arg Glu
        755                 760                 765

Arg Arg Arg Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln
```

770 775 780

Leu Arg Lys His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu
785 790 795 800

Glu Ala Pro Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser
805 810 815

Leu Asn Pro Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala
820 825 830

Ile Glu Gly Trp Pro Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu Arg
835 840 845

Ile Ser Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser Ser
850 855 860

Ala Leu Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu Pro
865 870 875 880

Pro Trp Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln Gln
885 890 895

Glu Ala Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala Arg
900 905 910

His Arg Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr Glu
915 920 925

Gly Lys Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln Glu
930 935 940

Arg Ser Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His Glu
945 950 955 960

Leu Arg Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu Arg
965 970 975

Ala Gln Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly Ser
980 985 990

Gly Leu Ala Gly Gly Leu Asp Glu Ala Asp Thr Pro Leu Val Leu
Pro

995 1000 1005

His Pro Glu Leu Glu Val Gly Lys His Val Val Leu Thr Glu Gln
1010 1015 1020

Glu Pro Glu Gly Ser Ser Glu Gln Ala Leu Leu Gly Asn Val Gln
1025 1030 1035

Leu Asp Met Gly Arg Val Ile Ser Gln Ser Glu Pro Asp Leu Ser
1040 1045 1050

Cys Ile Thr Ala Asn Thr Asp Lys Ala Thr Thr Glu Ser Thr Ser
1055 1060 1065

Val Thr Val Ala Ile Pro Asp Val Asp Pro Leu Val Asp Ser Thr
1070 1075 1080

Val Val His Ile Ser Asn Lys Thr Asp Gly Glu Ala Ser Pro Leu
1085 1090 1095

Lys Glu Ala Glu Ile Arg Glu Asp Glu Glu Glu Val Glu Lys Lys
1100 1105 1110

Lys Gln Lys Lys Glu Lys Arg Glu Thr Gly Lys Ala Met Val Pro
1115 1120 1125

His Ser Ser Met Phe Ile Phe Ser Thr Thr Asn Pro Ile Arg Arg
1130 1135 1140

Ala Cys His Tyr Ile Val Asn Leu Arg Tyr Phe Glu Met Cys Ile
1145 1150 1155

Leu Leu Val Ile Ala Ala Ser Ser Ile Ala Leu Ala Ala Glu Asp
1160 1165 1170

Pro Val Leu Thr Asn Ser Glu Arg Asn Lys Val Leu Arg Tyr Phe
1175 1180 1185

Asp Tyr Val Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile Lys
1190 1195 1200

Met Ile Asp Gln Gly Leu Ile Leu Gln Asp Gly Ser Tyr Phe Arg
1205 1210 1215

```
Asp Leu  Trp Asn Ile Leu Asp  Phe Val Val Val Val  Gly Ala Leu
    1220                 1225                 1230

Val Ala  Phe Ala Leu Ala Asp  Ser Phe Arg Thr Asn  Lys Gly Arg
    1235                 1240                 1245

Asp Ile  Lys Thr Ile Lys Ser  Leu Arg Val Leu Arg  Val Leu Arg
    1250                 1255                 1260

Pro Leu  Lys Thr Ile Lys Arg  Leu Pro Lys Leu Lys  Ala Val Phe
    1265                 1270                 1275

Asp Cys  Val Val Thr Ser Leu  Lys Asn Val Phe Asn  Ile Leu Ile
    1280                 1285                 1290

Val Tyr  Lys Leu Phe Met Phe  Ile Phe Ala Val Ile  Ala Val Gln
    1295                 1300                 1305

Leu Phe  Lys Gly Lys Phe Phe  Tyr Cys Thr Asp Ser  Ser Lys Asp
    1310                 1315                 1320

Thr Glu  Lys Glu Cys Ile Gly  Asn Tyr Val Asp His  Glu Lys Asn
    1325                 1330                 1335

Lys Met  Glu Val Lys Gly Arg  Glu Trp Lys Arg His  Glu Phe His
    1340                 1345                 1350

Tyr Asp  Asn Ile Ile Trp Ala  Leu Leu Thr Leu Phe  Thr Val Ser
    1355                 1360                 1365

Thr Gly  Glu Gly Trp Pro Gln  Val Leu Gln His Ser  Val Asp Val
    1370                 1375                 1380

Thr Glu  Glu Asp Arg Gly Pro  Ser Arg Ser Asn Arg  Met Glu Met
    1385                 1390                 1395

Ser Ile  Phe Tyr Val Val Tyr  Phe Val Val Phe Pro  Phe Phe Phe
    1400                 1405                 1410

Val Asn  Ile Phe Val Ala Leu  Ile Ile Ile Thr Phe  Gln Glu Gln
    1415                 1420                 1425
```

```
Gly Asp  Lys Met Met Glu Glu  Cys Ser Leu Glu Lys  Asn Glu Arg
    1430                1435                1440

Ala Cys  Ile Asp Phe Ala Ile  Ser Ala Lys Pro Leu  Thr Arg Tyr
    1445                1450                1455

Met Pro  Gln Asn Arg His Thr  Phe Gln Tyr Arg Val  Trp His Phe
    1460                1465                1470

Val Val  Ser Pro Ser Phe Glu  Tyr Thr Ile Met Ala  Met Ile Ala
    1475                1480                1485

Leu Asn  Thr Val Val Leu Met  Met Lys Tyr Tyr Ser  Ala Pro Cys
    1490                1495                1500

Thr Tyr  Glu Leu Ala Leu Lys  Tyr Leu Asn Ile Ala  Phe Thr Met
    1505                1510                1515

Val Phe  Ser Leu Glu Cys Val  Leu Lys Val Ile Ala  Phe Gly Phe
    1520                1525                1530

Leu Asn  Tyr Phe Arg Asp Thr  Trp Asn Ile Phe Asp  Phe Ile Thr
    1535                1540                1545

Val Ile  Gly Ser Ile Thr Glu  Ile Ile Leu Thr Asp  Ser Lys Leu
    1550                1555                1560

Val Asn  Thr Ser Gly Phe Asn  Met Ser Phe Leu Lys  Leu Phe Arg
    1565                1570                1575

Ala Ala  Arg Leu Ile Lys Leu  Leu Arg Gln Gly Tyr  Thr Ile Arg
    1580                1585                1590

Ile Leu  Leu Trp Thr Phe Val  Gln Ser Phe Lys Ala  Leu Pro Tyr
    1595                1600                1605

Val Cys  Leu Leu Ile Ala Met  Leu Phe Phe Ile Tyr  Ala Ile Ile
    1610                1615                1620

Gly Met  Gln Val Phe Gly Asn  Ile Lys Leu Asp Glu  Glu Ser His
    1625                1630                1635
```

```
Ile Asn  Arg His Asn Asn Phe  Arg Ser Phe Phe Gly  Ser Leu Met
    1640                1645                1650

Leu Leu  Phe Arg Ser Ala Thr  Gly Glu Ala Trp Gln  Glu Ile Met
    1655                1660                1665

Leu Ser  Cys Leu Gly Glu Lys  Gly Cys Glu Pro Asp  Thr Thr Ala
    1670                1675                1680

Pro Ser  Gly Gln Asn Glu Asn  Glu Arg Cys Gly Thr  Asp Leu Ala
    1685                1690                1695

Tyr Val  Tyr Phe Val Ser Phe  Ile Phe Phe Cys Ser  Phe Leu Met
    1700                1705                1710

Leu Asn  Leu Phe Val Ala Val  Ile Met Asp Asn Phe  Glu Tyr Leu
    1715                1720                1725

Thr Arg  Asp Ser Ser Ile Leu  Gly Pro His His Leu  Asp Glu Phe
    1730                1735                1740

Val Arg  Val Trp Ala Glu Tyr  Asp Arg Ala Ala Cys  Gly Arg Ile
    1745                1750                1755

His Tyr  Thr Glu Met Tyr Glu  Met Leu Thr Leu Met  Ser Pro Pro
    1760                1765                1770

Leu Gly  Leu Gly Lys Arg Cys  Pro Ser Lys Val Ala  Tyr Lys Arg
    1775                1780                1785

Leu Val  Leu Met Asn Met Pro  Val Ala Glu Asp Met  Thr Val His
    1790                1795                1800

Phe Thr  Ser Thr Leu Met Ala  Leu Ile Arg Thr Ala  Leu Asp Ile
    1805                1810                1815

Lys Ile  Ala Lys Gly Gly Ala  Asp Arg Gln Gln Leu  Asp Ser Glu
    1820                1825                1830

Leu Gln  Lys Glu Thr Leu Ala  Ile Trp Pro His Leu  Ser Gln Lys
    1835                1840                1845

Met Leu  Asp Leu Leu Val Pro  Met Pro Lys Ala Ser  Asp Leu Thr
```

1850 1855 1860

Val Gly Lys Ile Tyr Ala Ala Met Met Ile Met Asp Tyr Tyr Lys
1865 1870 1875

Gln Ser Lys Val Lys Lys Gln Arg Gln Gln Leu Glu Glu Gln Lys
1880 1885 1890

Asn Ala Pro Met Phe Gln Arg Met Glu Pro Ser Ser Leu Pro Gln
1895 1900 1905

Glu Ile Ile Ala Asn Ala Lys Ala Leu Pro Tyr Leu Gln Gln Asp
1910 1915 1920

Pro Val Ser Gly Leu Ser Gly Arg Ser Gly Tyr Pro Ser Met Ser
1925 1930 1935

Pro Leu Ser Pro Gln Asp Ile Phe Gln Leu Ala Cys Met Asp Pro
1940 1945 1950

Ala Asp Asp Gly Gln Phe Gln Glu Arg Gln Ser Leu Glu Pro Glu
1955 1960 1965

Val Ser Glu Leu Lys Ser Val Gln Pro Ser Asn His Gly Ile Tyr
1970 1975 1980

Leu Pro Ser Asp Thr Gln Glu His Ala Gly Ser Gly Arg Ala Ser
1985 1990 1995

Ser Met Pro Arg Leu Thr Val Asp Pro Gln Val Val Thr Asp Pro
2000 2005 2010

Ser Ser Met Arg Arg Ser Phe Ser Thr Ile Arg Asp Lys Arg Ser
2015 2020 2025

Asn Ser Ser Trp Leu Glu Glu Phe Ser Met Glu Arg Ser Ser Glu
2030 2035 2040

Asn Thr Tyr Lys Ser Arg Arg Arg Ser Tyr His Ser Ser Leu Arg
2045 2050 2055

Leu Ser Ala His Arg Leu Asn Ser Asp Ser Gly His Lys Ser Asp
2060 2065 2070

```
Thr His  Arg Ser Gly Gly Arg  Glu Arg Gly Arg Ser  Lys Glu Arg
    2075                2080                2085

Lys His  Leu Leu Ser Pro Asp  Val Ser Arg Cys Asn  Ser Glu Glu
    2090                2095                2100

Arg Gly  Thr Gln Ala Asp Trp  Glu Ser Pro Glu Arg  Arg Gln Ser
    2105                2110                2115

Arg Ser  Pro Ser Glu Gly Arg  Ser Gln Thr Pro Asn  Arg Gln Gly
    2120                2125                2130

Thr Gly  Ser Leu Ser Glu Ser  Ser Ile Pro Ser Val  Ser Asp Thr
    2135                2140                2145

Ser Thr  Pro Arg Arg Ser Arg  Arg Gln Leu Pro Pro  Val Pro Pro
    2150                2155                2160

Lys Pro  Arg Pro Leu Leu Ser  Tyr Ser Ser Leu Ile  Arg His Ala
    2165                2170                2175

Gly Ser  Ile Ser Pro Pro Ala  Asp Gly Ser Glu Glu  Gly Ser Pro
    2180                2185                2190

Leu Thr  Ser Gln Ala Leu Glu  Ser Asn Asn Ala Cys  Leu Thr Glu
    2195                2200                2205

Ser Ser  Asn Ser Pro His Pro  Gln Gln Ser Gln His  Ala Ser Pro
    2210                2215                2220

Gln Arg  Tyr Ile Ser Glu Pro  Tyr Leu Ala Leu His  Glu Asp Ser
    2225                2230                2235

His Ala  Ser Asp Cys Gly Glu  Glu Glu Thr Leu Thr  Phe Glu Ala
    2240                2245                2250

Ala Val  Ala Thr Ser Leu Gly  Arg Ser Asn Thr Ile  Gly Ser Ala
    2255                2260                2265

Pro Pro  Leu Arg His Ser Trp  Gln Met Pro Asn Gly  His Tyr Arg
    2270                2275                2280
```

```
Arg Arg  Arg Arg Gly Gly Pro  Gly Pro Gly Met Met  Cys Gly Ala
    2285                2290                2295


Val Asn  Asn Leu Leu Ser Asp  Thr Glu Glu Asp Asp  Lys Cys
    2300                2305                2310


<210> 10776
<211> 2251
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: CACNA1E; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, R
      type, alpha 1E
      subunit; "

<220>
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<223> /note="Uniprot ID:  Q15878; "

<220>
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<223> /note="ENSP ID: ENSP00000351101"

<400> 10776
Met Ala Arg Phe Gly Glu Ala Val Val Ala Arg Pro Gly Ser Gly Asp
1               5                  10                  15


Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
            20                  25                  30


Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
        35                  40                  45


Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
    50                  55                  60


Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65                  70                  75                  80
```

```
Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
                85                  90                  95

Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
            100                 105                 110

Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
        115                 120                 125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
    130                 135                 140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145                 150                 155                 160

Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165                 170                 175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180                 185                 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
```

305 310 315 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
325 330 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
340 345 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
355 360 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
370 375 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385 390 395 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
405 410 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
420 425 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
435 440 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
450 455 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465 470 475 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
485 490 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
500 505 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
515 520 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
530 535 540

```
Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545                 550                 555                 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
                565                 570                 575

Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
            580                 585                 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
        595                 600                 605

Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
    610                 615                 620

Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625                 630                 635                 640

Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
                645                 650                 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
            660                 665                 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
        675                 680                 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
    690                 695                 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705                 710                 715                 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
                725                 730                 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Glu Arg Arg Arg
            740                 745                 750

Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln Leu Arg Lys
        755                 760                 765
```

```
His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu Glu Ala Pro
    770                 775                 780

Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser Leu Asn Pro
785                 790                 795                 800

Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala Ile Glu Gly
                805                 810                 815

Leu Ala Leu Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu Arg Ile Ser
            820                 825                 830

Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser Ser Ala Leu
        835                 840                 845

Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu Pro Pro Trp
    850                 855                 860

Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln Gln Glu Ala
865                 870                 875                 880

Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala Arg His Arg
                885                 890                 895

Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr Glu Gly Lys
            900                 905                 910

Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln Glu Arg Ser
        915                 920                 925

Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His Glu Leu Arg
    930                 935                 940

Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu Arg Ala Gln
945                 950                 955                 960

Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly Ser Gly Leu
                965                 970                 975

Ala Gly Gly Leu Asp Glu Ala Asp Thr Pro Leu Val Leu Pro His Pro
            980                 985                 990
```

Glu Leu Glu Val Gly Lys His Val Val Leu Thr Glu Gln Glu Pro Glu
995 1000 1005

Gly Ser Ser Glu Gln Ala Leu Leu Gly Asn Val Gln Leu Asp Met
1010 1015 1020

Gly Arg Val Ile Ser Gln Ser Glu Pro Asp Leu Ser Cys Ile Thr
1025 1030 1035

Ala Asn Thr Asp Lys Ala Thr Thr Glu Ser Thr Ser Val Thr Val
1040 1045 1050

Ala Ile Pro Asp Val Asp Pro Leu Val Asp Ser Thr Val Val His
1055 1060 1065

Ile Ser Asn Lys Thr Asp Gly Glu Ala Ser Pro Leu Lys Glu Ala
1070 1075 1080

Glu Ile Arg Glu Asp Glu Glu Glu Val Glu Lys Lys Lys Gln Lys
1085 1090 1095

Lys Glu Lys Arg Glu Thr Gly Lys Ala Met Val Pro His Ser Ser
1100 1105 1110

Met Phe Ile Phe Ser Thr Thr Asn Pro Ile Arg Arg Ala Cys His
1115 1120 1125

Tyr Ile Val Asn Leu Arg Tyr Phe Glu Met Cys Ile Leu Leu Val
1130 1135 1140

Ile Ala Ala Ser Ser Ile Ala Leu Ala Ala Glu Asp Pro Val Leu
1145 1150 1155

Thr Asn Ser Glu Arg Asn Lys Val Leu Arg Tyr Phe Asp Tyr Val
1160 1165 1170

Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile Lys Met Ile Asp
1175 1180 1185

Gln Gly Leu Ile Leu Gln Asp Gly Ser Tyr Phe Arg Asp Leu Trp
1190 1195 1200

```
Asn Ile  Leu Asp Phe Val Val  Val Val Gly Ala Leu  Val Ala Phe
    1205                1210                1215

Ala Leu  Ala Asn Ala Leu Gly  Thr Asn Lys Gly Arg  Asp Ile Lys
    1220                1225                1230

Thr Ile  Lys Ser Leu Arg Val  Leu Arg Val Leu Arg  Pro Leu Lys
    1235                1240                1245

Thr Ile  Lys Arg Leu Pro Lys  Leu Lys Ala Val Phe  Asp Cys Val
    1250                1255                1260

Val Thr  Ser Leu Lys Asn Val  Phe Asn Ile Leu Ile  Val Tyr Lys
    1265                1270                1275

Leu Phe  Met Phe Ile Phe Ala  Val Ile Ala Val Gln  Leu Phe Lys
    1280                1285                1290

Gly Lys  Phe Phe Tyr Cys Thr  Asp Ser Ser Lys Asp  Thr Glu Lys
    1295                1300                1305

Glu Cys  Ile Gly Asn Tyr Val  Asp His Glu Lys Asn  Lys Met Glu
    1310                1315                1320

Val Lys  Gly Arg Glu Trp Lys  Arg His Glu Phe His  Tyr Asp Asn
    1325                1330                1335

Ile Ile  Trp Ala Leu Leu Thr  Leu Phe Thr Val Ser  Thr Gly Glu
    1340                1345                1350

Gly Trp  Pro Gln Val Leu Gln  His Ser Val Asp Val  Thr Glu Glu
    1355                1360                1365

Asp Arg  Gly Pro Ser Arg Ser  Asn Arg Met Glu Met  Ser Ile Phe
    1370                1375                1380

Tyr Val  Val Tyr Phe Val Val  Phe Pro Phe Phe Phe  Val Asn Ile
    1385                1390                1395

Phe Val  Ala Leu Ile Ile Ile  Thr Phe Gln Glu Gln  Gly Asp Lys
    1400                1405                1410

Met Met  Glu Glu Cys Ser Leu  Glu Lys Asn Glu Arg  Ala Cys Ile
```

1415 1420 1425

Asp Phe Ala Ile Ser Ala Lys Pro Leu Thr Arg Tyr Met Pro Gln
1430 1435 1440

Asn Arg His Thr Phe Gln Tyr Arg Val Trp His Phe Val Val Ser
1445 1450 1455

Pro Ser Phe Glu Tyr Thr Ile Met Ala Met Ile Ala Leu Asn Thr
1460 1465 1470

Val Val Leu Met Met Lys Tyr Tyr Ser Ala Pro Cys Thr Tyr Glu
1475 1480 1485

Leu Ala Leu Lys Tyr Leu Asn Ile Ala Phe Thr Met Val Phe Ser
1490 1495 1500

Leu Glu Cys Val Leu Lys Val Ile Ala Phe Gly Phe Leu Asn Tyr
1505 1510 1515

Phe Arg Asp Thr Trp Asn Ile Phe Asp Phe Ile Thr Val Ile Gly
1520 1525 1530

Ser Ile Thr Glu Ile Ile Leu Thr Asp Ser Lys Leu Val Asn Thr
1535 1540 1545

Ser Gly Phe Asn Met Ser Phe Leu Lys Leu Phe Arg Ala Ala Arg
1550 1555 1560

Leu Ile Lys Leu Leu Arg Gln Gly Tyr Thr Ile Arg Ile Leu Leu
1565 1570 1575

Trp Thr Phe Val Gln Ser Phe Lys Ala Leu Pro Tyr Val Cys Leu
1580 1585 1590

Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala Ile Ile Gly Met Gln
1595 1600 1605

Val Phe Gly Asn Ile Lys Leu Asp Glu Glu Ser His Ile Asn Arg
1610 1615 1620

His Asn Asn Phe Arg Ser Phe Phe Gly Ser Leu Met Leu Leu Phe
1625 1630 1635

```
Arg Ser  Ala Thr Gly Glu Ala  Trp Gln Glu Ile Met  Leu Ser Cys
    1640                1645                1650

Leu Gly  Glu Lys Gly Cys Glu  Pro Asp Thr Thr Ala  Pro Ser Gly
    1655                1660                1665

Gln Asn  Glu Asn Glu Arg Cys  Gly Thr Asp Leu Ala  Tyr Val Tyr
    1670                1675                1680

Phe Val  Ser Phe Ile Phe Phe  Cys Ser Phe Leu Met  Leu Asn Leu
    1685                1690                1695

Phe Val  Ala Val Ile Met Asp  Asn Phe Glu Tyr Leu  Thr Arg Asp
    1700                1705                1710

Ser Ser  Ile Leu Gly Pro His  His Leu Asp Glu Phe  Val Arg Val
    1715                1720                1725

Trp Ala  Glu Tyr Asp Arg Ala  Ala Cys Gly Arg Ile  His Tyr Thr
    1730                1735                1740

Glu Met  Tyr Glu Met Leu Thr  Leu Met Ser Pro Pro  Leu Gly Leu
    1745                1750                1755

Gly Lys  Arg Cys Pro Ser Lys  Val Ala Tyr Lys Arg  Leu Val Leu
    1760                1765                1770

Met Asn  Met Pro Val Ala Glu  Asp Met Thr Val His  Phe Thr Ser
    1775                1780                1785

Thr Leu  Met Ala Leu Ile Arg  Thr Ala Leu Asp Ile  Lys Ile Ala
    1790                1795                1800

Lys Gly  Gly Ala Asp Arg Gln  Gln Leu Asp Ser Glu  Leu Gln Lys
    1805                1810                1815

Glu Thr  Leu Ala Ile Trp Pro  His Leu Ser Gln Lys  Met Leu Asp
    1820                1825                1830

Leu Leu  Val Pro Met Pro Lys  Ala Ser Asp Leu Thr  Val Gly Lys
    1835                1840                1845
```

Ile Tyr Ala Ala Met Met Ile Met Asp Tyr Tyr Lys Gln Ser Lys
1850 1855 1860

Val Lys Lys Gln Arg Gln Gln Leu Glu Glu Gln Lys Asn Ala Pro
1865 1870 1875

Met Phe Gln Arg Met Glu Pro Ser Ser Leu Pro Gln Glu Ile Ile
1880 1885 1890

Ala Asn Ala Lys Ala Leu Pro Tyr Leu Gln Gln Asp Pro Val Ser
1895 1900 1905

Gly Leu Ser Gly Arg Ser Gly Tyr Pro Ser Met Ser Pro Leu Ser
1910 1915 1920

Pro Gln Asp Ile Phe Gln Leu Ala Cys Met Asp Pro Ala Asp Asp
1925 1930 1935

Gly Gln Phe Gln Glu Arg Gln Ser Leu Val Val Thr Asp Pro Ser
1940 1945 1950

Ser Met Arg Arg Ser Phe Ser Thr Ile Arg Asp Lys Arg Ser Asn
1955 1960 1965

Ser Ser Trp Leu Glu Glu Phe Ser Met Glu Arg Ser Ser Glu Asn
1970 1975 1980

Thr Tyr Lys Ser Arg Arg Arg Ser Tyr His Ser Ser Leu Arg Leu
1985 1990 1995

Ser Ala His Arg Leu Asn Ser Asp Ser Gly His Lys Ser Asp Thr
2000 2005 2010

His Arg Ser Gly Gly Arg Glu Arg Gly Arg Ser Lys Glu Arg Lys
2015 2020 2025

His Leu Leu Ser Pro Asp Val Ser Arg Cys Asn Ser Glu Glu Arg
2030 2035 2040

Gly Thr Gln Ala Asp Trp Glu Ser Pro Glu Arg Arg Gln Ser Arg
2045 2050 2055

```
Ser Pro  Ser Glu Gly Arg Ser  Gln Thr Pro Asn Arg  Gln Gly Thr
    2060                2065                2070

Gly Ser  Leu Ser Glu Ser Ser  Ile Pro Ser Val Ser  Asp Thr Ser
    2075                2080                2085

Thr Pro  Arg Arg Ser Arg Arg  Gln Leu Pro Pro Val  Pro Pro Lys
    2090                2095                2100

Pro Arg  Pro Leu Leu Ser Tyr  Ser Ser Leu Ile Arg  His Ala Gly
    2105                2110                2115

Ser Ile  Ser Pro Pro Ala Asp  Gly Ser Glu Glu Gly  Ser Pro Leu
    2120                2125                2130

Thr Ser  Gln Ala Leu Glu Ser  Asn Asn Ala Cys Leu  Thr Glu Ser
    2135                2140                2145

Ser Asn  Ser Pro His Pro Gln  Gln Ser Gln His Ala  Ser Pro Gln
    2150                2155                2160

Arg Tyr  Ile Ser Glu Pro Tyr  Leu Ala Leu His Glu  Asp Ser His
    2165                2170                2175

Ala Ser  Asp Cys Gly Glu Glu  Glu Thr Leu Thr Phe  Glu Ala Ala
    2180                2185                2190

Val Ala  Thr Ser Leu Gly Arg  Ser Asn Thr Ile Gly  Ser Ala Pro
    2195                2200                2205

Pro Leu  Arg His Ser Trp Gln  Met Pro Asn Gly His  Tyr Arg Arg
    2210                2215                2220

Arg Arg  Arg Gly Gly Pro Gly  Pro Gly Met Met Cys  Gly Ala Val
    2225                2230                2235

Asn Asn  Leu Leu Ser Asp Thr  Glu Glu Asp Asp Lys  Cys
    2240                2245                2250
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subunit; "

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Met Ala Arg Phe Gly Glu Ala Val Val Ala Arg Pro Gly Ser Gly Asp
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Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
20 25 30

Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
35 40 45

Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
50 55 60

Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65 70 75 80

Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
85 90 95

Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
100 105 110

Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
115 120 125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
130 135 140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145 150 155 160

```
Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165                 170                 175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180                 185                 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380
```

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Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385                 390                 395                 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
                405                 410                 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
            420                 425                 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
        435                 440                 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
    450                 455                 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465                 470                 475                 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
                485                 490                 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
            500                 505                 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
        515                 520                 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
    530                 535                 540

Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545                 550                 555                 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
                565                 570                 575

Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
            580                 585                 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
        595                 600                 605
```

```
Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
    610                 615                 620

Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625                 630                 635                 640

Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
                645                 650                 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
            660                 665                 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
        675                 680                 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
    690                 695                 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705                 710                 715                 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
                725                 730                 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Glu Arg Arg Arg
            740                 745                 750

Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln Leu Arg Lys
        755                 760                 765

His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu Glu Ala Pro
    770                 775                 780

Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser Leu Asn Pro
785                 790                 795                 800

Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala Ile Glu Gly
                805                 810                 815

Leu Ala Leu Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu Arg Ile Ser
            820                 825                 830

Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser Ser Ala Leu
```

835 840 845

Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu Pro Pro Trp
850 855 860

Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln Gln Glu Ala
865 870 875 880

Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala Arg His Arg
885 890 895

Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr Glu Gly Lys
900 905 910

Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln Glu Arg Ser
915 920 925

Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His Glu Leu Arg
930 935 940

Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu Arg Ala Gln
945 950 955 960

Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly Ser Gly Leu
965 970 975

Ala Gly Gly Leu Asp Glu Ala Asp Thr Pro Leu Val Leu Pro His Pro
980 985 990

Glu Leu Glu Val Gly Lys His Val Val Leu Thr Glu Gln Glu Pro
Glu
995 1000 1005

Gly Ser Ser Glu Gln Ala Leu Leu Gly Asn Val Gln Leu Asp Met
1010 1015 1020

Gly Arg Val Ile Ser Gln Ser Glu Pro Asp Leu Ser Cys Ile Thr
1025 1030 1035

Ala Asn Thr Asp Lys Ala Thr Thr Glu Ser Thr Ser Val Thr Val
1040 1045 1050

Ala Ile Pro Asp Val Asp Pro Leu Val Asp Ser Thr Val Val His

1055 1060 1065

Ile Ser Asn Lys Thr Asp Gly Glu Ala Ser Pro Leu Lys Glu Ala
1070 1075 1080

Glu Ile Arg Glu Asp Glu Glu Glu Val Glu Lys Lys Lys Gln Lys
1085 1090 1095

Lys Glu Lys Arg Glu Thr Gly Lys Ala Met Val Pro His Ser Ser
1100 1105 1110

Met Phe Ile Phe Ser Thr Thr Asn Pro Ile Arg Arg Ala Cys His
1115 1120 1125

Tyr Ile Val Asn Leu Arg Tyr Phe Glu Met Cys Ile Leu Leu Val
1130 1135 1140

Ile Ala Ala Ser Ser Ile Ala Leu Ala Ala Glu Asp Pro Val Leu
1145 1150 1155

Thr Asn Ser Glu Arg Asn Lys Val Leu Arg Tyr Phe Asp Tyr Val
1160 1165 1170

Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile Lys Met Ile Asp
1175 1180 1185

Gln Gly Leu Ile Leu Gln Asp Gly Ser Tyr Phe Arg Asp Leu Trp
1190 1195 1200

Asn Ile Leu Asp Phe Val Val Val Val Gly Ala Leu Val Ala Phe
1205 1210 1215

Ala Leu Ala Asn Ala Leu Gly Thr Asn Lys Gly Arg Asp Ile Lys
1220 1225 1230

Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu Arg Pro Leu Lys
1235 1240 1245

Thr Ile Lys Arg Leu Pro Lys Leu Lys Ala Val Phe Asp Cys Val
1250 1255 1260

Val Thr Ser Leu Lys Asn Val Phe Asn Ile Leu Ile Val Tyr Lys
1265 1270 1275

```
Leu Phe  Met Phe Ile Phe Ala  Val Ile Ala Val Gln  Leu Phe Lys
    1280                1285                1290

Gly Lys  Phe Phe Tyr Cys Thr  Asp Ser Ser Lys Asp  Thr Glu Lys
    1295                1300                1305

Glu Cys  Ile Gly Asn Tyr Val  Asp His Glu Lys Asn  Lys Met Glu
    1310                1315                1320

Val Lys  Gly Arg Glu Trp Lys  Arg His Glu Phe His  Tyr Asp Asn
    1325                1330                1335

Ile Ile  Trp Ala Leu Leu Thr  Leu Phe Thr Val Ser  Thr Gly Glu
    1340                1345                1350

Gly Trp  Pro Gln Val Leu Gln  His Ser Val Asp Val  Thr Glu Glu
    1355                1360                1365

Asp Arg  Gly Pro Ser Arg Ser  Asn Arg Met Glu Met  Ser Ile Phe
    1370                1375                1380

Tyr Val  Val Tyr Phe Val Val  Phe Pro Phe Phe Phe  Val Asn Ile
    1385                1390                1395

Phe Val  Ala Leu Ile Ile Ile  Thr Phe Gln Glu Gln  Gly Asp Lys
    1400                1405                1410

Met Met  Glu Glu Cys Ser Leu  Glu Lys Asn Glu Arg  Ala Cys Ile
    1415                1420                1425

Asp Phe  Ala Ile Ser Ala Lys  Pro Leu Thr Arg Tyr  Met Pro Gln
    1430                1435                1440

Asn Arg  His Thr Phe Gln Tyr  Arg Val Trp His Phe  Val Val Ser
    1445                1450                1455

Pro Ser  Phe Glu Tyr Thr Ile  Met Ala Met Ile Ala  Leu Asn Thr
    1460                1465                1470

Val Val  Leu Met Met Lys Tyr  Tyr Ser Ala Pro Cys  Thr Tyr Glu
    1475                1480                1485
```

```
Leu Ala  Leu Lys Tyr Leu Asn  Ile Ala Phe Thr Met  Val Phe Ser
    1490                1495                1500

Leu Glu  Cys Val Leu Lys Val  Ile Ala Phe Gly Phe  Leu Asn Tyr
    1505                1510                1515

Phe Arg  Asp Thr Trp Asn Ile  Phe Asp Phe Ile Thr  Val Ile Gly
    1520                1525                1530

Ser Ile  Thr Glu Ile Ile Leu  Thr Asp Ser Lys Leu  Val Asn Thr
    1535                1540                1545

Ser Gly  Phe Asn Met Ser Phe  Leu Lys Leu Phe Arg  Ala Ala Arg
    1550                1555                1560

Leu Ile  Lys Leu Leu Arg Gln  Gly Tyr Thr Ile Arg  Ile Leu Leu
    1565                1570                1575

Trp Thr  Phe Val Gln Ser Phe  Lys Ala Leu Pro Tyr  Val Cys Leu
    1580                1585                1590

Leu Ile  Ala Met Leu Phe Phe  Ile Tyr Ala Ile Ile  Gly Met Gln
    1595                1600                1605

Val Phe  Gly Asn Ile Lys Leu  Asp Glu Glu Ser His  Ile Asn Arg
    1610                1615                1620

His Asn  Asn Phe Arg Ser Phe  Phe Gly Ser Leu Met  Leu Leu Phe
    1625                1630                1635

Arg Ser  Ala Thr Gly Glu Ala  Trp Gln Glu Ile Met  Leu Ser Cys
    1640                1645                1650

Leu Gly  Glu Lys Gly Cys Glu  Pro Asp Thr Thr Ala  Pro Ser Gly
    1655                1660                1665

Gln Asn  Glu Asn Glu Arg Cys  Gly Thr Asp Leu Ala  Tyr Val Tyr
    1670                1675                1680

Phe Val  Ser Phe Ile Phe Phe  Cys Ser Phe Leu Met  Leu Asn Leu
    1685                1690                1695
```

Phe Val Ala Val Ile Met Asp Asn Phe Glu Tyr Leu Thr Arg Asp
1700 1705 1710

Ser Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Val Arg Val
1715 1720 1725

Trp Ala Glu Tyr Asp Arg Ala Ala Cys Gly Arg Ile His Tyr Thr
1730 1735 1740

Glu Met Tyr Glu Met Leu Thr Leu Met Ser Pro Pro Leu Gly Leu
1745 1750 1755

Gly Lys Arg Cys Pro Ser Lys Val Ala Tyr Lys Arg Leu Val Leu
1760 1765 1770

Met Asn Met Pro Val Ala Glu Asp Met Thr Val His Phe Thr Ser
1775 1780 1785

Thr Leu Met Ala Leu Ile Arg Thr Ala Leu Asp Ile Lys Ile Ala
1790 1795 1800

Lys Gly Gly Ala Asp Arg Gln Gln Leu Asp Ser Glu Leu Gln Lys
1805 1810 1815

Glu Thr Leu Ala Ile Trp Pro His Leu Ser Gln Lys Met Leu Asp
1820 1825 1830

Leu Leu Val Pro Met Pro Lys Ala Ser Asp Leu Thr Val Gly Lys
1835 1840 1845

Ile Tyr Ala Ala Met Met Ile Met Asp Tyr Tyr Lys Gln Ser Lys
1850 1855 1860

Val Lys Lys Gln Arg Gln Gln Leu Glu Glu Gln Lys Asn Ala Pro
1865 1870 1875

Met Phe Gln Arg Met Glu Pro Ser Ser Leu Pro Gln Glu Ile Ile
1880 1885 1890

Ala Asn Ala Lys Ala Leu Pro Tyr Leu Gln Gln Asp Pro Val Ser
1895 1900 1905

Gly Leu Ser Gly Arg Ser Gly Tyr Pro Ser Met Ser Pro Leu Ser

1910 1915 1920

Pro Gln Asp Ile Phe Gln Leu Ala Cys Met Asp Pro Ala Asp Asp
1925 1930 1935

Gly Gln Phe Gln Glu Arg Gln Ser Leu Glu Pro Glu Val Ser Glu
1940 1945 1950

Leu Lys Ser Val Gln Pro Ser Asn His Gly Ile Tyr Leu Pro Ser
1955 1960 1965

Asp Thr Gln Glu His Ala Gly Ser Gly Arg Ala Ser Ser Met Pro
1970 1975 1980

Arg Leu Thr Val Asp Pro Gln Val Val Thr Asp Pro Ser Ser Met
1985 1990 1995

Arg Arg Ser Phe Ser Thr Ile Arg Asp Lys Arg Ser Asn Ser Ser
2000 2005 2010

Trp Leu Glu Glu Phe Ser Met Glu Arg Ser Ser Glu Asn Thr Tyr
2015 2020 2025

Lys Ser Arg Arg Arg Ser Tyr His Ser Ser Leu Arg Leu Ser Ala
2030 2035 2040

His Arg Leu Asn Ser Asp Ser Gly His Lys Ser Asp Thr His Arg
2045 2050 2055

Ser Gly Gly Arg Glu Arg Gly Arg Ser Lys Glu Arg Lys His Leu
2060 2065 2070

Leu Ser Pro Asp Val Ser Arg Cys Asn Ser Glu Glu Arg Gly Thr
2075 2080 2085

Gln Ala Asp Trp Glu Ser Pro Glu Arg Arg Gln Ser Arg Ser Pro
2090 2095 2100

Ser Glu Gly Arg Ser Gln Thr Pro Asn Arg Gln Gly Thr Gly Ser
2105 2110 2115

Leu Ser Glu Ser Ser Ile Pro Ser Val Ser Asp Thr Ser Thr Pro
2120 2125 2130

```
Arg Arg  Ser Arg Arg Gln Leu  Pro Pro Val Pro Pro  Lys Pro Arg
    2135                2140                2145

Pro Leu  Leu Ser Tyr Ser Ser  Leu Ile Arg His Ala  Gly Ser Ile
    2150                2155                2160

Ser Pro  Pro Ala Asp Gly Ser  Glu Glu Gly Ser Pro  Leu Thr Ser
    2165                2170                2175

Gln Ala  Leu Glu Ser Asn Asn  Ala Cys Leu Thr Glu  Ser Ser Asn
    2180                2185                2190

Ser Pro  His Pro Gln Gln Ser  Gln His Ala Ser Pro  Gln Arg Tyr
    2195                2200                2205

Ile Ser  Glu Pro Tyr Leu Ala  Leu His Glu Asp Ser  His Ala Ser
    2210                2215                2220

Asp Cys  Gly Glu Glu Glu Thr  Leu Thr Phe Glu Ala  Ala Val Ala
    2225                2230                2235

Thr Ser  Leu Gly Arg Ser Asn  Thr Ile Gly Ser Ala  Pro Pro Leu
    2240                2245                2250

Arg His  Ser Trp Gln Met Pro  Asn Gly His Tyr Arg  Arg Arg Arg
    2255                2260                2265

Arg Gly  Gly Pro Gly Pro Gly  Met Met Cys Gly Ala  Val Asn Asn
    2270                2275                2280

Leu Leu  Ser Asp Thr Glu Glu  Asp Asp Lys Cys
    2285                2290
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Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
            20                  25                  30


Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
        35                  40                  45


Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
    50                  55                  60


Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65                  70                  75                  80


Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
                85                  90                  95


Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
            100                 105                 110


Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
        115                 120                 125


Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
    130                 135                 140


Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145                 150                 155                 160
```

```
Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165                 170                 175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180                 185                 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
```

385 390 395 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
405 410 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
420 425 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
435 440 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
450 455 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465 470 475 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
485 490 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
500 505 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
515 520 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
530 535 540

Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545 550 555 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
565 570 575

Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
580 585 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
595 600 605

Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
610 615 620

```
Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625                 630                 635                 640

Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
                645                 650                 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
            660                 665                 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
        675                 680                 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
    690                 695                 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705                 710                 715                 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
                725                 730                 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Asp Arg Arg Arg
            740                 745                 750

Arg His His Met Ser Met Trp Glu Pro Arg Ser Ser His Leu Arg Glu
        755                 760                 765

Arg Arg Arg Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln
    770                 775                 780

Leu Arg Lys His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu
785                 790                 795                 800

Glu Ala Pro Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser
                805                 810                 815

Leu Asn Pro Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala
            820                 825                 830

Ile Glu Gly Leu Ala Leu Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu
        835                 840                 845
```

```
Arg Ile Ser Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser
    850                 855                 860

Ser Ala Leu Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu
865                 870                 875                 880

Pro Pro Trp Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln
                885                 890                 895

Gln Glu Ala Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala
            900                 905                 910

Arg His Arg Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr
        915                 920                 925

Glu Gly Lys Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln
    930                 935                 940

Glu Arg Ser Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His
945                 950                 955                 960

Glu Leu Arg Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu
                965                 970                 975

Arg Ala Gln Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly
            980                 985                 990

Ser Gly Leu Ala Gly Gly Leu Asp  Glu Ala Asp Thr Pro  Leu Val
Leu
        995                 1000                1005

Pro His  Pro Glu Leu Glu Val  Gly Lys His Val Val  Leu Thr Glu
    1010                1015                1020

Gln Glu  Pro Glu Gly Ser Ser  Glu Gln Ala Leu Leu  Gly Asn Val
    1025                1030                1035

Gln Leu  Asp Met Gly Arg Val  Ile Ser Gln Ser Glu  Pro Asp Leu
    1040                1045                1050

Ser Cys  Ile Thr Ala Asn Thr  Asp Lys Ala Thr Thr  Glu Ser Thr
    1055                1060                1065
```

```
Ser Val  Thr Val Ala Ile Pro  Asp Val Asp Pro Leu  Val Asp Ser
    1070                1075                1080

Thr Val  Val His Ile Ser Asn  Lys Thr Asp Gly Glu  Ala Ser Pro
    1085                1090                1095

Leu Lys  Glu Ala Glu Ile Arg  Glu Asp Glu Glu Glu  Val Glu Lys
    1100                1105                1110

Lys Lys  Gln Lys Lys Glu Lys  Arg Glu Thr Gly Lys  Ala Met Val
    1115                1120                1125

Pro His  Ser Ser Met Phe Ile  Phe Ser Thr Thr Asn  Pro Ile Arg
    1130                1135                1140

Arg Ala  Cys His Tyr Ile Val  Asn Leu Arg Tyr Phe  Glu Met Cys
    1145                1150                1155

Ile Leu  Leu Val Ile Ala Ala  Ser Ser Ile Ala Leu  Ala Ala Glu
    1160                1165                1170

Asp Pro  Val Leu Thr Asn Ser  Glu Arg Asn Lys Val  Leu Arg Tyr
    1175                1180                1185

Phe Asp  Tyr Val Phe Thr Gly  Val Phe Thr Phe Glu  Met Val Ile
    1190                1195                1200

Lys Met  Ile Asp Gln Gly Leu  Ile Leu Gln Asp Gly  Ser Tyr Phe
    1205                1210                1215

Arg Asp  Leu Trp Asn Ile Leu  Asp Phe Val Val Val  Val Gly Ala
    1220                1225                1230

Leu Val  Ala Phe Ala Leu Ala  Asn Ala Leu Gly Thr  Asn Lys Gly
    1235                1240                1245

Arg Asp  Ile Lys Thr Ile Lys  Ser Leu Arg Val Leu  Arg Val Leu
    1250                1255                1260

Arg Pro  Leu Lys Thr Ile Lys  Arg Leu Pro Lys Leu  Lys Ala Val
    1265                1270                1275
```

```
Phe Asp  Cys Val Val Thr Ser  Leu Lys Asn Val Phe  Asn Ile Leu
    1280                 1285                 1290

Ile Val  Tyr Lys Leu Phe Met  Phe Ile Phe Ala Val  Ile Ala Val
    1295                 1300                 1305

Gln Leu  Phe Lys Gly Lys Phe  Phe Tyr Cys Thr Asp  Ser Ser Lys
    1310                 1315                 1320

Asp Thr  Glu Lys Glu Cys Ile  Gly Asn Tyr Val Asp  His Glu Lys
    1325                 1330                 1335

Asn Lys  Met Glu Val Lys Gly  Arg Glu Trp Lys Arg  His Glu Phe
    1340                 1345                 1350

His Tyr  Asp Asn Ile Ile Trp  Ala Leu Leu Thr Leu  Phe Thr Val
    1355                 1360                 1365

Ser Thr  Gly Glu Gly Trp Pro  Gln Val Leu Gln His  Ser Val Asp
    1370                 1375                 1380

Val Thr  Glu Glu Asp Arg Gly  Pro Ser Arg Ser Asn  Arg Met Glu
    1385                 1390                 1395

Met Ser  Ile Phe Tyr Val Val  Tyr Phe Val Val Phe  Pro Phe Phe
    1400                 1405                 1410

Phe Val  Asn Ile Phe Val Ala  Leu Ile Ile Ile Thr  Phe Gln Glu
    1415                 1420                 1425

Gln Gly  Asp Lys Met Met Glu  Glu Cys Ser Leu Glu  Lys Asn Glu
    1430                 1435                 1440

Arg Ala  Cys Ile Asp Phe Ala  Ile Ser Ala Lys Pro  Leu Thr Arg
    1445                 1450                 1455

Tyr Met  Pro Gln Asn Arg His  Thr Phe Gln Tyr Arg  Val Trp His
    1460                 1465                 1470

Phe Val  Val Ser Pro Ser Phe  Glu Tyr Thr Ile Met  Ala Met Ile
    1475                 1480                 1485

Ala Leu  Asn Thr Val Val Leu  Met Met Lys Tyr Tyr  Ser Ala Pro
```

1490 1495 1500

Cys Thr Tyr Glu Leu Ala Leu Lys Tyr Leu Asn Ile Ala Phe Thr
1505 1510 1515

Met Val Phe Ser Leu Glu Cys Val Leu Lys Val Ile Ala Phe Gly
1520 1525 1530

Phe Leu Asn Tyr Phe Arg Asp Thr Trp Asn Ile Phe Asp Phe Ile
1535 1540 1545

Thr Val Ile Gly Ser Ile Thr Glu Ile Ile Leu Thr Asp Ser Lys
1550 1555 1560

Leu Val Asn Thr Ser Gly Phe Asn Met Ser Phe Leu Lys Leu Phe
1565 1570 1575

Arg Ala Ala Arg Leu Ile Lys Leu Leu Arg Gln Gly Tyr Thr Ile
1580 1585 1590

Arg Ile Leu Leu Trp Thr Phe Val Gln Ser Phe Lys Ala Leu Pro
1595 1600 1605

Tyr Val Cys Leu Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala Ile
1610 1615 1620

Ile Gly Met Gln Val Phe Gly Asn Ile Lys Leu Asp Glu Glu Ser
1625 1630 1635

His Ile Asn Arg His Asn Asn Phe Arg Ser Phe Phe Gly Ser Leu
1640 1645 1650

Met Leu Leu Phe Arg Ser Ala Thr Gly Glu Ala Trp Gln Glu Ile
1655 1660 1665

Met Leu Ser Cys Leu Gly Glu Lys Gly Cys Glu Pro Asp Thr Thr
1670 1675 1680

Ala Pro Ser Gly Gln Asn Glu Asn Glu Arg Cys Gly Thr Asp Leu
1685 1690 1695

Ala Tyr Val Tyr Phe Val Ser Phe Ile Phe Phe Cys Ser Phe Leu
1700 1705 1710

```
Met Leu  Asn Leu Phe Val Ala  Val Ile Met Asp Asn  Phe Glu Tyr
    1715                1720                1725

Leu Thr  Arg Asp Ser Ser Ile  Leu Gly Pro His His  Leu Asp Glu
    1730                1735                1740

Phe Val  Arg Val Trp Ala Glu  Tyr Asp Arg Ala Ala  Cys Gly Arg
    1745                1750                1755

Ile His  Tyr Thr Glu Met Tyr  Glu Met Leu Thr Leu  Met Ser Pro
    1760                1765                1770

Pro Leu  Gly Leu Gly Lys Arg  Cys Pro Ser Lys Val  Ala Tyr Lys
    1775                1780                1785

Arg Leu  Val Leu Met Asn Met  Pro Val Ala Glu Asp  Met Thr Val
    1790                1795                1800

His Phe  Thr Ser Thr Leu Met  Ala Leu Ile Arg Thr  Ala Leu Asp
    1805                1810                1815

Ile Lys  Ile Ala Lys Gly Gly  Ala Asp Arg Gln Gln  Leu Asp Ser
    1820                1825                1830

Glu Leu  Gln Lys Glu Thr Leu  Ala Ile Trp Pro His  Leu Ser Gln
    1835                1840                1845

Lys Met  Leu Asp Leu Leu Val  Pro Met Pro Lys Ala  Ser Asp Leu
    1850                1855                1860

Thr Val  Gly Lys Ile Tyr Ala  Ala Met Met Ile Met  Asp Tyr Tyr
    1865                1870                1875

Lys Gln  Ser Lys Val Lys Lys  Gln Arg Gln Gln Leu  Glu Glu Gln
    1880                1885                1890

Lys Asn  Ala Pro Met Phe Gln  Arg Met Glu Pro Ser  Ser Leu Pro
    1895                1900                1905

Gln Glu  Ile Ile Ala Asn Ala  Lys Ala Leu Pro Tyr  Leu Gln Gln
    1910                1915                1920
```

```
Asp Pro  Val Ser Gly Leu Ser  Gly Arg Ser Gly Tyr  Pro Ser Met
    1925                1930                1935

Ser Pro  Leu Ser Pro Gln Asp  Ile Phe Gln Leu Ala  Cys Met Asp
    1940                1945                1950

Pro Ala  Asp Asp Gly Gln Phe  Gln Glu Arg Gln Ser  Leu Val Val
    1955                1960                1965

Thr Asp  Pro Ser Ser Met Arg  Arg Ser Phe Ser Thr  Ile Arg Asp
    1970                1975                1980

Lys Arg  Ser Asn Ser Ser Trp  Leu Glu Glu Phe Ser  Met Glu Arg
    1985                1990                1995

Ser Ser  Glu Asn Thr Tyr Lys  Ser Arg Arg Arg Ser  Tyr His Ser
    2000                2005                2010

Ser Leu  Arg Leu Ser Ala His  Arg Leu Asn Ser Asp  Ser Gly His
    2015                2020                2025

Lys Ser  Asp Thr His Arg Ser  Gly Gly Arg Glu Arg  Gly Arg Ser
    2030                2035                2040

Lys Glu  Arg Lys His Leu Leu  Ser Pro Asp Val Ser  Arg Cys Asn
    2045                2050                2055

Ser Glu  Glu Arg Gly Thr Gln  Ala Asp Trp Glu Ser  Pro Glu Arg
    2060                2065                2070

Arg Gln  Ser Arg Ser Pro Ser  Glu Gly Arg Ser Gln  Thr Pro Asn
    2075                2080                2085

Arg Gln  Gly Thr Gly Ser Leu  Ser Glu Ser Ser Ile  Pro Ser Val
    2090                2095                2100

Ser Asp  Thr Ser Thr Pro Arg  Arg Ser Arg Arg Gln  Leu Pro Pro
    2105                2110                2115

Val Pro  Pro Lys Pro Arg Pro  Leu Leu Ser Tyr Ser  Ser Leu Ile
    2120                2125                2130
```

```
Arg His  Ala Gly Ser Ile Ser  Pro Pro Ala Asp Gly  Ser Glu Glu
    2135                 2140                 2145

Gly Ser  Pro Leu Thr Ser Gln  Ala Leu Glu Ser Asn  Asn Ala Cys
    2150                 2155                 2160

Leu Thr  Glu Ser Ser Asn Ser  Pro His Pro Gln Gln  Ser Gln His
    2165                 2170                 2175

Ala Ser  Pro Gln Arg Tyr Ile  Ser Glu Pro Tyr Leu  Ala Leu His
    2180                 2185                 2190

Glu Asp  Ser His Ala Ser Asp  Cys Gly Glu Glu Glu  Thr Leu Thr
    2195                 2200                 2205

Phe Glu  Ala Ala Val Ala Thr  Ser Leu Gly Arg Ser  Asn Thr Ile
    2210                 2215                 2220

Gly Ser  Ala Pro Pro Leu Arg  His Ser Trp Gln Met  Pro Asn Gly
    2225                 2230                 2235

His Tyr  Arg Arg Arg Arg Arg  Gly Gly Pro Gly Pro  Gly Met Met
    2240                 2245                 2250

Cys Gly  Ala Val Asn Asn Leu  Leu Ser Asp Thr Glu  Glu Asp Asp
    2255                 2260                 2265

Lys Cys
    2270
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<212> PRT
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<221> source
<223> /note="Gene Symbol: CACNA1E; "

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type, alpha 1E

subunit; "

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Met Ala Arg Phe Gly Glu Ala Val Val Ala Arg Pro Gly Ser Gly Asp
1   5   10   15

Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
            20   25   30

Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
        35   40   45

Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
    50   55   60

Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65   70   75   80

Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
                85   90   95

Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
            100   105   110

Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
        115   120   125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
    130   135   140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145   150   155   160

Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165   170   175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180   185   190

```
Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385                 390                 395                 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
                405                 410                 415
```

```
Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
            420                 425                 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
        435                 440                 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
    450                 455                 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465                 470                 475                 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
                485                 490                 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
            500                 505                 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
        515                 520                 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
    530                 535                 540

Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545                 550                 555                 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
                565                 570                 575

Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
            580                 585                 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
        595                 600                 605

Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
    610                 615                 620

Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625                 630                 635                 640
```

```
Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
                645                 650                 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
            660                 665                 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
        675                 680                 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
    690                 695                 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705                 710                 715                 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
                725                 730                 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Asp Arg Arg Arg
            740                 745                 750

Arg His His Met Ser Met Trp Glu Pro Arg Ser Ser His Leu Arg Glu
        755                 760                 765

Arg Arg Arg Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln
    770                 775                 780

Leu Arg Lys His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu
785                 790                 795                 800

Glu Ala Pro Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser
                805                 810                 815

Leu Asn Pro Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala
            820                 825                 830

Ile Glu Gly Leu Ala Leu Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu
        835                 840                 845

Arg Ile Ser Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser
    850                 855                 860

Ser Ala Leu Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu
```

865 870 875 880

Pro Pro Trp Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln
885 890 895

Gln Glu Ala Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala
900 905 910

Arg His Arg Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr
915 920 925

Glu Gly Lys Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln
930 935 940

Glu Arg Ser Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His
945 950 955 960

Glu Leu Arg Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu
965 970 975

Arg Ala Gln Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly
980 985 990

Ser Gly Leu Ala Gly Gly Leu Asp Glu Ala Asp Thr Pro Leu Val
Leu
995 1000 1005

Pro His Pro Glu Leu Glu Val Gly Lys His Val Val Leu Thr Glu
1010 1015 1020

Gln Glu Pro Glu Gly Ser Ser Glu Gln Ala Leu Leu Gly Asn Val
1025 1030 1035

Gln Leu Asp Met Gly Arg Val Ile Ser Gln Ser Glu Pro Asp Leu
1040 1045 1050

Ser Cys Ile Thr Ala Asn Thr Asp Lys Ala Thr Thr Glu Ser Thr
1055 1060 1065

Ser Val Thr Val Ala Ile Pro Asp Val Asp Pro Leu Val Asp Ser
1070 1075 1080

Thr Val Val His Ile Ser Asn Lys Thr Asp Gly Glu Ala Ser Pro

1085 1090 1095

Leu Lys Glu Ala Glu Ile Arg Glu Asp Glu Glu Glu Val Glu Lys
1100 1105 1110

Lys Lys Gln Lys Lys Glu Lys Arg Glu Thr Gly Lys Ala Met Val
1115 1120 1125

Pro His Ser Ser Met Phe Ile Phe Ser Thr Thr Asn Pro Ile Arg
1130 1135 1140

Arg Ala Cys His Tyr Ile Val Asn Leu Arg Tyr Phe Glu Met Cys
1145 1150 1155

Ile Leu Leu Val Ile Ala Ala Ser Ser Ile Ala Leu Ala Ala Glu
1160 1165 1170

Asp Pro Val Leu Thr Asn Ser Glu Arg Asn Lys Val Leu Arg Tyr
1175 1180 1185

Phe Asp Tyr Val Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile
1190 1195 1200

Lys Met Ile Asp Gln Gly Leu Ile Leu Gln Asp Gly Ser Tyr Phe
1205 1210 1215

Arg Asp Leu Trp Asn Ile Leu Asp Phe Val Val Val Val Gly Ala
1220 1225 1230

Leu Val Ala Phe Ala Leu Ala Asn Ala Leu Gly Thr Asn Lys Gly
1235 1240 1245

Arg Asp Ile Lys Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu
1250 1255 1260

Arg Pro Leu Lys Thr Ile Lys Arg Leu Pro Lys Leu Lys Ala Val
1265 1270 1275

Phe Asp Cys Val Val Thr Ser Leu Lys Asn Val Phe Asn Ile Leu
1280 1285 1290

Ile Val Tyr Lys Leu Phe Met Phe Ile Phe Ala Val Ile Ala Val
1295 1300 1305

```
Gln Leu  Phe Lys Gly Lys Phe  Phe Tyr Cys Thr Asp  Ser Ser Lys
    1310                1315                1320

Asp Thr  Glu Lys Glu Cys Ile  Gly Asn Tyr Val Asp  His Glu Lys
    1325                1330                1335

Asn Lys  Met Glu Val Lys Gly  Arg Glu Trp Lys Arg  His Glu Phe
    1340                1345                1350

His Tyr  Asp Asn Ile Ile Trp  Ala Leu Leu Thr Leu  Phe Thr Val
    1355                1360                1365

Ser Thr  Gly Glu Gly Trp Pro  Gln Val Leu Gln His  Ser Val Asp
    1370                1375                1380

Val Thr  Glu Glu Asp Arg Gly  Pro Ser Arg Ser Asn  Arg Met Glu
    1385                1390                1395

Met Ser  Ile Phe Tyr Val Val  Tyr Phe Val Val Phe  Pro Phe Phe
    1400                1405                1410

Phe Val  Asn Ile Phe Val Ala  Leu Ile Ile Ile Thr  Phe Gln Glu
    1415                1420                1425

Gln Gly  Asp Lys Met Met Glu  Glu Cys Ser Leu Glu  Lys Asn Glu
    1430                1435                1440

Arg Ala  Cys Ile Asp Phe Ala  Ile Ser Ala Lys Pro  Leu Thr Arg
    1445                1450                1455

Tyr Met  Pro Gln Asn Arg His  Thr Phe Gln Tyr Arg  Val Trp His
    1460                1465                1470

Phe Val  Val Ser Pro Ser Phe  Glu Tyr Thr Ile Met  Ala Met Ile
    1475                1480                1485

Ala Leu  Asn Thr Val Val Leu  Met Met Lys Tyr Tyr  Ser Ala Pro
    1490                1495                1500

Cys Thr  Tyr Glu Leu Ala Leu  Lys Tyr Leu Asn Ile  Ala Phe Thr
    1505                1510                1515
```

```
Met Val  Phe Ser Leu Glu Cys  Val Leu Lys Val Ile  Ala Phe Gly
    1520                1525                1530

Phe Leu  Asn Tyr Phe Arg Asp  Thr Trp Asn Ile Phe  Asp Phe Ile
    1535                1540                1545

Thr Val  Ile Gly Ser Ile Thr  Glu Ile Ile Leu Thr  Asp Ser Lys
    1550                1555                1560

Leu Val  Asn Thr Ser Gly Phe  Asn Met Ser Phe Leu  Lys Leu Phe
    1565                1570                1575

Arg Ala  Ala Arg Leu Ile Lys  Leu Leu Arg Gln Gly  Tyr Thr Ile
    1580                1585                1590

Arg Ile  Leu Leu Trp Thr Phe  Val Gln Ser Phe Lys  Ala Leu Pro
    1595                1600                1605

Tyr Val  Cys Leu Leu Ile Ala  Met Leu Phe Phe Ile  Tyr Ala Ile
    1610                1615                1620

Ile Gly  Met Gln Val Phe Gly  Asn Ile Lys Leu Asp  Glu Glu Ser
    1625                1630                1635

His Ile  Asn Arg His Asn Asn  Phe Arg Ser Phe Phe  Gly Ser Leu
    1640                1645                1650

Met Leu  Leu Phe Arg Ser Ala  Thr Gly Glu Ala Trp  Gln Glu Ile
    1655                1660                1665

Met Leu  Ser Cys Leu Gly Glu  Lys Gly Cys Glu Pro  Asp Thr Thr
    1670                1675                1680

Ala Pro  Ser Gly Gln Asn Glu  Asn Glu Arg Cys Gly  Thr Asp Leu
    1685                1690                1695

Ala Tyr  Val Tyr Phe Val Ser  Phe Ile Phe Phe Cys  Ser Phe Leu
    1700                1705                1710

Met Leu  Asn Leu Phe Val Ala  Val Ile Met Asp Asn  Phe Glu Tyr
    1715                1720                1725
```

```
Leu Thr  Arg Asp Ser Ser Ile  Leu Gly Pro His His  Leu Asp Glu
    1730                1735                1740

Phe Val  Arg Val Trp Ala Glu  Tyr Asp Arg Ala Ala  Cys Gly Arg
    1745                1750                1755

Ile His  Tyr Thr Glu Met Tyr  Glu Met Leu Thr Leu  Met Ser Pro
    1760                1765                1770

Pro Leu  Gly Leu Gly Lys Arg  Cys Pro Ser Lys Val  Ala Tyr Lys
    1775                1780                1785

Arg Leu  Val Leu Met Asn Met  Pro Val Ala Glu Asp  Met Thr Val
    1790                1795                1800

His Phe  Thr Ser Thr Leu Met  Ala Leu Ile Arg Thr  Ala Leu Asp
    1805                1810                1815

Ile Lys  Ile Ala Lys Gly Gly  Ala Asp Arg Gln Gln  Leu Asp Ser
    1820                1825                1830

Glu Leu  Gln Lys Glu Thr Leu  Ala Ile Trp Pro His  Leu Ser Gln
    1835                1840                1845

Lys Met  Leu Asp Leu Leu Val  Pro Met Pro Lys Ala  Ser Asp Leu
    1850                1855                1860

Thr Val  Gly Lys Ile Tyr Ala  Ala Met Met Ile Met  Asp Tyr Tyr
    1865                1870                1875

Lys Gln  Ser Lys Val Lys Lys  Gln Arg Gln Gln Leu  Glu Glu Gln
    1880                1885                1890

Lys Asn  Ala Pro Met Phe Gln  Arg Met Glu Pro Ser  Ser Leu Pro
    1895                1900                1905

Gln Glu  Ile Ile Ala Asn Ala  Lys Ala Leu Pro Tyr  Leu Gln Gln
    1910                1915                1920

Asp Pro  Val Ser Gly Leu Ser  Gly Arg Ser Gly Tyr  Pro Ser Met
    1925                1930                1935

Ser Pro  Leu Ser Pro Gln Asp  Ile Phe Gln Leu Ala  Cys Met Asp
```

1940 1945 1950

Pro Ala Asp Asp Gly Gln Phe Gln Glu Arg Gln Ser Leu Val Val
1955 1960 1965

Thr Asp Pro Ser Ser Met Arg Arg Ser Phe Ser Thr Ile Arg Asp
1970 1975 1980

Lys Arg Ser Asn Ser Ser Trp Leu Glu Glu Phe Ser Met Glu Arg
1985 1990 1995

Ser Ser Glu Asn Thr Tyr Lys Ser Arg Arg Arg Ser Tyr His Ser
2000 2005 2010

Ser Leu Arg Leu Ser Ala His Arg Leu Asn Ser Asp Ser Gly His
2015 2020 2025

Lys Ser Asp Thr His Arg Ser Gly Gly Arg Glu Arg Gly Arg Ser
2030 2035 2040

Lys Glu Arg Lys His Leu Leu Ser Pro Asp Val Ser Arg Cys Asn
2045 2050 2055

Ser Glu Glu Arg Gly Thr Gln Ala Asp Trp Glu Ser Pro Glu Arg
2060 2065 2070

Arg Gln Ser Arg Ser Pro Ser Glu Gly Arg Ser Gln Thr Pro Asn
2075 2080 2085

Arg Gln Gly Thr Gly Ser Leu Ser Glu Ser Ser Ile Pro Ser Val
2090 2095 2100

Ser Asp Thr Ser Thr Pro Arg Arg Ser Arg Arg Gln Leu Pro Pro
2105 2110 2115

Val Pro Pro Lys Pro Arg Pro Leu Leu Ser Tyr Ser Ser Leu Ile
2120 2125 2130

Arg His Ala Gly Ser Ile Ser Pro Pro Ala Asp Gly Ser Glu Glu
2135 2140 2145

Gly Ser Pro Leu Thr Ser Gln Ala Leu Glu Ser Asn Asn Ala Cys
2150 2155 2160

```
Leu Thr  Glu Ser Ser Asn Ser  Pro His Pro Gln Gln  Ser Gln His
    2165                2170                2175

Ala Ser  Pro Gln Arg Tyr Ile  Ser Glu Pro Tyr Leu  Ala Leu His
    2180                2185                2190

Glu Asp  Ser His Ala Ser Asp  Cys Gly Glu Glu Glu  Thr Leu Thr
    2195                2200                2205

Phe Glu  Ala Ala Val Ala Thr  Ser Leu Gly Arg Ser  Asn Thr Ile
    2210                2215                2220

Gly Ser  Ala Pro Pro Leu Arg  His Ser Trp Gln Met  Pro Asn Gly
    2225                2230                2235

His Tyr  Arg Arg Arg Arg Arg  Gly Gly Pro Gly Pro  Gly Met Met
    2240                2245                2250

Cys Gly  Ala Val Asn Asn Leu  Leu Ser Asp Thr Glu  Glu Asp Asp
    2255                2260                2265

Lys Cys
    2270


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Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
20 25 30

Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
35 40 45

Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
50 55 60

Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65 70 75 80

Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
85 90 95

Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
100 105 110

Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
115 120 125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
130 135 140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145 150 155 160

Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
165 170 175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
180 185 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
195 200 205

```
Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385                 390                 395                 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
                405                 410                 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
            420                 425                 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
```

435 440 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
450 455 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465 470 475 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
485 490 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
500 505 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
515 520 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
530 535 540

Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545 550 555 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
565 570 575

Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
580 585 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
595 600 605

Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
610 615 620

Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625 630 635 640

Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
645 650 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
660 665 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
675 680 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
690 695 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705 710 715 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
725 730 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Asp Arg Arg Arg
740 745 750

Arg His His Met Ser Met Trp Glu Pro Arg Ser Ser His Leu Arg Glu
755 760 765

Arg Arg Arg Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln
770 775 780

Leu Arg Lys His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu
785 790 795 800

Glu Ala Pro Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser
805 810 815

Leu Asn Pro Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala
820 825 830

Ile Glu Gly Leu Ala Leu Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu
835 840 845

Arg Ile Ser Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser
850 855 860

Ser Ala Leu Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu
865 870 875 880

Pro Pro Trp Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln
885 890 895

```
Gln Glu Ala Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala
            900                 905                 910

Arg His Arg Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr
        915                 920                 925

Glu Gly Lys Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln
    930                 935                 940

Glu Arg Ser Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His
945                 950                 955                 960

Glu Leu Arg Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu
                965                 970                 975

Arg Ala Gln Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly
            980                 985                 990

Ser Gly Leu Ala Gly Gly Leu Asp  Glu Ala Asp Thr Pro  Leu Val
Leu
        995                 1000                1005

Pro His  Pro Glu Leu Glu Val  Gly Lys His Val Val  Leu Thr Glu
    1010                1015                1020

Gln Glu  Pro Glu Gly Ser Ser  Glu Gln Ala Leu Leu  Gly Asn Val
    1025                1030                1035

Gln Leu  Asp Met Gly Arg Val  Ile Ser Gln Ser Glu  Pro Asp Leu
    1040                1045                1050

Ser Cys  Ile Thr Ala Asn Thr  Asp Lys Ala Thr Thr  Glu Ser Thr
    1055                1060                1065

Ser Val  Thr Val Ala Ile Pro  Asp Val Asp Pro Leu  Val Asp Ser
    1070                1075                1080

Thr Val  Val His Ile Ser Asn  Lys Thr Asp Gly Glu  Ala Ser Pro
    1085                1090                1095

Leu Lys  Glu Ala Glu Ile Arg  Glu Asp Glu Glu Glu  Val Glu Lys
    1100                1105                1110
```

Lys Lys Gln Lys Lys Glu Lys Arg Glu Thr Gly Lys Ala Met Val
1115 1120 1125

Pro His Ser Ser Met Phe Ile Phe Ser Thr Thr Asn Pro Ile Arg
1130 1135 1140

Arg Ala Cys His Tyr Ile Val Asn Leu Arg Tyr Phe Glu Met Cys
1145 1150 1155

Ile Leu Leu Val Ile Ala Ala Ser Ser Ile Ala Leu Ala Ala Glu
1160 1165 1170

Asp Pro Val Leu Thr Asn Ser Glu Arg Asn Lys Val Leu Arg Tyr
1175 1180 1185

Phe Asp Tyr Val Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile
1190 1195 1200

Lys Met Ile Asp Gln Gly Leu Ile Leu Gln Asp Gly Ser Tyr Phe
1205 1210 1215

Arg Asp Leu Trp Asn Ile Leu Asp Phe Val Val Val Val Gly Ala
1220 1225 1230

Leu Val Ala Phe Ala Leu Ala Asn Ala Leu Gly Thr Asn Lys Gly
1235 1240 1245

Arg Asp Ile Lys Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu
1250 1255 1260

Arg Pro Leu Lys Thr Ile Lys Arg Leu Pro Lys Leu Lys Ala Val
1265 1270 1275

Phe Asp Cys Val Val Thr Ser Leu Lys Asn Val Phe Asn Ile Leu
1280 1285 1290

Ile Val Tyr Lys Leu Phe Met Phe Ile Phe Ala Val Ile Ala Val
1295 1300 1305

Gln Leu Phe Lys Gly Lys Phe Phe Tyr Cys Thr Asp Ser Ser Lys
1310 1315 1320

```
Asp Thr  Glu Lys Glu Cys Ile  Gly Asn Tyr Val Asp  His Glu Lys
    1325                1330                1335

Asn Lys  Met Glu Val Lys Gly  Arg Glu Trp Lys Arg  His Glu Phe
    1340                1345                1350

His Tyr  Asp Asn Ile Ile Trp  Ala Leu Leu Thr Leu  Phe Thr Val
    1355                1360                1365

Ser Thr  Gly Glu Gly Trp Pro  Gln Val Leu Gln His  Ser Val Asp
    1370                1375                1380

Val Thr  Glu Glu Asp Arg Gly  Pro Ser Arg Ser Asn  Arg Met Glu
    1385                1390                1395

Met Ser  Ile Phe Tyr Val Val  Tyr Phe Val Val Phe  Pro Phe Phe
    1400                1405                1410

Phe Val  Asn Ile Phe Val Ala  Leu Ile Ile Ile Thr  Phe Gln Glu
    1415                1420                1425

Gln Gly  Asp Lys Met Met Glu  Glu Cys Ser Leu Glu  Lys Asn Glu
    1430                1435                1440

Arg Ala  Cys Ile Asp Phe Ala  Ile Ser Ala Lys Pro  Leu Thr Arg
    1445                1450                1455

Tyr Met  Pro Gln Asn Arg His  Thr Phe Gln Tyr Arg  Val Trp His
    1460                1465                1470

Phe Val  Val Ser Pro Ser Phe  Glu Tyr Thr Ile Met  Ala Met Ile
    1475                1480                1485

Ala Leu  Asn Thr Val Val Leu  Met Met Lys Tyr Tyr  Ser Ala Pro
    1490                1495                1500

Cys Thr  Tyr Glu Leu Ala Leu  Lys Tyr Leu Asn Ile  Ala Phe Thr
    1505                1510                1515

Met Val  Phe Ser Leu Glu Cys  Val Leu Lys Val Ile  Ala Phe Gly
    1520                1525                1530

Phe Leu  Asn Tyr Phe Arg Asp  Thr Trp Asn Ile Phe  Asp Phe Ile
```

1535 1540 1545

Thr Val Ile Gly Ser Ile Thr Glu Ile Ile Leu Thr Asp Ser Lys
1550 1555 1560

Leu Val Asn Thr Ser Gly Phe Asn Met Ser Phe Leu Lys Leu Phe
1565 1570 1575

Arg Ala Ala Arg Leu Ile Lys Leu Leu Arg Gln Gly Tyr Thr Ile
1580 1585 1590

Arg Ile Leu Leu Trp Thr Phe Val Gln Ser Phe Lys Ala Leu Pro
1595 1600 1605

Tyr Val Cys Leu Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala Ile
1610 1615 1620

Ile Gly Met Gln Val Phe Gly Asn Ile Lys Leu Asp Glu Glu Ser
1625 1630 1635

His Ile Asn Arg His Asn Asn Phe Arg Ser Phe Phe Gly Ser Leu
1640 1645 1650

Met Leu Leu Phe Arg Ser Ala Thr Gly Glu Ala Trp Gln Glu Ile
1655 1660 1665

Met Leu Ser Cys Leu Gly Glu Lys Gly Cys Glu Pro Asp Thr Thr
1670 1675 1680

Ala Pro Ser Gly Gln Asn Glu Asn Glu Arg Cys Gly Thr Asp Leu
1685 1690 1695

Ala Tyr Val Tyr Phe Val Ser Phe Ile Phe Phe Cys Ser Phe Leu
1700 1705 1710

Met Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu Tyr
1715 1720 1725

Leu Thr Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu
1730 1735 1740

Phe Val Arg Val Trp Ala Glu Tyr Asp Arg Ala Ala Cys Gly Arg
1745 1750 1755

```
Ile His  Tyr Thr Glu Met Tyr  Glu Met Leu Thr Leu  Met Ser Pro
    1760                1765                1770

Pro Leu  Gly Leu Gly Lys Arg  Cys Pro Ser Lys Val  Ala Tyr Lys
    1775                1780                1785

Arg Leu  Val Leu Met Asn Met  Pro Val Ala Glu Asp  Met Thr Val
    1790                1795                1800

His Phe  Thr Ser Thr Leu Met  Ala Leu Ile Arg Thr  Ala Leu Asp
    1805                1810                1815

Ile Lys  Ile Ala Lys Gly Gly  Ala Asp Arg Gln Gln  Leu Asp Ser
    1820                1825                1830

Glu Leu  Gln Lys Glu Thr Leu  Ala Ile Trp Pro His  Leu Ser Gln
    1835                1840                1845

Lys Met  Leu Asp Leu Leu Val  Pro Met Pro Lys Ala  Ser Asp Leu
    1850                1855                1860

Thr Val  Gly Lys Ile Tyr Ala  Ala Met Met Ile Met  Asp Tyr Tyr
    1865                1870                1875

Lys Gln  Ser Lys Val Lys Lys  Gln Arg Gln Gln Leu  Glu Glu Gln
    1880                1885                1890

Lys Asn  Ala Pro Met Phe Gln  Arg Met Glu Pro Ser  Ser Leu Pro
    1895                1900                1905

Gln Glu  Ile Ile Ala Asn Ala  Lys Ala Leu Pro Tyr  Leu Gln Gln
    1910                1915                1920

Asp Pro  Val Ser Gly Leu Ser  Gly Arg Ser Gly Tyr  Pro Ser Met
    1925                1930                1935

Ser Pro  Leu Ser Pro Gln Asp  Ile Phe Gln Leu Ala  Cys Met Asp
    1940                1945                1950

Pro Ala  Asp Asp Gly Gln Phe  Gln Glu Arg Gln Ser  Leu Glu Pro
    1955                1960                1965
```

```
Glu Val  Ser Glu Leu Lys Ser  Val Gln Pro Ser Asn  His Gly Ile
    1970                1975                1980

Tyr Leu  Pro Ser Asp Thr Gln  Glu His Ala Gly Ser  Gly Arg Ala
    1985                1990                1995

Ser Ser  Met Pro Arg Leu Thr  Val Asp Pro Gln Val  Val Thr Asp
    2000                2005                2010

Pro Ser  Ser Met Arg Arg Ser  Phe Ser Thr Ile Arg  Asp Lys Arg
    2015                2020                2025

Ser Asn  Ser Ser Trp Leu Glu  Glu Phe Ser Met Glu  Arg Ser Ser
    2030                2035                2040

Glu Asn  Thr Tyr Lys Ser Arg  Arg Arg Ser Tyr His  Ser Ser Leu
    2045                2050                2055

Arg Leu  Ser Ala His Arg Leu  Asn Ser Asp Ser Gly  His Lys Ser
    2060                2065                2070

Asp Thr  His Arg Ser Gly Gly  Arg Glu Arg Gly Arg  Ser Lys Glu
    2075                2080                2085

Arg Lys  His Leu Leu Ser Pro  Asp Val Ser Arg Cys  Asn Ser Glu
    2090                2095                2100

Glu Arg  Gly Thr Gln Ala Asp  Trp Glu Ser Pro Glu  Arg Arg Gln
    2105                2110                2115

Ser Arg  Ser Pro Ser Glu Gly  Arg Ser Gln Thr Pro  Asn Arg Gln
    2120                2125                2130

Gly Thr  Gly Ser Leu Ser Glu  Ser Ser Ile Pro Ser  Val Ser Asp
    2135                2140                2145

Thr Ser  Thr Pro Arg Arg Ser  Arg Arg Gln Leu Pro  Pro Val Pro
    2150                2155                2160

Pro Lys  Pro Arg Pro Leu Leu  Ser Tyr Ser Ser Leu  Ile Arg His
    2165                2170                2175
```

```
Ala Gly  Ser Ile Ser Pro Pro  Ala Asp Gly Ser Glu  Glu Gly Ser
    2180                 2185                 2190

Pro Leu  Thr Ser Gln Ala Leu  Glu Ser Asn Asn Ala  Cys Leu Thr
    2195                 2200                 2205

Glu Ser  Ser Asn Ser Pro His  Pro Gln Gln Ser Gln  His Ala Ser
    2210                 2215                 2220

Pro Gln  Arg Tyr Ile Ser Glu  Pro Tyr Leu Ala Leu  His Glu Asp
    2225                 2230                 2235

Ser His  Ala Ser Asp Cys Gly  Glu Glu Glu Thr Leu  Thr Phe Glu
    2240                 2245                 2250

Ala Ala  Val Ala Thr Ser Leu  Gly Arg Ser Asn Thr  Ile Gly Ser
    2255                 2260                 2265

Ala Pro  Pro Leu Arg His Ser  Trp Gln Met Pro Asn  Gly His Tyr
    2270                 2275                 2280

Arg Arg  Arg Arg Arg Gly Gly  Pro Gly Pro Gly Met  Met Cys Gly
    2285                 2290                 2295

Ala Val  Asn Asn Leu Leu Ser  Asp Thr Glu Glu Asp  Asp Lys Cys
    2300                 2305                 2310


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<223> /note="ENSP ID: ENSP00000432038"

<400> 10781

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Met Ala Arg Phe Gly Glu Ala Val Val Ala Arg Pro Gly Ser Gly Asp
1               5                  10                  15

Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
            20                  25                  30

Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
        35                  40                  45

Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
    50                  55                  60

Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65                  70                  75                  80

Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
                85                  90                  95

Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
            100                 105                 110

Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
        115                 120                 125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
    130                 135                 140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145                 150                 155                 160

Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165                 170                 175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180                 185                 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220
```

```
Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385                 390                 395                 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
                405                 410                 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
            420                 425                 430

Val Asp Ile Ser Ser Val
        435
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<210> 10782
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Met Ala Arg Phe Gly Glu Ala Val Val Ala Arg Pro Gly Ser Gly Asp
1   5   10   15

Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
            20   25   30

Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
        35   40   45

Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
    50   55   60

Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65   70   75   80

Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
                85   90   95

Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
            100   105   110

```
Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
        115                 120                 125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
    130                 135                 140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145                 150                 155                 160

Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165                 170                 175

Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180                 185                 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
```

```
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385                 390                 395                 400

Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
                405                 410                 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
            420                 425                 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
        435                 440                 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
    450                 455                 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465                 470                 475                 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
                485                 490                 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
            500                 505                 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
        515                 520                 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
    530                 535                 540

Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545                 550                 555                 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
                565                 570                 575
```

```
Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
            580                 585                 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
        595                 600                 605

Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
    610                 615                 620

Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625                 630                 635                 640

Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
                645                 650                 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
            660                 665                 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
        675                 680                 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
    690                 695                 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705                 710                 715                 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
                725                 730                 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Glu Arg Arg Arg
            740                 745                 750

Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln Leu Arg Lys
        755                 760                 765

His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu Glu Ala Pro
    770                 775                 780

Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser Leu Asn Pro
785                 790                 795                 800
```

```
Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala Ile Glu Gly
                805                 810                 815

Leu Ala Leu Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu Arg Ile Ser
            820                 825                 830

Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser Ser Ala Leu
        835                 840                 845

Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu Pro Pro Trp
    850                 855                 860

Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln Gln Glu Ala
865                 870                 875                 880

Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala Arg His Arg
                885                 890                 895

Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr Glu Gly Lys
            900                 905                 910

Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln Glu Arg Ser
        915                 920                 925

Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His Glu Leu Arg
    930                 935                 940

Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu Arg Ala Gln
945                 950                 955                 960

Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly Ser Gly Leu
                965                 970                 975

Ala Gly Gly Leu Asp Glu Ala Asp Thr Pro Leu Val Leu Pro His Pro
            980                 985                 990

Glu Leu Glu Val Gly Lys His Val  Val Leu Thr Glu Gln  Glu Pro
Glu
        995                 1000                1005

Gly Ser  Ser Glu Gln Ala Leu  Leu Gly Asn Val Gln  Leu Asp Met
    1010                1015                1020
```

```
Gly Arg  Val Ile Ser Gln Ser  Glu Pro Asp Leu Ser  Cys Ile Thr
    1025                1030                1035

Ala Asn  Thr Asp Lys Ala Thr  Thr Glu Ser Thr Ser  Val Thr Val
    1040                1045                1050

Ala Ile  Pro Asp Val Asp Pro  Leu Val Asp Ser Thr  Val Val His
    1055                1060                1065

Ile Ser  Asn Lys Thr Asp Gly  Glu Ala Ser Pro Leu  Lys Glu Ala
    1070                1075                1080

Glu Ile  Arg Glu Asp Glu Glu  Glu Val Glu Lys Lys  Lys Gln Lys
    1085                1090                1095

Lys Glu  Lys Arg Glu Thr Gly  Lys Ala Met Val Pro  His Ser Ser
    1100                1105                1110

Met Phe  Ile Phe Ser Thr Thr  Asn Pro Ile Arg Arg  Ala Cys His
    1115                1120                1125

Tyr Ile  Val Asn Leu Arg Tyr  Phe Glu Met Cys Ile  Leu Leu Val
    1130                1135                1140

Ile Ala  Ala Ser Ser Ile Ala  Leu Ala Ala Glu Asp  Pro Val Leu
    1145                1150                1155

Thr Asn  Ser Glu Arg Asn Lys  Val Leu Arg Tyr Phe  Asp Tyr Val
    1160                1165                1170

Phe Thr  Gly Val Phe Thr Phe  Glu Met Val Ile Lys  Met Ile Asp
    1175                1180                1185

Gln Gly  Leu Ile Leu Gln Asp  Gly Ser Tyr Phe Arg  Asp Leu Trp
    1190                1195                1200

Asn Ile  Leu Asp Phe Val Val  Val Val Gly Ala Leu  Val Ala Phe
    1205                1210                1215

Ala Leu  Ala Asn Ala Leu Gly  Thr Asn Lys Gly Arg  Asp Ile Lys
    1220                1225                1230
```

Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu Arg Pro Leu Lys
1235 1240 1245

Thr Ile Lys Arg Leu Pro Lys Leu Lys Ala Val Phe Asp Cys Val
1250 1255 1260

Val Thr Ser Leu Lys Asn Val Phe Asn Ile Leu Ile Val Tyr Lys
1265 1270 1275

Leu Phe Met Phe Ile Phe Ala Val Ile Ala Val Gln Leu Phe Lys
1280 1285 1290

Gly Lys Phe Phe Tyr Cys Thr Asp Ser Ser Lys Asp Thr Glu Lys
1295 1300 1305

Glu Cys Ile Gly Asn Tyr Val Asp His Glu Lys Asn Lys Met Glu
1310 1315 1320

Val Lys Gly Arg Glu Trp Lys Arg His Glu Phe His Tyr Asp Asn
1325 1330 1335

Ile Ile Trp Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly Glu
1340 1345 1350

Gly Trp Pro Gln Val Leu Gln His Ser Val Asp Val Thr Glu Glu
1355 1360 1365

Asp Arg Gly Pro Ser Arg Ser Asn Arg Met Glu Met Ser Ile Phe
1370 1375 1380

Tyr Val Val Tyr Phe Val Val Phe Pro Phe Phe Phe Val Asn Ile
1385 1390 1395

Phe Val Ala Leu Ile Ile Ile Thr Phe Gln Glu Gln Gly Asp Lys
1400 1405 1410

Met Met Glu Glu Cys Ser Leu Glu Lys Asn Glu Arg Ala Cys Ile
1415 1420 1425

Asp Phe Ala Ile Ser Ala Lys Pro Leu Thr Arg Tyr Met Pro Gln
1430 1435 1440

Asn Arg His Thr Phe Gln Tyr Arg Val Trp His Phe Val Val Ser

1445 1450 1455

Pro Ser Phe Glu Tyr Thr Ile Met Ala Met Ile Ala Leu Asn Thr
1460 1465 1470

Val Val Leu Met Met Lys Tyr Tyr Ser Ala Pro Cys Thr Tyr Glu
1475 1480 1485

Leu Ala Leu Lys Tyr Leu Asn Ile Ala Phe Thr Met Val Phe Ser
1490 1495 1500

Leu Glu Cys Val Leu Lys Val Ile Ala Phe Gly Phe Leu Asn Tyr
1505 1510 1515

Phe Arg Asp Thr Trp Asn Ile Phe Asp Phe Ile Thr Val Ile Gly
1520 1525 1530

Ser Ile Thr Glu Ile Ile Leu Thr Asp Ser Lys Leu Val Asn Thr
1535 1540 1545

Ser Gly Phe Asn Met Ser Phe Leu Lys Leu Phe Arg Ala Ala Arg
1550 1555 1560

Leu Ile Lys Leu Leu Arg Gln Gly Tyr Thr Ile Arg Ile Leu Leu
1565 1570 1575

Trp Thr Phe Val Gln Ser Phe Lys Ala Leu Pro Tyr Val Cys Leu
1580 1585 1590

Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala Ile Ile Gly Met Gln
1595 1600 1605

Val Phe Gly Asn Ile Lys Leu Asp Glu Glu Ser His Ile Asn Arg
1610 1615 1620

His Asn Asn Phe Arg Ser Phe Phe Gly Ser Leu Met Leu Leu Phe
1625 1630 1635

Arg Ser Ala Thr Gly Glu Ala Trp Gln Glu Ile Met Leu Ser Cys
1640 1645 1650

Leu Gly Glu Lys Gly Cys Glu Pro Asp Thr Thr Ala Pro Ser Gly
1655 1660 1665

```
Gln Asn  Glu Asn Glu Arg Cys  Gly Thr Asp Leu Ala  Tyr Val Tyr
    1670                1675                1680

Phe Val  Ser Phe Ile Phe Phe  Cys Ser Phe Leu Met  Leu Asn Leu
    1685                1690                1695

Phe Val  Ala Val Ile Met Asp  Asn Phe Glu Tyr Leu  Thr Arg Asp
    1700                1705                1710

Ser Ser  Ile Leu Gly Pro His  His Leu Asp Glu Phe  Val Arg Val
    1715                1720                1725

Trp Ala  Glu Tyr Asp Arg Ala  Ala Cys Gly Arg Ile  His Tyr Thr
    1730                1735                1740

Glu Met  Tyr Glu Met Leu Thr  Leu Met Ser Pro Pro  Leu Gly Leu
    1745                1750                1755

Gly Lys  Arg Cys Pro Ser Lys  Val Ala Tyr Lys Arg  Leu Val Leu
    1760                1765                1770

Met Asn  Met Pro Val Ala Glu  Asp Met Thr Val His  Phe Thr Ser
    1775                1780                1785

Thr Leu  Met Ala Leu Ile Arg  Thr Ala Leu Asp Ile  Lys Ile Ala
    1790                1795                1800

Lys Gly  Gly Ala Asp Arg Gln  Gln Leu Asp Ser Glu  Leu Gln Lys
    1805                1810                1815

Glu Thr  Leu Ala Ile Trp Pro  His Leu Ser Gln Lys  Met Leu Asp
    1820                1825                1830

Leu Leu  Val Pro Met Pro Lys  Ala Ser Asp Leu Thr  Val Gly Lys
    1835                1840                1845

Ile Tyr  Ala Ala Met Met Ile  Met Asp Tyr Tyr Lys  Gln Ser Lys
    1850                1855                1860

Val Lys  Lys Gln Arg Gln Gln  Leu Glu Glu Gln Lys  Asn Ala Pro
    1865                1870                1875
```

```
Met Phe  Gln Arg Met Glu Pro  Ser Ser Leu Pro Gln  Glu Ile Ile
    1880                1885                1890

Ala Asn  Ala Lys Ala Leu Pro  Tyr Leu Gln Gln Asp  Pro Val Ser
    1895                1900                1905

Gly Leu  Ser Gly Arg Ser Gly  Tyr Pro Ser Met Ser  Pro Leu Ser
    1910                1915                1920

Pro Gln  Asp Ile Phe Gln Leu  Ala Cys Met Asp Pro  Ala Asp Asp
    1925                1930                1935

Gly Gln  Phe Gln Glu Arg Gln  Ser Leu Val Val Thr  Asp Pro Ser
    1940                1945                1950

Ser Met  Arg Arg Ser Phe Ser  Thr Ile Arg Asp Lys  Arg Ser Asn
    1955                1960                1965

Ser Ser  Trp Leu Glu Glu Phe  Ser Met Glu Arg Ser  Ser Glu Asn
    1970                1975                1980

Thr Tyr  Lys Ser Arg Arg Arg  Ser Tyr His Ser Ser  Leu Arg Leu
    1985                1990                1995

Ser Ala  His Arg Leu Asn Ser  Asp Ser Gly His Lys  Ser Asp Thr
    2000                2005                2010

His Arg  Ser Gly Gly Arg Glu  Arg Gly Arg Ser Lys  Glu Arg Lys
    2015                2020                2025

His Leu  Leu Ser Pro Asp Val  Ser Arg Cys Asn Ser  Glu Glu Arg
    2030                2035                2040

Gly Thr  Gln Ala Asp Trp Glu  Ser Pro Glu Arg Arg  Gln Ser Arg
    2045                2050                2055

Ser Pro  Ser Glu Gly Arg Ser  Gln Thr Pro Asn Arg  Gln Gly Thr
    2060                2065                2070

Gly Ser  Leu Ser Glu Ser Ser  Ile Pro Ser Val Ser  Asp Thr Ser
    2075                2080                2085
```

```
Thr Pro  Arg Arg Ser Arg Arg  Gln Leu Pro Pro Val  Pro Pro Lys
    2090                2095                2100

Pro Arg  Pro Leu Leu Ser Tyr  Ser Ser Leu Ile Arg  His Ala Gly
    2105                2110                2115

Ser Ile  Ser Pro Pro Ala Asp  Gly Ser Glu Glu Gly  Ser Pro Leu
    2120                2125                2130

Thr Ser  Gln Ala Leu Glu Ser  Asn Asn Ala Cys Leu  Thr Glu Ser
    2135                2140                2145

Ser Asn  Ser Pro His Pro Gln  Gln Ser Gln His Ala  Ser Pro Gln
    2150                2155                2160

Arg Tyr  Ile Ser Glu Pro Tyr  Leu Ala Leu His Glu  Asp Ser His
    2165                2170                2175

Ala Ser  Asp Cys Gly Glu Glu  Glu Thr Leu Thr Phe  Glu Ala Ala
    2180                2185                2190

Val Ala  Thr Ser Leu Gly Arg  Ser Asn Thr Ile Gly  Ser Ala Pro
    2195                2200                2205

Pro Leu  Arg His Ser Trp Gln  Met Pro Asn Gly His  Tyr Arg Arg
    2210                2215                2220

Arg Arg  Arg Gly Gly Pro Gly  Pro Gly Met Met Cys  Gly Ala Val
    2225                2230                2235

Asn Asn  Leu Leu Ser Asp Thr  Glu Glu Asp Asp Lys  Cys
    2240                2245                2250


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type, alpha 1E
subunit; "

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Gly Asp Ser Asp Gln Ser Arg Asn Arg Gln Gly Thr Pro Val Pro Ala
            20   25   30

Ser Gly Gln Ala Ala Ala Tyr Lys Gln Thr Lys Ala Gln Arg Ala Arg
        35   40   45

Thr Met Ala Leu Tyr Asn Pro Ile Pro Val Arg Gln Asn Cys Phe Thr
    50   55   60

Val Asn Arg Ser Leu Phe Ile Phe Gly Glu Asp Asn Ile Val Arg Lys
65   70   75   80

Tyr Ala Lys Lys Leu Ile Asp Trp Pro Pro Phe Glu Tyr Met Ile Leu
                85   90   95

Ala Thr Ile Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu
            100   105   110

Pro Glu Asp Asp Lys Thr Pro Met Ser Arg Arg Leu Glu Lys Thr Glu
        115   120   125

Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Val
    130   135   140

Ala Leu Gly Phe Ile Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp
145   150   155   160

Asn Val Met Asp Phe Ile Val Val Leu Ser Gly Ile Leu Ala Thr Ala
                165   170   175

```
Gly Thr His Phe Asn Thr His Val Asp Leu Arg Thr Leu Arg Ala Val
            180                 185                 190

Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser Leu Gln
        195                 200                 205

Ile Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu Gln Ile
    210                 215                 220

Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile Gly Leu
225                 230                 235                 240

Glu Phe Tyr Ser Gly Lys Leu His Arg Ala Cys Phe Met Asn Asn Ser
                245                 250                 255

Gly Ile Leu Glu Gly Phe Asp Pro Pro His Pro Cys Gly Val Gln Gly
            260                 265                 270

Cys Pro Ala Gly Tyr Glu Cys Lys Asp Trp Ile Gly Pro Asn Asp Gly
        275                 280                 285

Ile Thr Gln Phe Asp Asn Ile Leu Phe Ala Val Leu Thr Val Phe Gln
    290                 295                 300

Cys Ile Thr Met Glu Gly Trp Thr Thr Val Leu Tyr Asn Thr Asn Asp
305                 310                 315                 320

Ala Leu Gly Ala Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile
                325                 330                 335

Ile Gly Ser Phe Phe Val Leu Asn Leu Val Leu Gly Val Leu Ser Gly
            340                 345                 350

Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Met
        355                 360                 365

Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg
    370                 375                 380

Ala Trp Ile Asp Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Lys
385                 390                 395                 400
```

```
Asn Ala Gly Thr Ser Ala Leu Glu Val Leu Arg Arg Ala Thr Ile Lys
                405                 410                 415

Arg Ser Arg Thr Glu Ala Met Thr Arg Asp Ser Ser Asp Glu His Cys
            420                 425                 430

Val Asp Ile Ser Ser Val Gly Thr Pro Leu Ala Arg Ala Ser Ile Lys
        435                 440                 445

Ser Ala Lys Val Asp Gly Val Ser Tyr Phe Arg His Lys Glu Arg Leu
    450                 455                 460

Leu Arg Ile Ser Ile Arg His Met Val Lys Ser Gln Val Phe Tyr Trp
465                 470                 475                 480

Ile Val Leu Ser Leu Val Ala Leu Asn Thr Ala Cys Val Ala Ile Val
                485                 490                 495

His His Asn Gln Pro Gln Trp Leu Thr His Leu Leu Tyr Tyr Ala Glu
            500                 505                 510

Phe Leu Phe Leu Gly Leu Phe Leu Leu Glu Met Ser Leu Lys Met Tyr
        515                 520                 525

Gly Met Gly Pro Arg Leu Tyr Phe His Ser Ser Phe Asn Cys Phe Asp
    530                 535                 540

Phe Gly Val Thr Val Gly Ser Ile Phe Glu Val Val Trp Ala Ile Phe
545                 550                 555                 560

Arg Pro Gly Thr Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu
                565                 570                 575

Leu Arg Ile Phe Lys Ile Thr Lys Tyr Trp Ala Ser Leu Arg Asn Leu
            580                 585                 590

Val Val Ser Leu Met Ser Ser Met Lys Ser Ile Ile Ser Leu Leu Phe
        595                 600                 605

Leu Leu Phe Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu
    610                 615                 620
```

```
Phe Gly Gly Arg Phe Asn Phe Asn Asp Gly Thr Pro Ser Ala Asn Phe
625                 630                 635                 640

Asp Thr Phe Pro Ala Ala Ile Met Thr Val Phe Gln Ile Leu Thr Gly
                645                 650                 655

Glu Asp Trp Asn Glu Val Met Tyr Asn Gly Ile Arg Ser Gln Gly Gly
            660                 665                 670

Val Ser Ser Gly Met Trp Ser Ala Ile Tyr Phe Ile Val Leu Thr Leu
        675                 680                 685

Phe Gly Asn Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp
    690                 695                 700

Asn Leu Ala Asn Ala Gln Glu Leu Thr Lys Asp Glu Gln Glu Glu Glu
705                 710                 715                 720

Glu Ala Phe Asn Gln Lys His Ala Leu Gln Lys Ala Lys Glu Val Ser
                725                 730                 735

Pro Met Ser Ala Pro Asn Met Pro Ser Ile Glu Arg Asp Arg Arg Arg
            740                 745                 750

Arg His His Met Ser Met Trp Glu Pro Arg Ser Ser His Leu Arg Glu
        755                 760                 765

Arg Arg Arg Arg His His Met Ser Val Trp Glu Gln Arg Thr Ser Gln
    770                 775                 780

Leu Arg Lys His Met Gln Met Ser Ser Gln Glu Ala Leu Asn Arg Glu
785                 790                 795                 800

Glu Ala Pro Thr Met Asn Pro Leu Asn Pro Leu Asn Pro Leu Ser Ser
                805                 810                 815

Leu Asn Pro Leu Asn Ala His Pro Ser Leu Tyr Arg Arg Pro Arg Ala
            820                 825                 830

Ile Glu Gly Leu Ala Leu Gly Leu Ala Leu Glu Lys Phe Glu Glu Glu
        835                 840                 845

Arg Ile Ser Arg Gly Gly Ser Leu Lys Gly Asp Gly Gly Asp Arg Ser
```

```
    850                 855                 860

Ser Ala Leu Asp Asn Gln Arg Thr Pro Leu Ser Leu Gly Gln Arg Glu
865                 870                 875                 880

Pro Pro Trp Leu Ala Arg Pro Cys His Gly Asn Cys Asp Pro Thr Gln
                885                 890                 895

Gln Glu Ala Gly Gly Gly Glu Ala Val Val Thr Phe Glu Asp Arg Ala
            900                 905                 910

Arg His Arg Gln Ser Gln Arg Arg Ser Arg His Arg Arg Val Arg Thr
        915                 920                 925

Glu Gly Lys Glu Ser Ser Ser Ala Ser Arg Ser Arg Ser Ala Ser Gln
    930                 935                 940

Glu Arg Ser Leu Asp Glu Ala Met Pro Thr Glu Gly Glu Lys Asp His
945                 950                 955                 960

Glu Leu Arg Gly Asn His Gly Ala Lys Glu Pro Thr Ile Gln Glu Glu
                965                 970                 975

Arg Ala Gln Asp Leu Arg Arg Thr Asn Ser Leu Met Val Ser Arg Gly
            980                 985                 990

Ser Gly Leu Ala Gly Gly Leu Asp  Glu Ala Asp Thr Pro  Leu Val
Leu
        995                 1000                1005

Pro His  Pro Glu Leu Glu Val  Gly Lys His Val Val  Leu Thr Glu
    1010                1015                1020

Gln Glu  Pro Glu Gly Ser Ser  Glu Gln Ala Leu Leu  Gly Asn Val
    1025                1030                1035

Gln Leu  Asp Met Gly Arg Val  Ile Ser Gln Ser Glu  Pro Asp Leu
    1040                1045                1050

Ser Cys  Ile Thr Ala Asn Thr  Asp Lys Ala Thr Thr  Glu Ser Thr
    1055                1060                1065

Ser Val  Thr Val Ala Ile Pro  Asp Val Asp Pro Leu  Val Asp Ser
```

1070 1075 1080

Thr Val Val His Ile Ser Asn Lys Thr Asp Gly Glu Ala Ser Pro
1085 1090 1095

Leu Lys Glu Ala Glu Ile Arg Glu Asp Glu Glu Glu Val Glu Lys
1100 1105 1110

Lys Lys Gln Lys Lys Glu Lys Arg Glu Thr Gly Lys Ala Met Val
1115 1120 1125

Pro His Ser Ser Met Phe Ile Phe Ser Thr Thr Asn Pro Ile Arg
1130 1135 1140

Arg Ala Cys His Tyr Ile Val Asn Leu Arg Tyr Phe Glu Met Cys
1145 1150 1155

Ile Leu Leu Val Ile Ala Ala Ser Ser Ile Ala Leu Ala Ala Glu
1160 1165 1170

Asp Pro Val Leu Thr Asn Ser Glu Arg Asn Lys Val Leu Arg Tyr
1175 1180 1185

Phe Asp Tyr Val Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile
1190 1195 1200

Lys Met Ile Asp Gln Gly Leu Ile Leu Gln Asp Gly Ser Tyr Phe
1205 1210 1215

Arg Asp Leu Trp Asn Ile Leu Asp Phe Val Val Val Val Gly Ala
1220 1225 1230

Leu Val Ala Phe Ala Leu Ala Asn Ala Leu Gly Thr Asn Lys Gly
1235 1240 1245

Arg Asp Ile Lys Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu
1250 1255 1260

Arg Pro Leu Lys Thr Ile Lys Arg Leu Pro Lys Leu Lys Ala Val
1265 1270 1275

Phe Asp Cys Val Val Thr Ser Leu Lys Asn Val Phe Asn Ile Leu
1280 1285 1290

```
Ile Val  Tyr Lys Leu Phe Met  Phe Ile Phe Ala Val  Ile Ala Val
    1295                1300                1305

Gln Leu  Phe Lys Gly Lys Phe  Phe Tyr Cys Thr Asp  Ser Ser Lys
    1310                1315                1320

Asp Thr  Glu Lys Glu Cys Ile  Gly Asn Tyr Val Asp  His Glu Lys
    1325                1330                1335

Asn Lys  Met Glu Val Lys Gly  Arg Glu Trp Lys Arg  His Glu Phe
    1340                1345                1350

His Tyr  Asp Asn Ile Ile Trp  Ala Leu Leu Thr Leu  Phe Thr Val
    1355                1360                1365

Ser Thr  Gly Glu Gly Trp Pro  Gln Val Leu Gln His  Ser Val Asp
    1370                1375                1380

Val Thr  Glu Glu Asp Arg Gly  Pro Ser Arg Ser Asn  Arg Met Glu
    1385                1390                1395

Met Ser  Ile Phe Tyr Val Val  Tyr Phe Val Val Phe  Pro Phe Phe
    1400                1405                1410

Phe Val  Asn Ile Phe Val Ala  Leu Ile Ile Ile Thr  Phe Gln Glu
    1415                1420                1425

Gln Gly  Asp Lys Met Met Glu  Glu Cys Ser Leu Glu  Lys Asn Glu
    1430                1435                1440

Arg Ala  Cys Ile Asp Phe Ala  Ile Ser Ala Lys Pro  Leu Thr Arg
    1445                1450                1455

Tyr Met  Pro Gln Asn Arg His  Thr Phe Gln Tyr Arg  Val Trp His
    1460                1465                1470

Phe Val  Val Ser Pro Ser Phe  Glu Tyr Thr Ile Met  Ala Met Ile
    1475                1480                1485

Ala Leu  Asn Thr Val Val Leu  Met Met Lys Tyr Tyr  Ser Ala Pro
    1490                1495                1500
```

```
Cys Thr  Tyr Glu Leu Ala Leu  Lys Tyr Leu Asn Ile  Ala Phe Thr
    1505                1510                1515

Met Val  Phe Ser Leu Glu Cys  Val Leu Lys Val Ile  Ala Phe Gly
    1520                1525                1530

Phe Leu  Asn Tyr Phe Arg Asp  Thr Trp Asn Ile Phe  Asp Phe Ile
    1535                1540                1545

Thr Val  Ile Gly Ser Ile Thr  Glu Ile Ile Leu Thr  Asp Ser Lys
    1550                1555                1560

Leu Val  Asn Thr Ser Gly Phe  Asn Met Ser Phe Leu  Lys Leu Phe
    1565                1570                1575

Arg Ala  Ala Arg Leu Ile Lys  Leu Leu Arg Gln Gly  Tyr Thr Ile
    1580                1585                1590

Arg Ile  Leu Leu Trp Thr Phe  Val Gln Ser Phe Lys  Ala Leu Pro
    1595                1600                1605

Tyr Val  Cys Leu Leu Ile Ala  Met Leu Phe Phe Ile  Tyr Ala Ile
    1610                1615                1620

Ile Gly  Met Gln Val Phe Gly  Asn Ile Lys Leu Asp  Glu Glu Ser
    1625                1630                1635

His Ile  Asn Arg His Asn Asn  Phe Arg Ser Phe Phe  Gly Ser Leu
    1640                1645                1650

Met Leu  Leu Phe Arg Ser Ala  Thr Gly Glu Ala Trp  Gln Glu Ile
    1655                1660                1665

Met Leu  Ser Cys Leu Gly Glu  Lys Gly Cys Glu Pro  Asp Thr Thr
    1670                1675                1680

Ala Pro  Ser Gly Gln Asn Glu  Asn Glu Arg Cys Gly  Thr Asp Leu
    1685                1690                1695

Ala Tyr  Val Tyr Phe Val Ser  Phe Ile Phe Phe Cys  Ser Phe Leu
    1700                1705                1710
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Met Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu Tyr
1715 1720 1725

Leu Thr Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu
1730 1735 1740

Phe Val Arg Val Trp Ala Glu Tyr Asp Arg Ala Ala Cys Gly Arg
1745 1750 1755

Ile His Tyr Thr Glu Met Tyr Glu Met Leu Thr Leu Met Ser Pro
1760 1765 1770

Pro Leu Gly Leu Gly Lys Arg Cys Pro Ser Lys Val Ala Tyr Lys
1775 1780 1785

Arg Leu Val Leu Met Asn Met Pro Val Ala Glu Asp Met Thr Val
1790 1795 1800

His Phe Thr Ser Thr Leu Met Ala Leu Ile Arg Thr Ala Leu Asp
1805 1810 1815

Ile Lys Ile Ala Lys Gly Gly Ala Asp Arg Gln Gln Leu Asp Ser
1820 1825 1830

Glu Leu Gln Lys Glu Thr Leu Ala Ile Trp Pro His Leu Ser Gln
1835 1840 1845

Lys Met Leu Asp Leu Leu Val Pro Met Pro Lys Ala Ser Asp Leu
1850 1855 1860

Thr Val Gly Lys Ile Tyr Ala Ala Met Met Ile Met Asp Tyr Tyr
1865 1870 1875

Lys Gln Ser Lys Val Lys Lys Gln Arg Gln Gln Leu Glu Glu Gln
1880 1885 1890

Lys Asn Ala Pro Met Phe Gln Arg Met Glu Pro Ser Ser Leu Pro
1895 1900 1905

Gln Glu Ile Ile Ala Asn Ala Lys Ala Leu Pro Tyr Leu Gln Gln
1910 1915 1920

Asp Pro Val Ser Gly Leu Ser Gly Arg Ser Gly Tyr Pro Ser Met

1925 1930 1935

Ser Pro Leu Ser Pro Gln Asp Ile Phe Gln Leu Ala Cys Met Asp
1940 1945 1950

Pro Ala Asp Asp Gly Gln Phe Gln Glu Arg Gln Ser Leu Glu Pro
1955 1960 1965

Glu Val Ser Glu Leu Lys Ser Val Gln Pro Ser Asn His Gly Ile
1970 1975 1980

Tyr Leu Pro Ser Asp Thr Gln Glu His Ala Gly Ser Gly Arg Ala
1985 1990 1995

Ser Ser Met Pro Arg Leu Thr Val Asp Pro Gln Val Val Thr Asp
2000 2005 2010

Pro Ser Ser Met Arg Arg Ser Phe Ser Thr Ile Arg Asp Lys Arg
2015 2020 2025

Ser Asn Ser Ser Trp Leu Glu Glu Phe Ser Met Glu Arg Ser Ser
2030 2035 2040

Glu Asn Thr Tyr Lys Ser Arg Arg Arg Ser Tyr His Ser Ser Leu
2045 2050 2055

Arg Leu Ser Ala His Arg Leu Asn Ser Asp Ser Gly His Lys Ser
2060 2065 2070

Asp Thr His Arg Ser Gly Gly Arg Glu Arg Gly Arg Ser Lys Glu
2075 2080 2085

Arg Lys His Leu Leu Ser Pro Asp Val Ser Arg Cys Asn Ser Glu
2090 2095 2100

Glu Arg Gly Thr Gln Ala Asp Trp Glu Ser Pro Glu Arg Arg Gln
2105 2110 2115

Ser Arg Ser Pro Ser Glu Gly Arg Ser Gln Thr Pro Asn Arg Gln
2120 2125 2130

Gly Thr Gly Ser Leu Ser Glu Ser Ser Ile Pro Ser Val Ser Asp
2135 2140 2145

```
Thr Ser  Thr Pro Arg Arg Ser  Arg Arg Gln Leu Pro  Pro Val Pro
    2150                2155                2160

Pro Lys  Pro Arg Pro Leu Leu  Ser Tyr Ser Ser Leu  Ile Arg His
    2165                2170                2175

Ala Gly  Ser Ile Ser Pro Pro  Ala Asp Gly Ser Glu  Glu Gly Ser
    2180                2185                2190

Pro Leu  Thr Ser Gln Ala Leu  Glu Ser Asn Asn Ala  Cys Leu Thr
    2195                2200                2205

Glu Ser  Ser Asn Ser Pro His  Pro Gln Gln Ser Gln  His Ala Ser
    2210                2215                2220

Pro Gln  Arg Tyr Ile Ser Glu  Pro Tyr Leu Ala Leu  His Glu Asp
    2225                2230                2235

Ser His  Ala Ser Asp Cys Gly  Glu Glu Glu Thr Leu  Thr Phe Glu
    2240                2245                2250

Ala Ala  Val Ala Thr Ser Leu  Gly Arg Ser Asn Thr  Ile Gly Ser
    2255                2260                2265

Ala Pro  Pro Leu Arg His Ser  Trp Gln Met Pro Asn  Gly His Tyr
    2270                2275                2280

Arg Arg  Arg Arg Arg Gly Gly  Pro Gly Pro Gly Met  Met Cys Gly
    2285                2290                2295

Ala Val  Asn Asn Leu Leu Ser  Asp Thr Glu Glu Asp  Asp Lys Cys
    2300                2305                2310


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<212> PRT
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160
```

```
Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
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385 390 395 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
405 410 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
420 425 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
435 440 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
450 455 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465 470 475 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
485 490 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
500 505 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
515 520 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
530 535 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

```
Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845
```

```
Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
                965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
            980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065
```

```
Ser Pro  His Ser Pro Trp Ser  Ala Ala Ser Ser Trp  Thr Ser Arg
    1070                1075                1080

Arg Ser  Ser Arg Asn Ser Leu  Gly Arg Ala Pro Ser  Leu Lys Arg
    1085                1090                1095

Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110

Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                1120                1125

Ser Pro  Ala Gly Ser Asp His  Arg His Arg Gly Ser  Leu Glu Arg
    1130                1135                1140

Glu Ala  Lys Ser Ser Phe Asp  Leu Pro Asp Thr Leu  Gln Val Pro
    1145                1150                1155

Gly Leu  His Arg Thr Ala Ser  Gly Arg Gly Ser Ala  Ser Glu His
    1160                1165                1170

Gln Asp  Cys Asn Gly Lys Ser  Ala Ser Gly Arg Leu  Ala Arg Ala
    1175                1180                1185

Leu Arg  Pro Asp Asp Pro Pro  Leu Asp Gly Asp Asp  Ala Asp Asp
    1190                1195                1200

Glu Gly  Asn Leu Ser Lys Gly  Glu Arg Val Arg Ala  Trp Ile Arg
    1205                1210                1215

Ala Arg  Leu Pro Ala Cys Cys  Leu Glu Arg Asp Ser  Trp Ser Ala
    1220                1225                1230

Tyr Ile  Phe Pro Pro Gln Ser  Arg Phe Arg Leu Leu  Cys His Arg
    1235                1240                1245

Ile Ile  Thr His Lys Met Phe  Asp His Val Val Leu  Val Ile Ile
    1250                1255                1260

Phe Leu  Asn Cys Ile Thr Ile  Ala Met Glu Arg Pro  Lys Ile Asp
    1265                1270                1275
```

```
Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
    1280                1285                1290

Phe Thr  Ala Val Phe Leu Ala  Glu Met Thr Val Lys  Val Val Ala
    1295                1300                1305

Leu Gly  Trp Cys Phe Gly Glu  Gln Ala Tyr Leu Arg  Ser Ser Trp
    1310                1315                1320

Asn Val  Leu Asp Gly Leu Leu  Val Leu Ile Ser Val  Ile Asp Ile
    1325                1330                1335

Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380

Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
```

1490 1495 1500

Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His
1505 1510 1515

Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu
1520 1525 1530

Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Ser Lys Glu
1535 1540 1545

Lys Gln Met Ala Glu Ala Gln Cys Lys Pro Tyr Tyr Ser Asp Tyr
1550 1555 1560

Ser Arg Phe Arg Leu Leu Val His His Leu Cys Thr Ser His Tyr
1565 1570 1575

Leu Asp Leu Phe Ile Thr Gly Val Ile Gly Leu Asn Val Val Thr
1580 1585 1590

Met Ala Met Glu His Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala
1595 1600 1605

Leu Lys Ile Cys Asn Tyr Ile Phe Thr Val Ile Phe Val Leu Glu
1610 1615 1620

Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Gln
1625 1630 1635

Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Ile
1640 1645 1650

Met Gly Ile Thr Leu Glu Glu Ile Glu Val Asn Ala Ser Leu Pro
1655 1660 1665

Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala
1670 1675 1680

Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly Met Arg Ala Leu
1685 1690 1695

Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val Gly Asn Leu Gly
1700 1705 1710

```
Leu Leu  Phe Met Leu Leu Phe  Phe Ile Phe Ala Ala  Leu Gly Val
    1715                1720                1725

Glu Leu  Phe Gly Asp Leu Glu  Cys Asp Glu Thr His  Pro Cys Glu
    1730                1735                1740

Gly Leu  Gly Arg His Ala Thr  Phe Arg Asn Phe Gly  Met Ala Phe
    1745                1750                1755

Leu Thr  Leu Phe Arg Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile
    1760                1765                1770

Met Lys  Asp Thr Leu Arg Asp  Cys Asp Gln Glu Ser  Thr Cys Tyr
    1775                1780                1785

Asn Thr  Val Ile Ser Pro Ile  Tyr Phe Val Ser Phe  Val Leu Thr
    1790                1795                1800

Ala Gln  Phe Val Leu Val Asn  Val Val Ile Ala Val  Leu Met Lys
    1805                1810                1815

His Leu  Glu Glu Ser Asn Lys  Glu Ala Lys Glu Glu  Ala Glu Leu
    1820                1825                1830

Glu Ala  Glu Leu Glu Leu Glu  Met Lys Thr Leu Ser  Pro Gln Pro
    1835                1840                1845

His Ser  Pro Leu Gly Ser Pro  Phe Leu Trp Pro Gly  Val Glu Gly
    1850                1855                1860

Pro Asp  Ser Pro Asp Ser Pro  Lys Pro Gly Ala Leu  His Pro Ala
    1865                1870                1875

Ala His  Ala Arg Ser Ala Ser  His Phe Ser Leu Glu  His Pro Thr
    1880                1885                1890

Met Gln  Pro His Pro Thr Glu  Leu Pro Gly Pro Asp  Leu Leu Thr
    1895                1900                1905

Val Arg  Lys Ser Gly Val Ser  Arg Thr His Ser Leu  Pro Asn Asp
    1910                1915                1920
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Ser Tyr Met Cys Arg His Gly Ser Thr Ala Glu Gly Pro Leu Gly
1925 1930 1935

His Arg Gly Trp Gly Leu Pro Lys Ala Gln Ser Gly Ser Val Leu
1940 1945 1950

Ser Val His Ser Gln Pro Ala Asp Thr Ser Tyr Ile Leu Gln Leu
1955 1960 1965

Pro Lys Asp Ala Pro His Leu Leu Gln Pro His Ser Ala Pro Thr
1970 1975 1980

Trp Gly Thr Ile Pro Lys Leu Pro Pro Pro Gly Arg Ser Pro Leu
1985 1990 1995

Ala Gln Arg Pro Leu Arg Arg Gln Ala Ala Ile Arg Thr Asp Ser
2000 2005 2010

Leu Asp Val Gln Gly Leu Gly Ser Arg Glu Asp Leu Leu Ala Glu
2015 2020 2025

Val Ser Gly Pro Ser Pro Pro Leu Ala Arg Ala Tyr Ser Phe Trp
2030 2035 2040

Gly Gln Ser Ser Thr Gln Ala Gln Gln His Ser Arg Ser His Ser
2045 2050 2055

Lys Ile Ser Lys His Met Thr Pro Pro Ala Pro Cys Pro Gly Pro
2060 2065 2070

Glu Pro Asn Trp Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser Leu
2075 2080 2085

Glu Leu Asp Thr Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu Pro
2090 2095 2100

Pro Gly Gly Gln Glu Glu Pro Pro Ser Pro Arg Asp Leu Lys Lys
2105 2110 2115

Cys Tyr Ser Val Glu Ala Gln Ser Cys Gln Arg Arg Pro Thr Ser
2120 2125 2130

```
Trp Leu  Asp Glu Gln Arg Arg  His Ser Ile Ala Val  Ser Cys Leu
    2135                2140                2145

Asp Ser  Gly Ser Gln Pro His  Leu Gly Thr Asp Pro  Ser Asn Leu
    2150                2155                2160

Gly Gly  Gln Pro Leu Gly Gly  Pro Gly Ser Arg Pro  Lys Lys Lys
    2165                2170                2175

Leu Ser  Pro Pro Ser Ile Thr  Ile Asp Pro Pro Glu  Ser Gln Gly
    2180                2185                2190

Pro Arg  Thr Pro Pro Ser Pro  Gly Ile Cys Leu Arg  Arg Arg Ala
    2195                2200                2205

Pro Ser  Ser Asp Ser Lys Asp  Pro Leu Ala Ser Gly  Pro Pro Asp
    2210                2215                2220

Ser Met  Ala Ala Ser Pro Ser  Pro Lys Lys Asp Val  Leu Ser Leu
    2225                2230                2235

Ser Gly  Leu Ser Ser Asp Pro  Ala Asp Leu Asp Pro
    2240                2245                2250


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<400> 10785

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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220
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```
Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445
```

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Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670
```

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala

900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
965 970 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
980 985 990

Arg Lys Lys Cys Leu Ala Leu Val Ser Leu Gly Glu His Pro Glu
Leu
995 1000 1005

Arg Lys Ser Leu Leu Pro Pro Leu Ile Ile His Thr Ala Ala Thr
1010 1015 1020

Pro Met Ser Leu Pro Lys Ser Thr Ser Thr Gly Leu Gly Glu Ala
1025 1030 1035

Leu Gly Pro Ala Ser Arg Arg Thr Ser Ser Ser Gly Ser Ala Glu
1040 1045 1050

Pro Gly Ala Ala His Glu Met Lys Ser Pro Pro Ser Ala Arg Ser
1055 1060 1065

Ser Pro His Ser Pro Trp Ser Ala Ala Ser Ser Trp Thr Ser Arg
1070 1075 1080

Arg Ser Ser Arg Asn Ser Leu Gly Arg Ala Pro Ser Leu Lys Arg
1085 1090 1095

Arg Ser Pro Ser Gly Glu Arg Arg Ser Leu Leu Ser Gly Glu Gly
1100 1105 1110

Gln Glu Ser Gln Asp Glu Glu Glu Ser Ser Glu Glu Glu Arg Ala

1115 1120 1125

Ser Pro Ala Gly Ser Asp His Arg His Arg Gly Ser Leu Glu Arg
1130 1135 1140

Glu Ala Lys Ser Ser Phe Asp Leu Pro Asp Thr Leu Gln Val Pro
1145 1150 1155

Gly Leu His Arg Thr Ala Ser Gly Arg Gly Ser Ala Ser Glu His
1160 1165 1170

Gln Asp Cys Asn Gly Lys Ser Ala Ser Gly Arg Leu Ala Arg Ala
1175 1180 1185

Leu Arg Pro Asp Asp Pro Pro Leu Asp Gly Asp Asp Ala Asp Asp
1190 1195 1200

Glu Gly Asn Leu Ser Lys Gly Glu Arg Val Arg Ala Trp Ile Arg
1205 1210 1215

Ala Arg Leu Pro Ala Cys Cys Leu Glu Arg Asp Ser Trp Ser Ala
1220 1225 1230

Tyr Ile Phe Pro Pro Gln Ser Arg Phe Arg Leu Leu Cys His Arg
1235 1240 1245

Ile Ile Thr His Lys Met Phe Asp His Val Val Leu Val Ile Ile
1250 1255 1260

Phe Leu Asn Cys Ile Thr Ile Ala Met Glu Arg Pro Lys Ile Asp
1265 1270 1275

Pro His Ser Ala Glu Arg Ile Phe Leu Thr Leu Ser Asn Tyr Ile
1280 1285 1290

Phe Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala
1295 1300 1305

Leu Gly Trp Cys Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser Trp
1310 1315 1320

Asn Val Leu Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile
1325 1330 1335

```
Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380

Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
    1490                1495                1500

Phe Val  Leu Asn Met Phe Val  Gly Val Val Val Glu  Asn Phe His
    1505                1510                1515

Lys Cys  Arg Gln His Gln Glu  Glu Glu Glu Ala Arg  Arg Arg Glu
    1520                1525                1530

Glu Lys  Arg Leu Arg Arg Leu  Glu Lys Lys Arg Arg  Ser Lys Glu
    1535                1540                1545
```

```
Lys Gln  Met Ala Glu Ala Gln  Cys Lys Pro Tyr Tyr  Ser Asp Tyr
    1550                1555                1560

Ser Arg  Phe Arg Leu Leu Val  His His Leu Cys Thr  Ser His Tyr
    1565                1570                1575

Leu Asp  Leu Phe Ile Thr Gly  Val Ile Gly Leu Asn  Val Val Thr
    1580                1585                1590

Met Ala  Met Glu His Tyr Gln  Gln Pro Gln Ile Leu  Asp Glu Ala
    1595                1600                1605

Leu Lys  Ile Cys Asn Tyr Ile  Phe Thr Val Ile Phe  Val Leu Glu
    1610                1615                1620

Ser Val  Phe Lys Leu Val Ala  Phe Gly Phe Arg Arg  Phe Phe Gln
    1625                1630                1635

Asp Arg  Trp Asn Gln Leu Asp  Leu Ala Ile Val Leu  Leu Ser Ile
    1640                1645                1650

Met Gly  Ile Thr Leu Glu Glu  Ile Glu Val Asn Ala  Ser Leu Pro
    1655                1660                1665

Ile Asn  Pro Thr Ile Ile Arg  Ile Met Arg Val Leu  Arg Ile Ala
    1670                1675                1680

Arg Val  Leu Lys Leu Leu Lys  Met Ala Val Gly Met  Arg Ala Leu
    1685                1690                1695

Leu Asp  Thr Val Met Gln Ala  Leu Pro Gln Val Gly  Asn Leu Gly
    1700                1705                1710

Leu Leu  Phe Met Leu Leu Phe  Phe Ile Phe Ala Ala  Leu Gly Val
    1715                1720                1725

Glu Leu  Phe Gly Asp Leu Glu  Cys Asp Glu Thr His  Pro Cys Glu
    1730                1735                1740

Gly Leu  Gly Arg His Ala Thr  Phe Arg Asn Phe Gly  Met Ala Phe
    1745                1750                1755
```

```
Leu Thr  Leu Phe Arg Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile
    1760                1765                1770

Met Lys  Asp Thr Leu Arg Asp  Cys Asp Gln Glu Ser  Thr Cys Tyr
    1775                1780                1785

Asn Thr  Val Ile Ser Pro Ile  Tyr Phe Val Ser Phe  Val Leu Thr
    1790                1795                1800

Ala Gln  Phe Val Leu Val Asn  Val Val Ile Ala Val  Leu Met Lys
    1805                1810                1815

His Leu  Glu Glu Ser Asn Lys  Glu Ala Lys Glu Glu  Ala Glu Leu
    1820                1825                1830

Glu Ala  Glu Leu Glu Leu Glu  Met Lys Thr Leu Ser  Pro Gln Pro
    1835                1840                1845

His Ser  Pro Leu Gly Ser Pro  Phe Leu Trp Pro Gly  Val Glu Gly
    1850                1855                1860

Pro Asp  Ser Pro Asp Ser Pro  Lys Pro Gly Ala Leu  His Pro Ala
    1865                1870                1875

Ala His  Ala Arg Ser Ala Ser  His Phe Ser Leu Glu  His Pro Thr
    1880                1885                1890

Asp Arg  Gln Leu Phe Asp Thr  Ile Ser Leu Leu Ile  Gln Gly Ser
    1895                1900                1905

Leu Glu  Trp Glu Leu Lys Leu  Met Asp Glu Leu Ala  Gly Pro Gly
    1910                1915                1920

Gly Gln  Pro Ser Ala Phe Pro  Ser Ala Pro Ser Leu  Gly Gly Ser
    1925                1930                1935

Asp Pro  Gln Ile Pro Leu Ala  Glu Met Glu Ala Leu  Ser Leu Thr
    1940                1945                1950

Ser Glu  Ile Val Ser Glu Pro  Ser Cys Ser Leu Ala  Leu Thr Asp
    1955                1960                1965

Asp Ser  Leu Pro Asp Asp Met  His Thr Leu Leu Leu  Ser Ala Leu
```

1970 1975 1980

Glu Ser Asn Met Gln Pro His Pro Thr Glu Leu Pro Gly Pro Asp
1985 1990 1995

Leu Leu Thr Val Arg Lys Ser Gly Val Ser Arg Thr His Ser Leu
2000 2005 2010

Pro Asn Asp Ser Tyr Met Cys Arg His Gly Ser Thr Ala Glu Gly
2015 2020 2025

Pro Leu Gly His Arg Gly Trp Gly Leu Pro Lys Ala Gln Ser Gly
2030 2035 2040

Ser Val Leu Ser Val His Ser Gln Pro Ala Asp Thr Ser Tyr Ile
2045 2050 2055

Leu Gln Leu Pro Lys Asp Ala Pro His Leu Leu Gln Pro His Ser
2060 2065 2070

Ala Pro Thr Trp Gly Thr Ile Pro Lys Leu Pro Pro Pro Gly Arg
2075 2080 2085

Ser Pro Leu Ala Gln Arg Pro Leu Arg Arg Gln Ala Ala Ile Arg
2090 2095 2100

Thr Asp Ser Leu Asp Val Gln Gly Leu Gly Ser Arg Glu Asp Leu
2105 2110 2115

Leu Ala Glu Val Ser Gly Pro Ser Pro Pro Leu Ala Arg Ala Tyr
2120 2125 2130

Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala Gln Gln His Ser Arg
2135 2140 2145

Ser His Ser Lys Ile Ser Lys His Met Thr Pro Pro Ala Pro Cys
2150 2155 2160

Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro Pro Glu Thr Arg
2165 2170 2175

Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp Ile Ser Gly Asp
2180 2185 2190

```
Leu Leu  Pro Pro Gly Gly Gln  Glu Glu Pro Pro Ser  Pro Arg Asp
    2195                2200                2205

Leu Lys  Lys Cys Tyr Ser Val  Glu Ala Gln Ser Cys  Gln Arg Arg
    2210                2215                2220

Pro Thr  Ser Trp Leu Asp Glu  Gln Arg Arg His Ser  Ile Ala Val
    2225                2230                2235

Ser Cys  Leu Asp Ser Gly Ser  Gln Pro His Leu Gly  Thr Asp Pro
    2240                2245                2250

Ser Asn  Leu Gly Gly Gln Pro  Leu Gly Gly Pro Gly  Ser Arg Pro
    2255                2260                2265

Lys Lys  Lys Leu Ser Pro Pro  Ser Ile Thr Ile Asp  Pro Pro Glu
    2270                2275                2280

Ser Gln  Gly Pro Arg Thr Pro  Pro Ser Pro Gly Ile  Cys Leu Arg
    2285                2290                2295

Arg Arg  Ala Pro Ser Ser Asp  Ser Lys Asp Pro Leu  Ala Ser Gly
    2300                2305                2310

Pro Pro  Asp Ser Met Ala Ala  Ser Pro Ser Pro Lys  Lys Asp Val
    2315                2320                2325

Leu Ser  Leu Ser Gly Leu Ser  Ser Asp Pro Ala Asp  Leu Asp Pro
    2330                2335                2340


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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175
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```
Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
```

405 410 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
420 425 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
435 440 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
450 455 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465 470 475 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
485 490 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
500 505 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
515 520 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
530 535 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

```
Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
                965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
            980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065

Ser Pro  His Ser Pro Trp Ser  Ala Ala Ser Ser Trp  Thr Ser Arg
    1070                1075                1080
```

```
Arg Ser  Ser Arg Asn Ser Leu  Gly Arg Ala Pro Ser  Leu Lys Arg
    1085                1090                1095

Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110

Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                1120                1125

Ser Pro  Ala Gly Ser Asp His  Arg His Arg Gly Ser  Leu Glu Arg
    1130                1135                1140

Glu Ala  Lys Ser Ser Phe Asp  Leu Pro Asp Thr Leu  Gln Val Pro
    1145                1150                1155

Gly Leu  His Arg Thr Ala Ser  Gly Arg Gly Ser Ala  Ser Glu His
    1160                1165                1170

Gln Asp  Cys Asn Gly Lys Ser  Ala Ser Gly Arg Leu  Ala Arg Ala
    1175                1180                1185

Leu Arg  Pro Asp Asp Pro Pro  Leu Asp Gly Asp Asp  Ala Asp Asp
    1190                1195                1200

Glu Gly  Asn Leu Ser Lys Gly  Glu Arg Val Arg Ala  Trp Ile Arg
    1205                1210                1215

Ala Arg  Leu Pro Ala Cys Cys  Leu Glu Arg Asp Ser  Trp Ser Ala
    1220                1225                1230

Tyr Ile  Phe Pro Pro Gln Ser  Arg Phe Arg Leu Leu  Cys His Arg
    1235                1240                1245

Ile Ile  Thr His Lys Met Phe  Asp His Val Val Leu  Val Ile Ile
    1250                1255                1260

Phe Leu  Asn Cys Ile Thr Ile  Ala Met Glu Arg Pro  Lys Ile Asp
    1265                1270                1275

Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
    1280                1285                1290
```

Phe Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala
1295 1300 1305

Leu Gly Trp Cys Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser Trp
1310 1315 1320

Asn Val Leu Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile
1325 1330 1335

Leu Val Ser Met Val Ser Asp Ser Gly Thr Lys Ile Leu Gly Met
1340 1345 1350

Leu Arg Val Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val
1355 1360 1365

Ile Ser Arg Ala Gln Gly Leu Lys Leu Val Val Glu Thr Leu Met
1370 1375 1380

Ser Ser Leu Lys Pro Ile Gly Asn Ile Val Val Ile Cys Cys Ala
1385 1390 1395

Phe Phe Ile Ile Phe Gly Ile Leu Gly Val Gln Leu Phe Lys Gly
1400 1405 1410

Lys Phe Phe Val Cys Gln Gly Glu Asp Thr Arg Asn Ile Thr Asn
1415 1420 1425

Lys Ser Asp Cys Ala Glu Ala Ser Tyr Arg Trp Val Arg His Lys
1430 1435 1440

Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser Leu Phe Val
1445 1450 1455

Leu Ala Ser Lys Asp Gly Trp Val Asp Ile Met Tyr Asp Gly Leu
1460 1465 1470

Asp Ala Val Gly Val Asp Gln Gln Pro Ile Met Asn His Asn Pro
1475 1480 1485

Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ala Phe
1490 1495 1500

Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His

1505 1510 1515

Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu
1520 1525 1530

Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Ser Lys Glu
1535 1540 1545

Lys Gln Met Ala Glu Ala Gln Cys Lys Pro Tyr Tyr Ser Asp Tyr
1550 1555 1560

Ser Arg Phe Arg Leu Leu Val His His Leu Cys Thr Ser His Tyr
1565 1570 1575

Leu Asp Leu Phe Ile Thr Gly Val Ile Gly Leu Asn Val Val Thr
1580 1585 1590

Met Ala Met Glu His Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala
1595 1600 1605

Leu Lys Ile Cys Asn Tyr Ile Phe Thr Val Ile Phe Val Leu Glu
1610 1615 1620

Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Gln
1625 1630 1635

Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Ile
1640 1645 1650

Met Gly Ile Thr Leu Glu Glu Ile Glu Val Asn Ala Ser Leu Pro
1655 1660 1665

Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala
1670 1675 1680

Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly Met Arg Ala Leu
1685 1690 1695

Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val Gly Asn Leu Gly
1700 1705 1710

Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala Ala Leu Gly Val
1715 1720 1725

```
Glu Leu  Phe Gly Asp Leu Glu  Cys Asp Glu Thr His  Pro Cys Glu
    1730                1735                1740

Gly Leu  Gly Arg His Ala Thr  Phe Arg Asn Phe Gly  Met Ala Phe
    1745                1750                1755

Leu Thr  Leu Phe Arg Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile
    1760                1765                1770

Met Lys  Asp Thr Leu Arg Asp  Cys Asp Gln Glu Ser  Thr Cys Tyr
    1775                1780                1785

Asn Thr  Val Ile Ser Pro Ile  Tyr Phe Val Ser Phe  Val Leu Thr
    1790                1795                1800

Ala Gln  Phe Val Leu Val Asn  Val Val Ile Ala Val  Leu Met Lys
    1805                1810                1815

His Leu  Glu Glu Ser Asn Lys  Glu Ala Lys Glu Glu  Ala Glu Leu
    1820                1825                1830

Glu Ala  Glu Leu Glu Leu Glu  Met Lys Thr Leu Ser  Pro Gln Pro
    1835                1840                1845

His Ser  Pro Leu Gly Ser Pro  Phe Leu Trp Pro Gly  Val Glu Gly
    1850                1855                1860

Pro Asp  Ser Pro Asp Ser Pro  Lys Pro Gly Ala Leu  His Pro Ala
    1865                1870                1875

Ala His  Ala Arg Ser Ala Ser  His Phe Ser Leu Glu  His Pro Thr
    1880                1885                1890

Met Gln  Pro His Pro Thr Glu  Leu Pro Gly Pro Asp  Leu Leu Thr
    1895                1900                1905

Val Arg  Lys Ser Gly Val Ser  Arg Thr His Ser Leu  Pro Asn Asp
    1910                1915                1920

Ser Tyr  Met Cys Arg His Gly  Ser Thr Ala Glu Gly  Pro Leu Gly
    1925                1930                1935
```

```
His Arg  Gly Trp Gly Leu Pro  Lys Ala Gln Ser Gly  Ser Val Leu
    1940                1945                1950

Ser Val  His Ser Gln Pro Ala  Asp Thr Ser Tyr Ile  Leu Gln Leu
    1955                1960                1965

Pro Lys  Asp Ala Pro His Leu  Leu Gln Pro His Ser  Ala Pro Thr
    1970                1975                1980

Trp Gly  Thr Ile Pro Lys Leu  Pro Pro Pro Gly Arg  Ser Pro Leu
    1985                1990                1995

Ala Gln  Arg Pro Leu Arg Arg  Gln Ala Ala Ile Arg  Thr Asp Ser
    2000                2005                2010

Leu Asp  Val Gln Gly Leu Gly  Ser Arg Glu Asp Leu  Leu Ala Glu
    2015                2020                2025

Glu Glu  Pro Pro Ser Pro Arg  Asp Leu Lys Lys Cys  Tyr Ser Val
    2030                2035                2040

Glu Ala  Gln Ser Cys Gln Arg  Arg Pro Thr Ser Trp  Leu Asp Glu
    2045                2050                2055

Gln Arg  Arg His Ser Ile Ala  Val Ser Cys Leu Asp  Ser Gly Ser
    2060                2065                2070

Gln Pro  His Leu Gly Thr Asp  Pro Ser Asn Leu Gly  Gly Gln Pro
    2075                2080                2085

Leu Gly  Gly Pro Gly Ser Arg  Pro Lys Lys Lys Leu  Ser Pro Pro
    2090                2095                2100

Ser Ile  Thr Ile Asp Pro Pro  Glu Ser Gln Gly Pro  Arg Thr Pro
    2105                2110                2115

Pro Ser  Pro Gly Ile Cys Leu  Arg Arg Arg Ala Pro  Ser Ser Asp
    2120                2125                2130

Ser Lys  Asp Pro Leu Ala Ser  Gly Pro Pro Asp Ser  Met Ala Ala
    2135                2140                2145
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Ser Pro Ser Pro Lys Lys Asp Val Leu Ser Leu Ser Gly Leu Ser
2150 2155 2160

Ser Asp Pro Ala Asp Leu Asp Pro
2165 2170

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Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65 70 75 80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val

85 90 95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
115 120 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
130 135 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145 150 155 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
165 170 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
180 185 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
195 200 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
210 215 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225 230 235 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
245 250 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
260 265 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
275 280 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
290 295 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305 310 315 320

```
Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540
```

```
Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765
```

```
Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
```

Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro

1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Leu Leu
1340 1345 1350

Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser Asp
1355 1360 1365

Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu
1370 1375 1380

Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly Leu
1385 1390 1395

Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu Lys Pro Ile Gly
1400 1405 1410

Asn Ile Val Val Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile
1415 1420 1425

```
Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                 1435                 1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                 1450                 1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                 1465                 1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                 1480                 1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                 1495                 1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                 1510                 1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                 1525                 1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                 1540                 1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                 1555                 1560

Glu Lys  Lys Arg Arg Asn Leu  Met Leu Asp Asp Val  Ile Ala Ser
    1565                 1570                 1575

Gly Ser  Ser Ala Ser Ala Ala  Ser Glu Ala Gln Cys  Lys Pro Tyr
    1580                 1585                 1590

Tyr Ser  Asp Tyr Ser Arg Phe  Arg Leu Leu Val His  His Leu Cys
    1595                 1600                 1605

Thr Ser  His Tyr Leu Asp Leu  Phe Ile Thr Gly Val  Ile Gly Leu
    1610                 1615                 1620

Asn Val  Val Thr Met Ala Met  Glu His Tyr Gln Gln  Pro Gln Ile
    1625                 1630                 1635
```

```
Leu Asp  Glu Ala Leu Lys Ile  Cys Asn Tyr Ile Phe  Thr Val Ile
    1640                1645                1650

Phe Val  Leu Glu Ser Val Phe  Lys Leu Val Ala Phe  Gly Phe Arg
    1655                1660                1665

Arg Phe  Phe Gln Asp Arg Trp  Asn Gln Leu Asp Leu  Ala Ile Val
    1670                1675                1680

Leu Leu  Ser Ile Met Gly Ile  Thr Leu Glu Glu Ile  Glu Val Asn
    1685                1690                1695

Ala Ser  Leu Pro Ile Asn Pro  Thr Ile Ile Arg Ile  Met Arg Val
    1700                1705                1710

Leu Arg  Ile Ala Arg Val Leu  Lys Leu Leu Lys Met  Ala Val Gly
    1715                1720                1725

Met Arg  Ala Leu Leu Asp Thr  Val Met Gln Ala Leu  Pro Gln Val
    1730                1735                1740

Gly Asn  Leu Gly Leu Leu Phe  Met Leu Leu Phe Phe  Ile Phe Ala
    1745                1750                1755

Ala Leu  Gly Val Glu Leu Phe  Gly Asp Leu Glu Cys  Asp Glu Thr
    1760                1765                1770

His Pro  Cys Glu Gly Leu Gly  Arg His Ala Thr Phe  Arg Asn Phe
    1775                1780                1785

Gly Met  Ala Phe Leu Thr Leu  Phe Arg Val Ser Thr  Gly Asp Asn
    1790                1795                1800

Trp Asn  Gly Ile Met Lys Asp  Thr Leu Arg Asp Cys  Asp Gln Glu
    1805                1810                1815

Ser Thr  Cys Tyr Asn Thr Val  Ile Ser Pro Ile Tyr  Phe Val Ser
    1820                1825                1830

Phe Val  Leu Thr Ala Gln Phe  Val Leu Val Asn Val  Val Ile Ala
    1835                1840                1845
```

```
Val Leu  Met Lys His Leu Glu  Glu Ser Asn Lys Glu  Ala Lys Glu
    1850                1855                1860

Glu Ala  Glu Leu Glu Ala Glu  Leu Glu Leu Glu Met  Lys Thr Leu
    1865                1870                1875

Ser Pro  Gln Pro His Ser Pro  Leu Gly Ser Pro Phe  Leu Trp Pro
    1880                1885                1890

Gly Val  Glu Gly Pro Asp Ser  Pro Asp Ser Pro Lys  Pro Gly Ala
    1895                1900                1905

Leu His  Pro Ala Ala His Ala  Arg Ser Ala Ser His  Phe Ser Leu
    1910                1915                1920

Glu His  Pro Thr Asp Arg Gln  Leu Phe Asp Thr Ile  Ser Leu Leu
    1925                1930                1935

Ile Gln  Gly Ser Leu Glu Trp  Glu Leu Lys Leu Met  Asp Glu Leu
    1940                1945                1950

Ala Gly  Pro Gly Gly Gln Pro  Ser Ala Phe Pro Ser  Ala Pro Ser
    1955                1960                1965

Leu Gly  Gly Ser Asp Pro Gln  Ile Pro Leu Ala Glu  Met Glu Ala
    1970                1975                1980

Leu Ser  Leu Thr Ser Glu Ile  Val Ser Glu Pro Ser  Cys Ser Leu
    1985                1990                1995

Ala Leu  Thr Asp Asp Ser Leu  Pro Asp Asp Met His  Thr Leu Leu
    2000                2005                2010

Leu Ser  Ala Leu Glu Ser Asn  Met Gln Pro His Pro  Thr Glu Leu
    2015                2020                2025

Pro Gly  Pro Asp Leu Leu Thr  Val Arg Lys Ser Gly  Val Ser Arg
    2030                2035                2040

Thr His  Ser Leu Pro Asn Asp  Ser Tyr Met Cys Arg  His Gly Ser
    2045                2050                2055

Thr Ala  Glu Gly Pro Leu Gly  His Arg Gly Trp Gly  Leu Pro Lys
```

2060 2065 2070

Ala Gln Ser Gly Ser Val Leu Ser Val His Ser Gln Pro Ala Asp
2075 2080 2085

Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp Ala Pro His Leu Leu
2090 2095 2100

Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile Pro Lys Leu Pro
2105 2110 2115

Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro Leu Arg Arg Gln
2120 2125 2130

Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln Gly Leu Gly Ser
2135 2140 2145

Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro Ser Pro Pro Leu
2150 2155 2160

Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala Gln
2165 2170 2175

Gln His Ser Arg Ser His Ser Lys Ile Ser Lys His Met Thr Pro
2180 2185 2190

Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro
2195 2200 2205

Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp
2210 2215 2220

Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro Pro
2225 2230 2235

Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser
2240 2245 2250

Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg Arg His
2255 2260 2265

Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu
2270 2275 2280

```
Gly Thr  Asp Pro Ser Asn Leu  Gly Gly Gln Pro Leu  Gly Gly Pro
    2285                2290                2295

Gly Ser  Arg Pro Lys Lys Lys  Leu Ser Pro Pro Ser  Ile Thr Ile
    2300                2305                2310

Asp Pro  Pro Glu Ser Gln Gly  Pro Arg Thr Pro Pro  Ser Pro Gly
    2315                2320                2325

Ile Cys  Leu Arg Arg Arg Ala  Pro Ser Ser Asp Ser  Lys Asp Pro
    2330                2335                2340

Leu Ala  Ser Gly Pro Pro Asp  Ser Met Ala Ala Ser  Pro Ser Pro
    2345                2350                2355

Lys Lys  Asp Val Leu Ser Leu  Ser Gly Leu Ser Ser  Asp Pro Ala
    2360                2365                2370

Asp Leu  Asp Pro
    2375
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<210> 10788
<211> 2261
<212> PRT
<213> Homo sapiens

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<220>
<221> source
<223> /note="Gene Symbol: CACNA1G; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1G
subunit; "

<220>
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<223> /note="Uniprot ID: O43497; "

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<400> 10788
Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1 5 10 15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
20 25 30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65 70 75 80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
85 90 95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
115 120 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
130 135 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145 150 155 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
165 170 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
180 185 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
195 200 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
210 215 220

```
Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
```

```
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685
```

```
Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910
```

```
Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
                965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
            980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065

Ser Pro  His Ser Pro Trp Ser  Ala Ala Ser Ser Trp  Thr Ser Arg
    1070                1075                1080

Arg Ser  Ser Arg Asn Ser Leu  Gly Arg Ala Pro Ser  Leu Lys Arg
    1085                1090                1095

Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110

Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                1120                1125
```

Ser Pro Ala Gly Ser Asp His Arg His Arg Gly Ser Leu Glu Arg
1130 1135 1140

Glu Ala Lys Ser Ser Phe Asp Leu Pro Asp Thr Leu Gln Val Pro
1145 1150 1155

Gly Leu His Arg Thr Ala Ser Gly Arg Gly Ser Ala Ser Glu His
1160 1165 1170

Gln Asp Cys Asn Gly Lys Ser Ala Ser Gly Arg Leu Ala Arg Ala
1175 1180 1185

Leu Arg Pro Asp Asp Pro Pro Leu Asp Gly Asp Asp Ala Asp Asp
1190 1195 1200

Glu Gly Asn Leu Ser Lys Gly Glu Arg Val Arg Ala Trp Ile Arg
1205 1210 1215

Ala Arg Leu Pro Ala Cys Cys Leu Glu Arg Asp Ser Trp Ser Ala
1220 1225 1230

Tyr Ile Phe Pro Pro Gln Ser Arg Phe Arg Leu Leu Cys His Arg
1235 1240 1245

Ile Ile Thr His Lys Met Phe Asp His Val Val Leu Val Ile Ile
1250 1255 1260

Phe Leu Asn Cys Ile Thr Ile Ala Met Glu Arg Pro Lys Ile Asp
1265 1270 1275

Pro His Ser Ala Glu Arg Ile Phe Leu Thr Leu Ser Asn Tyr Ile
1280 1285 1290

Phe Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala
1295 1300 1305

Leu Gly Trp Cys Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser Trp
1310 1315 1320

Asn Val Leu Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile
1325 1330 1335

```
Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380

Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
    1490                1495                1500

Phe Val  Leu Asn Met Phe Val  Gly Val Val Val Glu  Asn Phe His
    1505                1510                1515

Lys Cys  Arg Gln His Gln Glu  Glu Glu Glu Ala Arg  Arg Arg Glu
    1520                1525                1530

Glu Lys  Arg Leu Arg Arg Leu  Glu Lys Lys Arg Arg  Asn Leu Met
    1535                1540                1545

Leu Asp  Asp Val Ile Ala Ser  Gly Ser Ser Ala Ser  Ala Ala Ser
```

1550 1555 1560

Glu Ala Gln Cys Lys Pro Tyr Tyr Ser Asp Tyr Ser Arg Phe Arg
1565 1570 1575

Leu Leu Val His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe
1580 1585 1590

Ile Thr Gly Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu
1595 1600 1605

His Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys
1610 1615 1620

Asn Tyr Ile Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys
1625 1630 1635

Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn
1640 1645 1650

Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr
1655 1660 1665

Leu Glu Glu Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr
1670 1675 1680

Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys
1685 1690 1695

Leu Leu Lys Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Val
1700 1705 1710

Met Gln Ala Leu Pro Gln Val Gly Asn Leu Gly Leu Leu Phe Met
1715 1720 1725

Leu Leu Phe Phe Ile Phe Ala Ala Leu Gly Val Glu Leu Phe Gly
1730 1735 1740

Asp Leu Glu Cys Asp Glu Thr His Pro Cys Glu Gly Leu Gly Arg
1745 1750 1755

His Ala Thr Phe Arg Asn Phe Gly Met Ala Phe Leu Thr Leu Phe
1760 1765 1770

```
Arg Val  Ser Thr Gly Asp Asn  Trp Asn Gly Ile Met  Lys Asp Thr
    1775                1780                1785

Leu Arg  Asp Cys Asp Gln Glu  Ser Thr Cys Tyr Asn  Thr Val Ile
    1790                1795                1800

Ser Pro  Ile Tyr Phe Val Ser  Phe Val Leu Thr Ala  Gln Phe Val
    1805                1810                1815

Leu Val  Asn Val Val Ile Ala  Val Leu Met Lys His  Leu Glu Glu
    1820                1825                1830

Ser Asn  Lys Glu Ala Lys Glu  Glu Ala Glu Leu Glu  Ala Glu Leu
    1835                1840                1845

Glu Leu  Glu Met Lys Thr Leu  Ser Pro Gln Pro His  Ser Pro Leu
    1850                1855                1860

Gly Ser  Pro Phe Leu Trp Pro  Gly Val Glu Gly Pro  Asp Ser Pro
    1865                1870                1875

Asp Ser  Pro Lys Pro Gly Ala  Leu His Pro Ala Ala  His Ala Arg
    1880                1885                1890

Ser Ala  Ser His Phe Ser Leu  Glu His Pro Thr Met  Gln Pro His
    1895                1900                1905

Pro Thr  Glu Leu Pro Gly Pro  Asp Leu Leu Thr Val  Arg Lys Ser
    1910                1915                1920

Gly Val  Ser Arg Thr His Ser  Leu Pro Asn Asp Ser  Tyr Met Cys
    1925                1930                1935

Arg His  Gly Ser Thr Ala Glu  Gly Pro Leu Gly His  Arg Gly Trp
    1940                1945                1950

Gly Leu  Pro Lys Ala Gln Ser  Gly Ser Val Leu Ser  Val His Ser
    1955                1960                1965

Gln Pro  Ala Asp Thr Ser Tyr  Ile Leu Gln Leu Pro  Lys Asp Ala
    1970                1975                1980
```

Pro His Leu Leu Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile
1985 1990 1995

Pro Lys Leu Pro Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro
2000 2005 2010

Leu Arg Arg Gln Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln
2015 2020 2025

Gly Leu Gly Ser Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro
2030 2035 2040

Ser Pro Pro Leu Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser
2045 2050 2055

Thr Gln Ala Gln Gln His Ser Arg Ser His Ser Lys Ile Ser Lys
2060 2065 2070

His Met Thr Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp
2075 2080 2085

Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr
2090 2095 2100

Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln
2105 2110 2115

Glu Glu Pro Pro Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val
2120 2125 2130

Glu Ala Gln Ser Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu
2135 2140 2145

Gln Arg Arg His Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser
2150 2155 2160

Gln Pro His Leu Gly Thr Asp Pro Ser Asn Leu Gly Gly Gln Pro
2165 2170 2175

Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys Lys Leu Ser Pro Pro
2180 2185 2190

```
Ser Ile  Thr Ile Asp Pro Pro  Glu Ser Gln Gly Pro  Arg Thr Pro
    2195                2200                2205


Pro Ser  Pro Gly Ile Cys Leu  Arg Arg Arg Ala Pro  Ser Ser Asp
    2210                2215                2220


Ser Lys  Asp Pro Leu Ala Ser  Gly Pro Pro Asp Ser  Met Ala Ala
    2225                2230                2235


Ser Pro  Ser Pro Lys Lys Asp  Val Leu Ser Leu Ser  Gly Leu Ser
    2240                2245                2250


Ser Asp  Pro Ala Asp Leu Asp  Pro
    2255                2260


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<213> Homo sapiens

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<223> /note="Gene Symbol: CACNA1G; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
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      subunit; "

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1               5                  10                  15


Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30


Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45


Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
```

```
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285
```

```
Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510
```

```
Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735
```

```
Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
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965 970 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser
Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser

1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro
1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Leu Leu
1340 1345 1350

Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser Asp
1355 1360 1365

Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu
1370 1375 1380

Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly Leu
1385 1390 1395

```
Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                 1405                 1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                 1420                 1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                 1435                 1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                 1450                 1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                 1465                 1470

Gln Val  Ser Pro Arg Leu Arg  Gly Gly Ala Val Val  Lys Glu Ala
    1475                 1480                 1485

Gly Gly  Gly Thr Gly Pro Cys  Leu Val Ile Pro Ala  Asp Ser Gly
    1490                 1495                 1500

Gly Gly  Gly Leu His Glu Glu  Ile Ser Pro Ser His  Pro Leu Leu
    1505                 1510                 1515

Ser Asn  His Gln His Val Ala  Lys Pro Ser Pro Ser  His Ser Ala
    1520                 1525                 1530

Pro Lys  Ser Gly Pro Met Gly  Ser Leu Ala Val Leu  Lys Asp Glu
    1535                 1540                 1545

Glu Thr  Glu Ala Gln Arg Gly
    1550                 1555


<210> 10790
<211> 2243
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<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CACNA1G; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1G
subunit; "

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<220>
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<223> /note="ENSP ID: ENSP00000409759"

<400> 10790

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1               5                  10                  15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160
```

```
Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
```

385 390 395 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
405 410 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
420 425 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
435 440 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
450 455 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465 470 475 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
485 490 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
500 505 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
515 520 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
530 535 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

```
Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845
```

```
Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
                965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
            980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065
```

Ser Pro His Ser Pro Trp Ser Ala Ala Ser Ser Trp Thr Ser Arg
1070 1075 1080

Arg Ser Ser Arg Asn Ser Leu Gly Arg Ala Pro Ser Leu Lys Arg
1085 1090 1095

Arg Ser Pro Ser Gly Glu Arg Arg Ser Leu Leu Ser Gly Glu Gly
1100 1105 1110

Gln Glu Ser Gln Asp Glu Glu Glu Ser Ser Glu Glu Glu Arg Ala
1115 1120 1125

Ser Pro Ala Gly Ser Asp His Arg His Arg Gly Ser Leu Glu Arg
1130 1135 1140

Glu Ala Lys Ser Ser Phe Asp Leu Pro Asp Thr Leu Gln Val Pro
1145 1150 1155

Gly Leu His Arg Thr Ala Ser Gly Arg Gly Ser Ala Ser Glu His
1160 1165 1170

Gln Asp Cys Asn Gly Lys Ser Ala Ser Gly Arg Leu Ala Arg Ala
1175 1180 1185

Leu Arg Pro Asp Asp Pro Pro Leu Asp Gly Asp Asp Ala Asp Asp
1190 1195 1200

Glu Gly Asn Leu Ser Lys Gly Glu Arg Val Arg Ala Trp Ile Arg
1205 1210 1215

Ala Arg Leu Pro Ala Cys Cys Leu Glu Arg Asp Ser Trp Ser Ala
1220 1225 1230

Tyr Ile Phe Pro Pro Gln Ser Arg Phe Arg Leu Leu Cys His Arg
1235 1240 1245

Ile Ile Thr His Lys Met Phe Asp His Val Val Leu Val Ile Ile
1250 1255 1260

Phe Leu Asn Cys Ile Thr Ile Ala Met Glu Arg Pro Lys Ile Asp
1265 1270 1275

```
Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
    1280                1285                1290

Phe Thr  Ala Val Phe Leu Ala  Glu Met Thr Val Lys  Val Val Ala
    1295                1300                1305

Leu Gly  Trp Cys Phe Gly Glu  Gln Ala Tyr Leu Arg  Ser Ser Trp
    1310                1315                1320

Asn Val  Leu Asp Gly Leu Leu  Val Leu Ile Ser Val  Ile Asp Ile
    1325                1330                1335

Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380

Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
```

1490 1495 1500

Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His
1505 1510 1515

Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu
1520 1525 1530

Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Lys Ala Gln
1535 1540 1545

Cys Lys Pro Tyr Tyr Ser Asp Tyr Ser Arg Phe Arg Leu Leu Val
1550 1555 1560

His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Gly
1565 1570 1575

Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu His Tyr Gln
1580 1585 1590

Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys Asn Tyr Ile
1595 1600 1605

Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys Leu Val Ala
1610 1615 1620

Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp
1625 1630 1635

Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu
1640 1645 1650

Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg
1655 1660 1665

Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys
1670 1675 1680

Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala
1685 1690 1695

Leu Pro Gln Val Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe
1700 1705 1710

```
Phe Ile  Phe Ala Ala Leu Gly  Val Glu Leu Phe Gly  Asp Leu Glu
    1715                1720                1725

Cys Asp  Glu Thr His Pro Cys  Glu Gly Leu Gly Arg  His Ala Thr
    1730                1735                1740

Phe Arg  Asn Phe Gly Met Ala  Phe Leu Thr Leu Phe  Arg Val Ser
    1745                1750                1755

Thr Gly  Asp Asn Trp Asn Gly  Ile Met Lys Asp Thr  Leu Arg Asp
    1760                1765                1770

Cys Asp  Gln Glu Ser Thr Cys  Tyr Asn Thr Val Ile  Ser Pro Ile
    1775                1780                1785

Tyr Phe  Val Ser Phe Val Leu  Thr Ala Gln Phe Val  Leu Val Asn
    1790                1795                1800

Val Val  Ile Ala Val Leu Met  Lys His Leu Glu Glu  Ser Asn Lys
    1805                1810                1815

Glu Ala  Lys Glu Glu Ala Glu  Leu Glu Ala Glu Leu  Glu Leu Glu
    1820                1825                1830

Met Lys  Thr Leu Ser Pro Gln  Pro His Ser Pro Leu  Gly Ser Pro
    1835                1840                1845

Phe Leu  Trp Pro Gly Val Glu  Gly Pro Asp Ser Pro  Asp Ser Pro
    1850                1855                1860

Lys Pro  Gly Ala Leu His Pro  Ala Ala His Ala Arg  Ser Ala Ser
    1865                1870                1875

His Phe  Ser Leu Glu His Pro  Thr Met Gln Pro His  Pro Thr Glu
    1880                1885                1890

Leu Pro  Gly Pro Asp Leu Leu  Thr Val Arg Lys Ser  Gly Val Ser
    1895                1900                1905

Arg Thr  His Ser Leu Pro Asn  Asp Ser Tyr Met Cys  Arg His Gly
    1910                1915                1920
```

```
Ser Thr  Ala Glu Gly Pro Leu  Gly His Arg Gly Trp  Gly Leu Pro
    1925                1930                1935

Lys Ala  Gln Ser Gly Ser Val  Leu Ser Val His Ser  Gln Pro Ala
    1940                1945                1950

Asp Thr  Ser Tyr Ile Leu Gln  Leu Pro Lys Asp Ala  Pro His Leu
    1955                1960                1965

Leu Gln  Pro His Ser Ala Pro  Thr Trp Gly Thr Ile  Pro Lys Leu
    1970                1975                1980

Pro Pro  Pro Gly Arg Ser Pro  Leu Ala Gln Arg Pro  Leu Arg Arg
    1985                1990                1995

Gln Ala  Ala Ile Arg Thr Asp  Ser Leu Asp Val Gln  Gly Leu Gly
    2000                2005                2010

Ser Arg  Glu Asp Leu Leu Ala  Glu Val Ser Gly Pro  Ser Pro Pro
    2015                2020                2025

Leu Ala  Arg Ala Tyr Ser Phe  Trp Gly Gln Ser Ser  Thr Gln Ala
    2030                2035                2040

Gln Gln  His Ser Arg Ser His  Ser Lys Ile Ser Lys  His Met Thr
    2045                2050                2055

Pro Pro  Ala Pro Cys Pro Gly  Pro Glu Pro Asn Trp  Gly Lys Gly
    2060                2065                2070

Pro Pro  Glu Thr Arg Ser Ser  Leu Glu Leu Asp Thr  Glu Leu Ser
    2075                2080                2085

Trp Ile  Ser Gly Asp Leu Leu  Pro Pro Gly Gly Gln  Glu Glu Pro
    2090                2095                2100

Pro Ser  Pro Arg Asp Leu Lys  Lys Cys Tyr Ser Val  Glu Ala Gln
    2105                2110                2115

Ser Cys  Gln Arg Arg Pro Thr  Ser Trp Leu Asp Glu  Gln Arg Arg
    2120                2125                2130
```

```
His Ser  Ile Ala Val Ser Cys  Leu Asp Ser Gly Ser  Gln Pro His
    2135                 2140                 2145

Leu Gly  Thr Asp Pro Ser Asn  Leu Gly Gly Gln Pro  Leu Gly Gly
    2150                 2155                 2160

Pro Gly  Ser Arg Pro Lys Lys  Lys Leu Ser Pro Pro  Ser Ile Thr
    2165                 2170                 2175

Ile Asp  Pro Pro Glu Ser Gln  Gly Pro Arg Thr Pro  Pro Ser Pro
    2180                 2185                 2190

Gly Ile  Cys Leu Arg Arg Arg  Ala Pro Ser Ser Asp  Ser Lys Asp
    2195                 2200                 2205

Pro Leu  Ala Ser Gly Pro Pro  Asp Ser Met Ala Ala  Ser Pro Ser
    2210                 2215                 2220

Pro Lys  Lys Asp Val Leu Ser  Leu Ser Gly Leu Ser  Ser Asp Pro
    2225                 2230                 2235

Ala Asp  Leu Asp Pro
    2240


<210> 10791
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<213> Homo sapiens

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<400> 10791

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220
```

```
Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445
```

```
Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670
```

```
Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
```

900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
965 970 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser
Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg

1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro
1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

```
Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                1510                1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                1525                1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545
```

```
Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                1555                1560

Glu Lys  Lys Arg Arg Lys Ala  Gln Cys Lys Pro Tyr  Tyr Ser Asp
    1565                1570                1575

Tyr Ser  Arg Phe Arg Leu Leu  Val His His Leu Cys  Thr Ser His
    1580                1585                1590

Tyr Leu  Asp Leu Phe Ile Thr  Gly Val Ile Gly Leu  Asn Val Val
    1595                1600                1605

Thr Met  Ala Met Glu His Tyr  Gln Gln Pro Gln Ile  Leu Asp Glu
    1610                1615                1620

Ala Leu  Lys Ile Cys Asn Tyr  Ile Phe Thr Val Ile  Phe Val Leu
    1625                1630                1635

Glu Ser  Val Phe Lys Leu Val  Ala Phe Gly Phe Arg  Arg Phe Phe
    1640                1645                1650

Gln Asp  Arg Trp Asn Gln Leu  Asp Leu Ala Ile Val  Leu Leu Ser
    1655                1660                1665

Ile Met  Gly Ile Thr Leu Glu  Glu Ile Glu Val Asn  Ala Ser Leu
    1670                1675                1680

Pro Ile  Asn Pro Thr Ile Ile  Arg Ile Met Arg Val  Leu Arg Ile
    1685                1690                1695

Ala Arg  Val Leu Lys Leu Leu  Lys Met Ala Val Gly  Met Arg Ala
    1700                1705                1710

Leu Leu  Asp Thr Val Met Gln  Ala Leu Pro Gln Val  Gly Asn Leu
    1715                1720                1725

Gly Leu  Leu Phe Met Leu Leu  Phe Phe Ile Phe Ala  Ala Leu Gly
    1730                1735                1740

Val Glu  Leu Phe Gly Asp Leu  Glu Cys Asp Glu Thr  His Pro Cys
    1745                1750                1755
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Glu Gly Leu Gly Arg His Ala Thr Phe Arg Asn Phe Gly Met Ala
1760 1765 1770

Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Asn Trp Asn Gly
1775 1780 1785

Ile Met Lys Asp Thr Leu Arg Asp Cys Asp Gln Glu Ser Thr Cys
1790 1795 1800

Tyr Asn Thr Val Ile Ser Pro Ile Tyr Phe Val Ser Phe Val Leu
1805 1810 1815

Thr Ala Gln Phe Val Leu Val Asn Val Val Ile Ala Val Leu Met
1820 1825 1830

Lys His Leu Glu Glu Ser Asn Lys Glu Ala Lys Glu Glu Ala Glu
1835 1840 1845

Leu Glu Ala Glu Leu Glu Leu Glu Met Lys Thr Leu Ser Pro Gln
1850 1855 1860

Pro His Ser Pro Leu Gly Ser Pro Phe Leu Trp Pro Gly Val Glu
1865 1870 1875

Gly Pro Asp Ser Pro Asp Ser Pro Lys Pro Gly Ala Leu His Pro
1880 1885 1890

Ala Ala His Ala Arg Ser Ala Ser His Phe Ser Leu Glu His Pro
1895 1900 1905

Thr Met Gln Pro His Pro Thr Glu Leu Pro Gly Pro Asp Leu Leu
1910 1915 1920

Thr Val Arg Lys Ser Gly Val Ser Arg Thr His Ser Leu Pro Asn
1925 1930 1935

Asp Ser Tyr Met Cys Arg His Gly Ser Thr Ala Glu Gly Pro Leu
1940 1945 1950

Gly His Arg Gly Trp Gly Leu Pro Lys Ala Gln Ser Gly Ser Val
1955 1960 1965

Leu Ser Val His Ser Gln Pro Ala Asp Thr Ser Tyr Ile Leu Gln

1970 1975 1980

Leu Pro Lys Asp Ala Pro His Leu Leu Gln Pro His Ser Ala Pro
1985 1990 1995

Thr Trp Gly Thr Ile Pro Lys Leu Pro Pro Pro Gly Arg Ser Pro
2000 2005 2010

Leu Ala Gln Arg Pro Leu Arg Arg Gln Ala Ala Ile Arg Thr Asp
2015 2020 2025

Ser Leu Asp Val Gln Gly Leu Gly Ser Arg Glu Asp Leu Leu Ala
2030 2035 2040

Glu Val Ser Gly Pro Ser Pro Pro Leu Ala Arg Ala Tyr Ser Phe
2045 2050 2055

Trp Gly Gln Ser Ser Thr Gln Ala Gln Gln His Ser Arg Ser His
2060 2065 2070

Ser Lys Ile Ser Lys His Met Thr Pro Pro Ala Pro Cys Pro Gly
2075 2080 2085

Pro Glu Pro Asn Trp Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser
2090 2095 2100

Leu Glu Leu Asp Thr Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu
2105 2110 2115

Pro Pro Gly Gly Gln Glu Glu Pro Pro Ser Pro Arg Asp Leu Lys
2120 2125 2130

Lys Cys Tyr Ser Val Glu Ala Gln Ser Cys Gln Arg Arg Pro Thr
2135 2140 2145

Ser Trp Leu Asp Glu Gln Arg Arg His Ser Ile Ala Val Ser Cys
2150 2155 2160

Leu Asp Ser Gly Ser Gln Pro His Leu Gly Thr Asp Pro Ser Asn
2165 2170 2175

Leu Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys
2180 2185 2190

```
Lys Leu  Ser Pro Pro Ser Ile  Thr Ile Asp Pro Pro  Glu Ser Gln
    2195                 2200                 2205


Gly Pro  Arg Thr Pro Pro Ser  Pro Gly Ile Cys Leu  Arg Arg Arg
    2210                 2215                 2220


Ala Pro  Ser Ser Asp Ser Lys  Asp Pro Leu Ala Ser  Gly Pro Pro
    2225                 2230                 2235


Asp Ser  Met Ala Ala Ser Pro  Ser Pro Lys Lys Asp  Val Leu Ser
    2240                 2245                 2250


Leu Ser  Gly Leu Ser Ser Asp  Pro Ala Asp Leu Asp  Pro
    2255                 2260                 2265


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<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
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      subunit; "

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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30
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```
Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255
```

```
Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
```

485 490 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
500 505 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
515 520 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
530 535 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

```
Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940
```

```
Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005

Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155
```

```
Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365
```

```
Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                1510                1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                1525                1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                1555                1560

Glu Lys  Lys Arg Arg Ser Lys  Glu Lys Gln Met Ala  Glu Ala Gln
    1565                1570                1575

Cys Lys  Pro Tyr Tyr Ser Asp  Tyr Ser Arg Phe Arg  Leu Leu Val
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1580 1585 1590

His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Gly
1595 1600 1605

Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu His Tyr Gln
1610 1615 1620

Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys Asn Tyr Ile
1625 1630 1635

Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys Leu Val Ala
1640 1645 1650

Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp
1655 1660 1665

Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu
1670 1675 1680

Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg
1685 1690 1695

Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys
1700 1705 1710

Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala
1715 1720 1725

Leu Pro Gln Val Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe
1730 1735 1740

Phe Ile Phe Ala Ala Leu Gly Val Glu Leu Phe Gly Asp Leu Glu
1745 1750 1755

Cys Asp Glu Thr His Pro Cys Glu Gly Leu Gly Arg His Ala Thr
1760 1765 1770

Phe Arg Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser
1775 1780 1785

Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg Asp
1790 1795 1800

```
Cys Asp  Gln Glu Ser Thr Cys  Tyr Asn Thr Val Ile  Ser Pro Ile
    1805                 1810                 1815

Tyr Phe  Val Ser Phe Val Leu  Thr Ala Gln Phe Val  Leu Val Asn
    1820                 1825                 1830

Val Val  Ile Ala Val Leu Met  Lys His Leu Glu Glu  Ser Asn Lys
    1835                 1840                 1845

Glu Ala  Lys Glu Glu Ala Glu  Leu Glu Ala Glu Leu  Glu Leu Glu
    1850                 1855                 1860

Met Lys  Thr Leu Ser Pro Gln  Pro His Ser Pro Leu  Gly Ser Pro
    1865                 1870                 1875

Phe Leu  Trp Pro Gly Val Glu  Gly Pro Asp Ser Pro  Asp Ser Pro
    1880                 1885                 1890

Lys Pro  Gly Ala Leu His Pro  Ala Ala His Ala Arg  Ser Ala Ser
    1895                 1900                 1905

His Phe  Ser Leu Glu His Pro  Thr Asp Arg Gln Leu  Phe Asp Thr
    1910                 1915                 1920

Ile Ser  Leu Leu Ile Gln Gly  Ser Leu Glu Trp Glu  Leu Lys Leu
    1925                 1930                 1935

Met Asp  Glu Leu Ala Gly Pro  Gly Gly Gln Pro Ser  Ala Phe Pro
    1940                 1945                 1950

Ser Ala  Pro Ser Leu Gly Gly  Ser Asp Pro Gln Ile  Pro Leu Ala
    1955                 1960                 1965

Glu Met  Glu Ala Leu Ser Leu  Thr Ser Glu Ile Val  Ser Glu Pro
    1970                 1975                 1980

Ser Cys  Ser Leu Ala Leu Thr  Asp Asp Ser Leu Pro  Asp Asp Met
    1985                 1990                 1995

His Thr  Leu Leu Leu Ser Ala  Leu Glu Ser Asn Met  Gln Pro His
    2000                 2005                 2010
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Pro Thr Glu Leu Pro Gly Pro Asp Leu Leu Thr Val Arg Lys Ser
2015 2020 2025

Gly Val Ser Arg Thr His Ser Leu Pro Asn Asp Ser Tyr Met Cys
2030 2035 2040

Arg His Gly Ser Thr Ala Glu Gly Pro Leu Gly His Arg Gly Trp
2045 2050 2055

Gly Leu Pro Lys Ala Gln Ser Gly Ser Val Leu Ser Val His Ser
2060 2065 2070

Gln Pro Ala Asp Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp Ala
2075 2080 2085

Pro His Leu Leu Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile
2090 2095 2100

Pro Lys Leu Pro Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro
2105 2110 2115

Leu Arg Arg Gln Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln
2120 2125 2130

Gly Leu Gly Ser Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro
2135 2140 2145

Ser Pro Pro Leu Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser
2150 2155 2160

Thr Gln Ala Gln Gln His Ser Arg Ser His Ser Lys Ile Ser Lys
2165 2170 2175

His Met Thr Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp
2180 2185 2190

Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr
2195 2200 2205

Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln
2210 2215 2220

```
Glu Glu  Pro Pro Ser Pro Arg  Asp Leu Lys Lys Cys  Tyr Ser Val
    2225                2230                2235

Glu Ala  Gln Ser Cys Gln Arg  Arg Pro Thr Ser Trp  Leu Asp Glu
    2240                2245                2250

Gln Arg  Arg His Ser Ile Ala  Val Ser Cys Leu Asp  Ser Gly Ser
    2255                2260                2265

Gln Pro  His Leu Gly Thr Asp  Pro Ser Asn Leu Gly  Gly Gln Pro
    2270                2275                2280

Leu Gly  Gly Pro Gly Ser Arg  Pro Lys Lys Lys Leu  Ser Pro Pro
    2285                2290                2295

Ser Ile  Thr Ile Asp Pro Pro  Glu Ser Gln Gly Pro  Arg Thr Pro
    2300                2305                2310

Pro Ser  Pro Gly Ile Cys Leu  Arg Arg Arg Ala Pro  Ser Ser Asp
    2315                2320                2325

Ser Lys  Asp Pro Leu Ala Ser  Gly Pro Pro Asp Ser  Met Ala Ala
    2330                2335                2340

Ser Pro  Ser Pro Lys Lys Asp  Val Leu Ser Leu Ser  Gly Leu Ser
    2345                2350                2355

Ser Asp  Pro Ala Asp Leu Asp  Pro
    2360                2365


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subunit; "

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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100   105   110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115   120   125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130   135   140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145   150   155   160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165   170   175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180   185   190

```
Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415
```

```
Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640
```

```
Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
```

865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
965 970 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser
Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser

```
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155

Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305
```

```
Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                1510                1515
```

```
Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                1525                1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                1555                1560

Glu Lys  Lys Arg Arg Ser Lys  Glu Lys Gln Met Ala  Glu Ala Gln
    1565                1570                1575

Cys Lys  Pro Tyr Tyr Ser Asp  Tyr Ser Arg Phe Arg  Leu Leu Val
    1580                1585                1590

His His  Leu Cys Thr Ser His  Tyr Leu Asp Leu Phe  Ile Thr Gly
    1595                1600                1605

Val Ile  Gly Leu Asn Val Val  Thr Met Ala Met Glu  His Tyr Gln
    1610                1615                1620

Gln Pro  Gln Ile Leu Asp Glu  Ala Leu Lys Ile Cys  Asn Tyr Ile
    1625                1630                1635

Phe Thr  Val Ile Phe Val Leu  Glu Ser Val Phe Lys  Leu Val Ala
    1640                1645                1650

Phe Gly  Phe Arg Arg Phe Phe  Gln Asp Arg Trp Asn  Gln Leu Asp
    1655                1660                1665

Leu Ala  Ile Val Leu Leu Ser  Ile Met Gly Ile Thr  Leu Glu Glu
    1670                1675                1680

Ile Glu  Val Asn Ala Ser Leu  Pro Ile Asn Pro Thr  Ile Ile Arg
    1685                1690                1695

Ile Met  Arg Val Leu Arg Ile  Ala Arg Val Leu Lys  Leu Leu Lys
    1700                1705                1710

Met Ala  Val Gly Met Arg Ala  Leu Leu Asp Thr Val  Met Gln Ala
    1715                1720                1725
```

```
Leu Pro  Gln Val Gly Asn Leu  Gly Leu Leu Phe Met  Leu Leu Phe
    1730                1735                1740

Phe Ile  Phe Ala Ala Leu Gly  Val Glu Leu Phe Gly  Asp Leu Glu
    1745                1750                1755

Cys Asp  Glu Thr His Pro Cys  Glu Gly Leu Gly Arg  His Ala Thr
    1760                1765                1770

Phe Arg  Asn Phe Gly Met Ala  Phe Leu Thr Leu Phe  Arg Val Ser
    1775                1780                1785

Thr Gly  Asp Asn Trp Asn Gly  Ile Met Lys Asp Thr  Leu Arg Asp
    1790                1795                1800

Cys Asp  Gln Glu Ser Thr Cys  Tyr Asn Thr Val Ile  Ser Pro Ile
    1805                1810                1815

Tyr Phe  Val Ser Phe Val Leu  Thr Ala Gln Phe Val  Leu Val Asn
    1820                1825                1830

Val Val  Ile Ala Val Leu Met  Lys His Leu Glu Glu  Ser Asn Lys
    1835                1840                1845

Glu Ala  Lys Glu Glu Ala Glu  Leu Glu Ala Glu Leu  Glu Leu Glu
    1850                1855                1860

Met Lys  Thr Leu Ser Pro Gln  Pro His Ser Pro Leu  Gly Ser Pro
    1865                1870                1875

Phe Leu  Trp Pro Gly Val Glu  Gly Pro Asp Ser Pro  Asp Ser Pro
    1880                1885                1890

Lys Pro  Gly Ala Leu His Pro  Ala Ala His Ala Arg  Ser Ala Ser
    1895                1900                1905

His Phe  Ser Leu Glu His Pro  Thr Met Gln Pro His  Pro Thr Glu
    1910                1915                1920

Leu Pro  Gly Pro Asp Leu Leu  Thr Val Arg Lys Ser  Gly Val Ser
    1925                1930                1935

Arg Thr  His Ser Leu Pro Asn  Asp Ser Tyr Met Cys  Arg His Gly
```

1940 1945 1950

Ser Thr Ala Glu Gly Pro Leu Gly His Arg Gly Trp Gly Leu Pro
1955 1960 1965

Lys Ala Gln Ser Gly Ser Val Leu Ser Val His Ser Gln Pro Ala
1970 1975 1980

Asp Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp Ala Pro His Leu
1985 1990 1995

Leu Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile Pro Lys Leu
2000 2005 2010

Pro Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro Leu Arg Arg
2015 2020 2025

Gln Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln Gly Leu Gly
2030 2035 2040

Ser Arg Glu Asp Leu Leu Ala Glu Glu Glu Pro Pro Ser Pro Arg
2045 2050 2055

Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser Cys Gln Arg
2060 2065 2070

Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg Arg His Ser Ile Ala
2075 2080 2085

Val Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu Gly Thr Asp
2090 2095 2100

Pro Ser Asn Leu Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg
2105 2110 2115

Pro Lys Lys Lys Leu Ser Pro Pro Ser Ile Thr Ile Asp Pro Pro
2120 2125 2130

Glu Ser Gln Gly Pro Arg Thr Pro Pro Ser Pro Gly Ile Cys Leu
2135 2140 2145

Arg Arg Arg Ala Pro Ser Ser Asp Ser Lys Asp Pro Leu Ala Ser
2150 2155 2160

```
Gly Pro  Pro Asp Ser Met Ala  Ala Ser Pro Ser Pro  Lys Lys Asp
    2165                 2170                 2175


Val Leu  Ser Leu Ser Gly Leu  Ser Ser Asp Pro Ala  Asp Leu Asp
    2180                 2185                 2190


Pro
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30


Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45


Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60
```

```
Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285
```

```
Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
```

```
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750
```

```
Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975
```

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser
Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

```
Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395
```

Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu Lys Pro Ile Gly
1400 1405 1410

Asn Ile Val Val Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile
1415 1420 1425

Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Val Cys Gln Gly
1430 1435 1440

Glu Asp Thr Arg Asn Ile Thr Asn Lys Ser Asp Cys Ala Glu Ala
1445 1450 1455

Ser Tyr Arg Trp Val Arg His Lys Tyr Asn Phe Asp Asn Leu Gly
1460 1465 1470

Gln Ala Leu Met Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp
1475 1480 1485

Val Asp Ile Met Tyr Asp Gly Leu Asp Ala Val Gly Val Asp Gln
1490 1495 1500

Gln Pro Ile Met Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile
1505 1510 1515

Ser Phe Leu Leu Ile Val Ala Phe Phe Val Leu Asn Met Phe Val
1520 1525 1530

Gly Val Val Val Glu Asn Phe His Lys Cys Arg Gln His Gln Glu
1535 1540 1545

Glu Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu Arg Arg Leu
1550 1555 1560

Glu Lys Lys Arg Arg Asn Leu Met Leu Asp Asp Val Ile Ala Ser
1565 1570 1575

Gly Ser Ser Ala Ser Ala Ala Ser Glu Ala Gln Cys Lys Pro Tyr
1580 1585 1590

Tyr Ser Asp Tyr Ser Arg Phe Arg Leu Leu Val His His Leu Cys
1595 1600 1605

Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Gly Val Ile Gly Leu

1610 1615 1620

Asn Val Val Thr Met Ala Met Glu His Tyr Gln Gln Pro Gln Ile
1625 1630 1635

Leu Asp Glu Ala Leu Lys Ile Cys Asn Tyr Ile Phe Thr Val Ile
1640 1645 1650

Phe Val Leu Glu Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg
1655 1660 1665

Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val
1670 1675 1680

Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu Ile Glu Val Asn
1685 1690 1695

Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val
1700 1705 1710

Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly
1715 1720 1725

Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val
1730 1735 1740

Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala
1745 1750 1755

Ala Leu Gly Val Glu Leu Phe Gly Asp Leu Glu Cys Asp Glu Thr
1760 1765 1770

His Pro Cys Glu Gly Leu Gly Arg His Ala Thr Phe Arg Asn Phe
1775 1780 1785

Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Asn
1790 1795 1800

Trp Asn Gly Ile Met Lys Asp Thr Leu Arg Asp Cys Asp Gln Glu
1805 1810 1815

Ser Thr Cys Tyr Asn Thr Val Ile Ser Pro Ile Tyr Phe Val Ser
1820 1825 1830

```
Phe Val  Leu Thr Ala Gln Phe  Val Leu Val Asn Val  Val Ile Ala
    1835                1840                1845

Val Leu  Met Lys His Leu Glu  Glu Ser Asn Lys Glu  Ala Lys Glu
    1850                1855                1860

Glu Ala  Glu Leu Glu Ala Glu  Leu Glu Leu Glu Met  Lys Thr Leu
    1865                1870                1875

Ser Pro  Gln Pro His Ser Pro  Leu Gly Ser Pro Phe  Leu Trp Pro
    1880                1885                1890

Gly Val  Glu Gly Pro Asp Ser  Pro Asp Ser Pro Lys  Pro Gly Ala
    1895                1900                1905

Leu His  Pro Ala Ala His Ala  Arg Ser Ala Ser His  Phe Ser Leu
    1910                1915                1920

Glu His  Pro Thr Met Gln Pro  His Pro Thr Glu Leu  Pro Gly Pro
    1925                1930                1935

Asp Leu  Leu Thr Val Arg Lys  Ser Gly Val Ser Arg  Thr His Ser
    1940                1945                1950

Leu Pro  Asn Asp Ser Tyr Met  Cys Arg His Gly Ser  Thr Ala Glu
    1955                1960                1965

Gly Pro  Leu Gly His Arg Gly  Trp Gly Leu Pro Lys  Ala Gln Ser
    1970                1975                1980

Gly Ser  Val Leu Ser Val His  Ser Gln Pro Ala Asp  Thr Ser Tyr
    1985                1990                1995

Ile Leu  Gln Leu Pro Lys Asp  Ala Pro His Leu Leu  Gln Pro His
    2000                2005                2010

Ser Ala  Pro Thr Trp Gly Thr  Ile Pro Lys Leu Pro  Pro Pro Gly
    2015                2020                2025

Arg Ser  Pro Leu Ala Gln Arg  Pro Leu Arg Arg Gln  Ala Ala Ile
    2030                2035                2040
```

```
Arg Thr  Asp Ser Leu Asp Val  Gln Gly Leu Gly Ser  Arg Glu Asp
    2045                2050                2055

Leu Leu  Ala Glu Glu Glu Pro  Pro Ser Pro Arg Asp  Leu Lys Lys
    2060                2065                2070

Cys Tyr  Ser Val Glu Ala Gln  Ser Cys Gln Arg Arg  Pro Thr Ser
    2075                2080                2085

Trp Leu  Asp Glu Gln Arg Arg  His Ser Ile Ala Val  Ser Cys Leu
    2090                2095                2100

Asp Ser  Gly Ser Gln Pro His  Leu Gly Thr Asp Pro  Ser Asn Leu
    2105                2110                2115

Gly Gly  Gln Pro Leu Gly Gly  Pro Gly Ser Arg Pro  Lys Lys Lys
    2120                2125                2130

Leu Ser  Pro Pro Ser Ile Thr  Ile Asp Pro Pro Glu  Ser Gln Gly
    2135                2140                2145

Pro Arg  Thr Pro Pro Ser Pro  Gly Ile Cys Leu Arg  Arg Arg Ala
    2150                2155                2160

Pro Ser  Ser Asp Ser Lys Asp  Pro Leu Ala Ser Gly  Pro Pro Asp
    2165                2170                2175

Ser Met  Ala Ala Ser Pro Ser  Pro Lys Lys Asp Val  Leu Ser Leu
    2180                2185                2190

Ser Gly  Leu Ser Ser Asp Pro  Ala Asp Leu Asp Pro
    2195                2200                2205


<210> 10795
<211> 2227
<212> PRT
<213> Homo sapiens

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type, alpha 1G
subunit; "

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<400> 10795
Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1   5   10   15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100   105   110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115   120   125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130   135   140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145   150   155   160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe

```
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400
```

```
Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620
```

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

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Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
                965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
            980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065
```

```
Ser Pro  His Ser Pro Trp Ser  Ala Ala Ser Ser Trp  Thr Ser Arg
    1070                1075                1080

Arg Ser  Ser Arg Asn Ser Leu  Gly Arg Ala Pro Ser  Leu Lys Arg
    1085                1090                1095

Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110

Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                1120                1125

Ser Pro  Ala Gly Ser Asp His  Arg His Arg Gly Ser  Leu Glu Arg
    1130                1135                1140

Glu Ala  Lys Ser Ser Phe Asp  Leu Pro Asp Thr Leu  Gln Val Pro
    1145                1150                1155

Gly Leu  His Arg Thr Ala Ser  Gly Arg Gly Ser Ala  Ser Glu His
    1160                1165                1170

Gln Asp  Cys Asn Gly Lys Ser  Ala Ser Gly Arg Leu  Ala Arg Ala
    1175                1180                1185

Leu Arg  Pro Asp Asp Pro Pro  Leu Asp Gly Asp Asp  Ala Asp Asp
    1190                1195                1200

Glu Gly  Asn Leu Ser Lys Gly  Glu Arg Val Arg Ala  Trp Ile Arg
    1205                1210                1215

Ala Arg  Leu Pro Ala Cys Cys  Leu Glu Arg Asp Ser  Trp Ser Ala
    1220                1225                1230

Tyr Ile  Phe Pro Pro Gln Ser  Arg Phe Arg Leu Leu  Cys His Arg
    1235                1240                1245

Ile Ile  Thr His Lys Met Phe  Asp His Val Val Leu  Val Ile Ile
    1250                1255                1260

Phe Leu  Asn Cys Ile Thr Ile  Ala Met Glu Arg Pro  Lys Ile Asp
    1265                1270                1275

Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
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1280 1285 1290

Phe Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala
1295 1300 1305

Leu Gly Trp Cys Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser Trp
1310 1315 1320

Asn Val Leu Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile
1325 1330 1335

Leu Val Ser Met Val Ser Asp Ser Gly Thr Lys Ile Leu Gly Met
1340 1345 1350

Leu Arg Val Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val
1355 1360 1365

Ile Ser Arg Ala Gln Gly Leu Lys Leu Val Val Glu Thr Leu Met
1370 1375 1380

Ser Ser Leu Lys Pro Ile Gly Asn Ile Val Val Ile Cys Cys Ala
1385 1390 1395

Phe Phe Ile Ile Phe Gly Ile Leu Gly Val Gln Leu Phe Lys Gly
1400 1405 1410

Lys Phe Phe Val Cys Gln Gly Glu Asp Thr Arg Asn Ile Thr Asn
1415 1420 1425

Lys Ser Asp Cys Ala Glu Ala Ser Tyr Arg Trp Val Arg His Lys
1430 1435 1440

Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser Leu Phe Val
1445 1450 1455

Leu Ala Ser Lys Asp Gly Trp Val Asp Ile Met Tyr Asp Gly Leu
1460 1465 1470

Asp Ala Val Gly Val Asp Gln Gln Asn Phe His Lys Cys Arg Gln
1475 1480 1485

His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu
1490 1495 1500

```
Arg Arg  Leu Glu Lys Lys Arg  Arg Asn Leu Met Leu  Asp Asp Val
    1505                1510                1515

Ile Ala  Ser Gly Ser Ser Ala  Ser Ala Ala Ser Glu  Ala Gln Cys
    1520                1525                1530

Lys Pro  Tyr Tyr Ser Asp Tyr  Ser Arg Phe Arg Leu  Leu Val His
    1535                1540                1545

His Leu  Cys Thr Ser His Tyr  Leu Asp Leu Phe Ile  Thr Gly Val
    1550                1555                1560

Ile Gly  Leu Asn Val Val Thr  Met Ala Met Glu His  Tyr Gln Gln
    1565                1570                1575

Pro Gln  Ile Leu Asp Glu Ala  Leu Lys Ile Cys Asn  Tyr Ile Phe
    1580                1585                1590

Thr Val  Ile Phe Val Leu Glu  Ser Val Phe Lys Leu  Val Ala Phe
    1595                1600                1605

Gly Phe  Arg Arg Phe Phe Gln  Asp Arg Trp Asn Gln  Leu Asp Leu
    1610                1615                1620

Ala Ile  Val Leu Leu Ser Ile  Met Gly Ile Thr Leu  Glu Glu Ile
    1625                1630                1635

Glu Val  Asn Ala Ser Leu Pro  Ile Asn Pro Thr Ile  Ile Arg Ile
    1640                1645                1650

Met Arg  Val Leu Arg Ile Ala  Arg Val Leu Lys Leu  Leu Lys Met
    1655                1660                1665

Ala Val  Gly Met Arg Ala Leu  Leu Asp Thr Val Met  Gln Ala Leu
    1670                1675                1680

Pro Gln  Val Gly Asn Leu Gly  Leu Leu Phe Met Leu  Leu Phe Phe
    1685                1690                1695

Ile Phe  Ala Ala Leu Gly Val  Glu Leu Phe Gly Asp  Leu Glu Cys
    1700                1705                1710
```

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Asp Glu  Thr His Pro Cys Glu  Gly Leu Gly Arg His  Ala Thr Phe
    1715                1720                1725

Arg Asn  Phe Gly Met Ala Phe  Leu Thr Leu Phe Arg  Val Ser Thr
    1730                1735                1740

Gly Asp  Asn Trp Asn Gly Ile  Met Lys Asp Thr Leu  Arg Asp Cys
    1745                1750                1755

Asp Gln  Glu Ser Thr Cys Tyr  Asn Thr Val Ile Ser  Pro Ile Tyr
    1760                1765                1770

Phe Val  Ser Phe Val Leu Thr  Ala Gln Phe Val Leu  Val Asn Val
    1775                1780                1785

Val Ile  Ala Val Leu Met Lys  His Leu Glu Glu Ser  Asn Lys Glu
    1790                1795                1800

Ala Lys  Glu Glu Ala Glu Leu  Glu Ala Glu Leu Glu  Leu Glu Met
    1805                1810                1815

Lys Thr  Leu Ser Pro Gln Pro  His Ser Pro Leu Gly  Ser Pro Phe
    1820                1825                1830

Leu Trp  Pro Gly Val Glu Gly  Pro Asp Ser Pro Asp  Ser Pro Lys
    1835                1840                1845

Pro Gly  Ala Leu His Pro Ala  Ala His Ala Arg Ser  Ala Ser His
    1850                1855                1860

Phe Ser  Leu Glu His Pro Thr  Met Gln Pro His Pro  Thr Glu Leu
    1865                1870                1875

Pro Gly  Pro Asp Leu Leu Thr  Val Arg Lys Ser Gly  Val Ser Arg
    1880                1885                1890

Thr His  Ser Leu Pro Asn Asp  Ser Tyr Met Cys Arg  His Gly Ser
    1895                1900                1905

Thr Ala  Glu Gly Pro Leu Gly  His Arg Gly Trp Gly  Leu Pro Lys
    1910                1915                1920
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Ala Gln Ser Gly Ser Val Leu Ser Val His Ser Gln Pro Ala Asp
1925 1930 1935

Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp Ala Pro His Leu Leu
1940 1945 1950

Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile Pro Lys Leu Pro
1955 1960 1965

Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro Leu Arg Arg Gln
1970 1975 1980

Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln Gly Leu Gly Ser
1985 1990 1995

Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro Ser Pro Pro Leu
2000 2005 2010

Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala Gln
2015 2020 2025

Gln His Ser Arg Ser His Ser Lys Ile Ser Lys His Met Thr Pro
2030 2035 2040

Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro
2045 2050 2055

Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp
2060 2065 2070

Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro Pro
2075 2080 2085

Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser
2090 2095 2100

Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg Arg His
2105 2110 2115

Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu
2120 2125 2130

Gly Thr Asp Pro Ser Asn Leu Gly Gly Gln Pro Leu Gly Gly Pro

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    2135                2140                2145

Gly Ser  Arg Pro Lys Lys Lys  Leu Ser Pro Pro Ser  Ile Thr Ile
    2150                2155                2160

Asp Pro  Pro Glu Ser Gln Gly  Pro Arg Thr Pro Pro  Ser Pro Gly
    2165                2170                2175

Ile Cys  Leu Arg Arg Arg Ala  Pro Ser Ser Asp Ser  Lys Asp Pro
    2180                2185                2190

Leu Ala  Ser Gly Pro Pro Asp  Ser Met Ala Ala Ser  Pro Ser Pro
    2195                2200                2205

Lys Lys  Asp Val Leu Ser Leu  Ser Gly Leu Ser Ser  Asp Pro Ala
    2210                2215                2220

Asp Leu  Asp Pro
    2225


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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240
```

```
Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460
```

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Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
```

690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

```
Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005

Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140
```

```
Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155

Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350
```

```
Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                1510                1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                1525                1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                1555                1560
```

```
Glu Lys  Lys Arg Arg Asn Leu  Met Leu Asp Asp Val  Ile Ala Ser
    1565                1570                1575

Gly Ser  Ser Ala Ser Ala Ala  Ser Glu Ala Gln Cys  Lys Pro Tyr
    1580                1585                1590

Tyr Ser  Asp Tyr Ser Arg Phe  Arg Leu Leu Val His  His Leu Cys
    1595                1600                1605

Thr Ser  His Tyr Leu Asp Leu  Phe Ile Thr Gly Val  Ile Gly Leu
    1610                1615                1620

Asn Val  Val Thr Met Ala Met  Glu His Tyr Gln Gln  Pro Gln Ile
    1625                1630                1635

Leu Asp  Glu Ala Leu Lys Ile  Cys Asn Tyr Ile Phe  Thr Val Ile
    1640                1645                1650

Phe Val  Leu Glu Ser Val Phe  Lys Leu Val Ala Phe  Gly Phe Arg
    1655                1660                1665

Arg Phe  Phe Gln Asp Arg Trp  Asn Gln Leu Asp Leu  Ala Ile Val
    1670                1675                1680

Leu Leu  Ser Ile Met Gly Ile  Thr Leu Glu Glu Ile  Glu Val Asn
    1685                1690                1695

Ala Ser  Leu Pro Ile Asn Pro  Thr Ile Ile Arg Ile  Met Arg Val
    1700                1705                1710

Leu Arg  Ile Ala Arg Val Leu  Lys Leu Leu Lys Met  Ala Val Gly
    1715                1720                1725

Met Arg  Ala Leu Leu Asp Thr  Val Gly Asn Leu Gly  Leu Leu Phe
    1730                1735                1740

Met Leu  Leu Phe Phe Ile Phe  Ala Ala Leu Gly Val  Glu Leu Phe
    1745                1750                1755

Gly Asp  Leu Glu Cys Asp Glu  Thr His Pro Cys Glu  Gly Leu Gly
    1760                1765                1770

Arg His  Ala Thr Phe Arg Asn  Phe Gly Met Ala Phe  Leu Thr Leu
```

1775 1780 1785

Phe Arg Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp
1790 1795 1800

Thr Leu Arg Asp Cys Asp Gln Glu Ser Thr Cys Tyr Asn Thr Val
1805 1810 1815

Ile Ser Pro Ile Tyr Phe Val Ser Phe Val Leu Thr Ala Gln Phe
1820 1825 1830

Val Leu Val Asn Val Val Ile Ala Val Leu Met Lys His Leu Glu
1835 1840 1845

Glu Ser Asn Lys Glu Ala Lys Glu Glu Ala Glu Leu Glu Ala Glu
1850 1855 1860

Leu Glu Leu Glu Met Lys Thr Leu Ser Pro Gln Pro His Ser Pro
1865 1870 1875

Leu Gly Ser Pro Phe Leu Trp Pro Gly Val Glu Gly Pro Asp Ser
1880 1885 1890

Pro Asp Ser Pro Lys Pro Gly Ala Leu His Pro Ala Ala His Ala
1895 1900 1905

Arg Ser Ala Ser His Phe Ser Leu Glu His Pro Thr Met Gln Pro
1910 1915 1920

His Pro Thr Glu Leu Pro Gly Pro Asp Leu Leu Thr Val Arg Lys
1925 1930 1935

Ser Gly Val Ser Arg Thr His Ser Leu Pro Asn Asp Ser Tyr Met
1940 1945 1950

Cys Arg His Gly Ser Thr Ala Glu Gly Pro Leu Gly His Arg Gly
1955 1960 1965

Trp Gly Leu Pro Lys Ala Gln Ser Gly Ser Val Leu Ser Val His
1970 1975 1980

Ser Gln Pro Ala Asp Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp
1985 1990 1995

```
Ala Pro  His Leu Leu Gln Pro  His Ser Ala Pro Thr  Trp Gly Thr
    2000                2005                2010

Ile Pro  Lys Leu Pro Pro Pro  Gly Arg Ser Pro Leu  Ala Gln Arg
    2015                2020                2025

Pro Leu  Arg Arg Gln Ala Ala  Ile Arg Thr Asp Ser  Leu Asp Val
    2030                2035                2040

Gln Gly  Leu Gly Ser Arg Glu  Asp Leu Leu Ala Glu  Val Ser Gly
    2045                2050                2055

Pro Ser  Pro Pro Leu Ala Arg  Ala Tyr Ser Phe Trp  Gly Gln Ser
    2060                2065                2070

Ser Thr  Gln Ala Gln Gln His  Ser Arg Ser His Ser  Lys Ile Ser
    2075                2080                2085

Lys His  Met Thr Pro Pro Ala  Pro Cys Pro Gly Pro  Glu Pro Asn
    2090                2095                2100

Trp Gly  Lys Gly Pro Pro Glu  Thr Arg Ser Ser Leu  Glu Leu Asp
    2105                2110                2115

Thr Glu  Leu Ser Trp Ile Ser  Gly Asp Leu Leu Pro  Pro Gly Gly
    2120                2125                2130

Gln Glu  Glu Pro Pro Ser Pro  Arg Asp Leu Lys Lys  Cys Tyr Ser
    2135                2140                2145

Val Glu  Ala Gln Ser Cys Gln  Arg Arg Pro Thr Ser  Trp Leu Asp
    2150                2155                2160

Glu Gln  Arg Arg His Ser Ile  Ala Val Ser Cys Leu  Asp Ser Gly
    2165                2170                2175

Ser Gln  Pro His Leu Gly Thr  Asp Pro Ser Asn Leu  Gly Gly Gln
    2180                2185                2190

Pro Leu  Gly Gly Pro Gly Ser  Arg Pro Lys Lys Lys  Leu Ser Pro
    2195                2200                2205
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```
Pro Ser  Ile Thr Ile Asp Pro  Pro Glu Ser Gln Gly  Pro Arg Thr
    2210                2215                2220

Pro Pro  Ser Pro Gly Ile Cys  Leu Arg Arg Arg Ala  Pro Ser Ser
    2225                2230                2235

Asp Ser  Lys Asp Pro Leu Ala  Ser Gly Pro Pro Asp  Ser Met Ala
    2240                2245                2250

Ala Ser  Pro Ser Pro Lys Lys  Asp Val Leu Ser Leu  Ser Gly Leu
    2255                2260                2265

Ser Ser  Asp Pro Ala Asp Leu  Asp Pro
    2270                2275
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30
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Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
```

260 265 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
275 280 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
290 295 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305 310 315 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
325 330 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
340 345 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
355 360 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
370 375 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385 390 395 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
405 410 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
420 425 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
435 440 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
450 455 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465 470 475 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
485 490 495

```
His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720
```

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

```
Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005

Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155
```

```
Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
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1370 1375 1380

Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly Leu
1385 1390 1395

Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu Lys Pro Ile Gly
1400 1405 1410

Asn Ile Val Val Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile
1415 1420 1425

Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Val Cys Gln Gly
1430 1435 1440

Glu Asp Thr Arg Asn Ile Thr Asn Lys Ser Asp Cys Ala Glu Ala
1445 1450 1455

Ser Tyr Arg Trp Val Arg His Lys Tyr Asn Phe Asp Asn Leu Gly
1460 1465 1470

Gln Ala Leu Met Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp
1475 1480 1485

Val Asp Ile Met Tyr Asp Gly Leu Asp Ala Val Gly Val Asp Gln
1490 1495 1500

Gln Pro Ile Met Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile
1505 1510 1515

Ser Phe Leu Leu Ile Val Ala Phe Phe Val Leu Asn Met Phe Val
1520 1525 1530

Gly Val Val Val Glu Asn Phe His Lys Cys Arg Gln His Gln Glu
1535 1540 1545

Glu Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu Arg Arg Leu
1550 1555 1560

Glu Lys Lys Arg Arg Asn Leu Met Leu Asp Asp Val Ile Ala Ser
1565 1570 1575

Gly Ser Ser Ala Ser Ala Ala Ser Glu Ala Gln Cys Lys Pro Tyr
1580 1585 1590

```
Tyr Ser  Asp Tyr Ser Arg Phe  Arg Leu Leu Val His  His Leu Cys
    1595                1600                1605

Thr Ser  His Tyr Leu Asp Leu  Phe Ile Thr Gly Val  Ile Gly Leu
    1610                1615                1620

Asn Val  Val Thr Met Ala Met  Glu His Tyr Gln Gln  Pro Gln Ile
    1625                1630                1635

Leu Asp  Glu Ala Leu Lys Ile  Cys Asn Tyr Ile Phe  Thr Val Ile
    1640                1645                1650

Phe Val  Leu Glu Ser Val Phe  Lys Leu Val Ala Phe  Gly Phe Arg
    1655                1660                1665

Arg Phe  Phe Gln Asp Arg Trp  Asn Gln Leu Asp Leu  Ala Ile Val
    1670                1675                1680

Leu Leu  Ser Ile Met Gly Ile  Thr Leu Glu Glu Ile  Glu Val Asn
    1685                1690                1695

Ala Ser  Leu Pro Ile Asn Pro  Thr Ile Ile Arg Ile  Met Arg Val
    1700                1705                1710

Leu Arg  Ile Ala Arg Val Leu  Lys Leu Leu Lys Met  Ala Val Gly
    1715                1720                1725

Met Arg  Ala Leu Leu Asp Thr  Val Met Gln Ala Leu  Pro Gln Val
    1730                1735                1740

Gly Asn  Leu Gly Leu Leu Phe  Met Leu Leu Phe Phe  Ile Phe Ala
    1745                1750                1755

Ala Leu  Gly Val Glu Leu Phe  Gly Asp Leu Glu Cys  Asp Glu Thr
    1760                1765                1770

His Pro  Cys Glu Gly Leu Gly  Arg His Ala Thr Phe  Arg Asn Phe
    1775                1780                1785

Gly Met  Ala Phe Leu Thr Leu  Phe Arg Val Ser Thr  Gly Asp Asn
    1790                1795                1800
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Trp Asn  Gly Ile Met Lys Asp  Thr Leu Arg Asp Cys  Asp Gln Glu
    1805                 1810                 1815

Ser Thr  Cys Tyr Asn Thr Val  Ile Ser Pro Ile Tyr  Phe Val Ser
    1820                 1825                 1830

Phe Val  Leu Thr Ala Gln Phe  Val Leu Val Asn Val  Val Ile Ala
    1835                 1840                 1845

Val Leu  Met Lys His Leu Glu  Glu Ser Asn Lys Glu  Ala Lys Glu
    1850                 1855                 1860

Glu Ala  Glu Leu Glu Ala Glu  Leu Glu Leu Glu Met  Lys Thr Leu
    1865                 1870                 1875

Ser Pro  Gln Pro His Ser Pro  Leu Gly Ser Pro Phe  Leu Trp Pro
    1880                 1885                 1890

Gly Val  Glu Gly Pro Asp Ser  Pro Asp Ser Pro Lys  Pro Gly Ala
    1895                 1900                 1905

Leu His  Pro Ala Ala His Ala  Arg Ser Ala Ser His  Phe Ser Leu
    1910                 1915                 1920

Glu His  Pro Thr Asp Arg Gln  Leu Phe Asp Thr Ile  Ser Leu Leu
    1925                 1930                 1935

Ile Gln  Gly Ser Leu Glu Trp  Glu Leu Lys Leu Met  Asp Glu Leu
    1940                 1945                 1950

Ala Gly  Pro Gly Gly Gln Pro  Ser Ala Phe Pro Ser  Ala Pro Ser
    1955                 1960                 1965

Leu Gly  Gly Ser Asp Pro Gln  Met Gln Pro His Pro  Thr Glu Leu
    1970                 1975                 1980

Pro Gly  Pro Asp Leu Leu Thr  Val Arg Lys Ser Gly  Val Ser Arg
    1985                 1990                 1995

Thr His  Ser Leu Pro Asn Asp  Ser Tyr Met Cys Arg  His Gly Ser
    2000                 2005                 2010
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Thr Ala Glu Gly Pro Leu Gly His Arg Gly Trp Gly Leu Pro Lys
2015 2020 2025

Ala Gln Ser Gly Ser Val Leu Ser Val His Ser Gln Pro Ala Asp
2030 2035 2040

Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp Ala Pro His Leu Leu
2045 2050 2055

Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile Pro Lys Leu Pro
2060 2065 2070

Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro Leu Arg Arg Gln
2075 2080 2085

Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln Gly Leu Gly Ser
2090 2095 2100

Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro Ser Pro Pro Leu
2105 2110 2115

Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala Gln
2120 2125 2130

Gln His Ser Arg Ser His Ser Lys Ile Ser Lys His Met Thr Pro
2135 2140 2145

Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro
2150 2155 2160

Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp
2165 2170 2175

Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro Pro
2180 2185 2190

Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser
2195 2200 2205

Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg Arg His
2210 2215 2220

Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu

```
    2225                2230                2235

Gly Thr  Asp Pro Ser Asn Leu  Gly Gly Gln Pro Leu  Gly Gly Pro
    2240                2245                2250

Gly Ser  Arg Pro Lys Lys Lys  Leu Ser Pro Pro Ser  Ile Thr Ile
    2255                2260                2265

Asp Pro  Pro Glu Ser Gln Gly  Pro Arg Thr Pro Pro  Ser Pro Gly
    2270                2275                2280

Ile Cys  Leu Arg Arg Arg Ala  Pro Ser Ser Asp Ser  Lys Asp Pro
    2285                2290                2295

Leu Ala  Ser Gly Pro Pro Asp  Ser Met Ala Ala Ser  Pro Ser Pro
    2300                2305                2310

Lys Lys  Asp Val Leu Ser Leu  Ser Gly Leu Ser Ser  Asp Pro Ala
    2315                2320                2325

Asp Leu  Asp Pro
    2330


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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1 5 10 15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
20 25 30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65 70 75 80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
85 90 95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
115 120 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
130 135 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145 150 155 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
165 170 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
180 185 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
195 200 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
210 215 220

```
Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445
```

```
Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
```

675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

```
Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005

Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125
```

```
Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155

Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335
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```
Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                1510                1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                1525                1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545
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Glu Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu Arg Arg Leu
1550 1555 1560

Glu Lys Lys Arg Arg Lys Ala Gln Cys Lys Pro Tyr Tyr Ser Asp
1565 1570 1575

Tyr Ser Arg Phe Arg Leu Leu Val His His Leu Cys Thr Ser His
1580 1585 1590

Tyr Leu Asp Leu Phe Ile Thr Gly Val Ile Gly Leu Asn Val Val
1595 1600 1605

Thr Met Ala Met Glu His Tyr Gln Gln Pro Gln Ile Leu Asp Glu
1610 1615 1620

Ala Leu Lys Ile Cys Asn Tyr Ile Phe Thr Val Ile Phe Val Leu
1625 1630 1635

Glu Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg Arg Phe Phe
1640 1645 1650

Gln Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu Ser
1655 1660 1665

Ile Met Gly Ile Thr Leu Glu Glu Ile Glu Val Asn Ala Ser Leu
1670 1675 1680

Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile
1685 1690 1695

Ala Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly Met Arg Ala
1700 1705 1710

Leu Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val Gly Asn Leu
1715 1720 1725

Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala Ala Leu Gly
1730 1735 1740

Val Glu Leu Phe Gly Asp Leu Glu Cys Asp Glu Thr His Pro Cys
1745 1750 1755

Glu Gly Leu Gly Arg His Ala Thr Phe Arg Asn Phe Gly Met Ala

1760 1765 1770

Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Asn Trp Asn Gly
1775 1780 1785

Ile Met Lys Asp Thr Leu Arg Asp Cys Asp Gln Glu Ser Thr Cys
1790 1795 1800

Tyr Asn Thr Val Ile Ser Pro Ile Tyr Phe Val Ser Phe Val Leu
1805 1810 1815

Thr Ala Gln Phe Val Leu Val Asn Val Val Ile Ala Val Leu Met
1820 1825 1830

Lys His Leu Glu Glu Ser Asn Lys Glu Ala Lys Glu Glu Ala Glu
1835 1840 1845

Leu Glu Ala Glu Leu Glu Leu Glu Met Lys Thr Leu Ser Pro Gln
1850 1855 1860

Pro His Ser Pro Leu Gly Ser Pro Phe Leu Trp Pro Gly Val Glu
1865 1870 1875

Gly Pro Asp Ser Pro Asp Ser Pro Lys Pro Gly Ala Leu His Pro
1880 1885 1890

Ala Ala His Ala Arg Ser Ala Ser His Phe Ser Leu Glu His Pro
1895 1900 1905

Thr Asp Arg Gln Leu Phe Asp Thr Ile Ser Leu Leu Ile Gln Gly
1910 1915 1920

Ser Leu Glu Trp Glu Leu Lys Leu Met Asp Glu Leu Ala Gly Pro
1925 1930 1935

Gly Gly Gln Pro Ser Ala Phe Pro Ser Ala Pro Ser Leu Gly Gly
1940 1945 1950

Ser Asp Pro Gln Met Gln Pro His Pro Thr Glu Leu Pro Gly Pro
1955 1960 1965

Asp Leu Leu Thr Val Arg Lys Ser Gly Val Ser Arg Thr His Ser
1970 1975 1980

```
Leu Pro  Asn Asp Ser Tyr Met  Cys Arg His Gly Ser  Thr Ala Glu
    1985                1990                1995

Gly Pro  Leu Gly His Arg Gly  Trp Gly Leu Pro Lys  Ala Gln Ser
    2000                2005                2010

Gly Ser  Val Leu Ser Val His  Ser Gln Pro Ala Asp  Thr Ser Tyr
    2015                2020                2025

Ile Leu  Gln Leu Pro Lys Asp  Ala Pro His Leu Leu  Gln Pro His
    2030                2035                2040

Ser Ala  Pro Thr Trp Gly Thr  Ile Pro Lys Leu Pro  Pro Pro Gly
    2045                2050                2055

Arg Ser  Pro Leu Ala Gln Arg  Pro Leu Arg Arg Gln  Ala Ala Ile
    2060                2065                2070

Arg Thr  Asp Ser Leu Asp Val  Gln Gly Leu Gly Ser  Arg Glu Asp
    2075                2080                2085

Leu Leu  Ala Glu Val Ser Gly  Pro Ser Pro Pro Leu  Ala Arg Ala
    2090                2095                2100

Tyr Ser  Phe Trp Gly Gln Ser  Ser Thr Gln Ala Gln  Gln His Ser
    2105                2110                2115

Arg Ser  His Ser Lys Ile Ser  Lys His Met Thr Pro  Pro Ala Pro
    2120                2125                2130

Cys Pro  Gly Pro Glu Pro Asn  Trp Gly Lys Gly Pro  Pro Glu Thr
    2135                2140                2145

Arg Ser  Ser Leu Glu Leu Asp  Thr Glu Leu Ser Trp  Ile Ser Gly
    2150                2155                2160

Asp Leu  Leu Pro Pro Gly Gly  Gln Glu Glu Pro Pro  Ser Pro Arg
    2165                2170                2175

Asp Leu  Lys Lys Cys Tyr Ser  Val Glu Ala Gln Ser  Cys Gln Arg
    2180                2185                2190
```

```
Arg Pro  Thr Ser Trp Leu Asp  Glu Gln Arg Arg His  Ser Ile Ala
    2195                2200                2205

Val Ser  Cys Leu Asp Ser Gly  Ser Gln Pro His Leu  Gly Thr Asp
    2210                2215                2220

Pro Ser  Asn Leu Gly Gly Gln  Pro Leu Gly Gly Pro  Gly Ser Arg
    2225                2230                2235

Pro Lys  Lys Lys Leu Ser Pro  Pro Ser Ile Thr Ile  Asp Pro Pro
    2240                2245                2250

Glu Ser  Gln Gly Pro Arg Thr  Pro Pro Ser Pro Gly  Ile Cys Leu
    2255                2260                2265

Arg Arg  Arg Ala Pro Ser Ser  Asp Ser Lys Asp Pro  Leu Ala Ser
    2270                2275                2280

Gly Pro  Pro Asp Ser Met Ala  Ala Ser Pro Ser Pro  Lys Lys Asp
    2285                2290                2295

Val Leu  Ser Leu Ser Gly Leu  Ser Ser Asp Pro Ala  Asp Leu Asp
    2300                2305                2310

Pro
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<211> 2291
<212> PRT
<213> Homo sapiens

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type, alpha 1G
subunit; "

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100   105   110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115   120   125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130   135   140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145   150   155   160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165   170   175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180   185   190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu

```
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430
```

```
Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655
```

```
Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880
```

```
Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005

Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095
```

```
Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155

Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
```

1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Leu Leu
1340 1345 1350

Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser Asp
1355 1360 1365

Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu
1370 1375 1380

Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly Leu
1385 1390 1395

Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu Lys Pro Ile Gly
1400 1405 1410

Asn Ile Val Val Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile
1415 1420 1425

Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Val Cys Gln Gly
1430 1435 1440

Glu Asp Thr Arg Asn Ile Thr Asn Lys Ser Asp Cys Ala Glu Ala
1445 1450 1455

Ser Tyr Arg Trp Val Arg His Lys Tyr Asn Phe Asp Asn Leu Gly
1460 1465 1470

Gln Ala Leu Met Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp
1475 1480 1485

Val Asp Ile Met Tyr Asp Gly Leu Asp Ala Val Gly Val Asp Gln
1490 1495 1500

Gln Pro Ile Met Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile
1505 1510 1515

Ser Phe Leu Leu Ile Val Ala Phe Phe Val Leu Asn Met Phe Val
1520 1525 1530

```
Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                1555                1560

Glu Lys  Lys Arg Arg Ser Lys  Glu Lys Gln Met Ala  Asp Leu Met
    1565                1570                1575

Leu Asp  Asp Val Ile Ala Ser  Gly Ser Ser Ala Ser  Ala Ala Ser
    1580                1585                1590

Glu Ala  Gln Cys Lys Pro Tyr  Tyr Ser Asp Tyr Ser  Arg Phe Arg
    1595                1600                1605

Leu Leu  Val His His Leu Cys  Thr Ser His Tyr Leu  Asp Leu Phe
    1610                1615                1620

Ile Thr  Gly Val Ile Gly Leu  Asn Val Val Thr Met  Ala Met Glu
    1625                1630                1635

His Tyr  Gln Gln Pro Gln Ile  Leu Asp Glu Ala Leu  Lys Ile Cys
    1640                1645                1650

Asn Tyr  Ile Phe Thr Val Ile  Phe Val Leu Glu Ser  Val Phe Lys
    1655                1660                1665

Leu Val  Ala Phe Gly Phe Arg  Arg Phe Phe Gln Asp  Arg Trp Asn
    1670                1675                1680

Gln Leu  Asp Leu Ala Ile Val  Leu Leu Ser Ile Met  Gly Ile Thr
    1685                1690                1695

Leu Glu  Glu Ile Glu Val Asn  Ala Ser Leu Pro Ile  Asn Pro Thr
    1700                1705                1710

Ile Ile  Arg Ile Met Arg Val  Leu Arg Ile Ala Arg  Val Leu Lys
    1715                1720                1725

Leu Leu  Lys Met Ala Val Gly  Met Arg Ala Leu Leu  Asp Thr Val
    1730                1735                1740
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```
Met Gln  Ala Leu Pro Gln Val  Gly Asn Leu Gly Leu  Leu Phe Met
    1745                1750                1755

Leu Leu  Phe Phe Ile Phe Ala  Ala Leu Gly Val Glu  Leu Phe Gly
    1760                1765                1770

Asp Leu  Glu Cys Asp Glu Thr  His Pro Cys Glu Gly  Leu Gly Arg
    1775                1780                1785

His Ala  Thr Phe Arg Asn Phe  Gly Met Ala Phe Leu  Thr Leu Phe
    1790                1795                1800

Arg Val  Ser Thr Gly Asp Asn  Trp Asn Gly Ile Met  Lys Asp Thr
    1805                1810                1815

Leu Arg  Asp Cys Asp Gln Glu  Ser Thr Cys Tyr Asn  Thr Val Ile
    1820                1825                1830

Ser Pro  Ile Tyr Phe Val Ser  Phe Val Leu Thr Ala  Gln Phe Val
    1835                1840                1845

Leu Val  Asn Val Val Ile Ala  Val Leu Met Lys His  Leu Glu Glu
    1850                1855                1860

Ser Asn  Lys Glu Ala Lys Glu  Glu Ala Glu Leu Glu  Ala Glu Leu
    1865                1870                1875

Glu Leu  Glu Met Lys Thr Leu  Ser Pro Gln Pro His  Ser Pro Leu
    1880                1885                1890

Gly Ser  Pro Phe Leu Trp Pro  Gly Val Glu Gly Pro  Asp Ser Pro
    1895                1900                1905

Asp Ser  Pro Lys Pro Gly Ala  Leu His Pro Ala Ala  His Ala Arg
    1910                1915                1920

Ser Ala  Ser His Phe Ser Leu  Glu His Pro Thr Met  Gln Pro His
    1925                1930                1935

Pro Thr  Glu Leu Pro Gly Pro  Asp Leu Leu Thr Val  Arg Lys Ser
    1940                1945                1950
```

```
Gly Val  Ser Arg Thr His Ser  Leu Pro Asn Asp Ser  Tyr Met Cys
    1955                1960                1965

Arg His  Gly Ser Thr Ala Glu  Gly Pro Leu Gly His  Arg Gly Trp
    1970                1975                1980

Gly Leu  Pro Lys Ala Gln Ser  Gly Ser Val Leu Ser  Val His Ser
    1985                1990                1995

Gln Pro  Ala Asp Thr Ser Tyr  Ile Leu Gln Leu Pro  Lys Asp Ala
    2000                2005                2010

Pro His  Leu Leu Gln Pro His  Ser Ala Pro Thr Trp  Gly Thr Ile
    2015                2020                2025

Pro Lys  Leu Pro Pro Pro Gly  Arg Ser Pro Leu Ala  Gln Arg Pro
    2030                2035                2040

Leu Arg  Arg Gln Ala Ala Ile  Arg Thr Asp Ser Leu  Asp Val Gln
    2045                2050                2055

Gly Leu  Gly Ser Arg Glu Asp  Leu Leu Ala Glu Val  Ser Gly Pro
    2060                2065                2070

Ser Pro  Pro Leu Ala Arg Ala  Tyr Ser Phe Trp Gly  Gln Ser Ser
    2075                2080                2085

Thr Gln  Ala Gln Gln His Ser  Arg Ser His Ser Lys  Ile Ser Lys
    2090                2095                2100

His Met  Thr Pro Pro Ala Pro  Cys Pro Gly Pro Glu  Pro Asn Trp
    2105                2110                2115

Gly Lys  Gly Pro Pro Glu Thr  Arg Ser Ser Leu Glu  Leu Asp Thr
    2120                2125                2130

Glu Leu  Ser Trp Ile Ser Gly  Asp Leu Leu Pro Pro  Gly Gly Gln
    2135                2140                2145

Glu Glu  Pro Pro Ser Pro Arg  Asp Leu Lys Lys Cys  Tyr Ser Val
    2150                2155                2160

Glu Ala  Gln Ser Cys Gln Arg  Arg Pro Thr Ser Trp  Leu Asp Glu
```

```
    2165                2170                2175

Gln Arg  Arg His Ser Ile Ala  Val Ser Cys Leu Asp  Ser Gly Ser
    2180                2185                2190

Gln Pro  His Leu Gly Thr Asp  Pro Ser Asn Leu Gly  Gly Gln Pro
    2195                2200                2205

Leu Gly  Gly Pro Gly Ser Arg  Pro Lys Lys Lys Leu  Ser Pro Pro
    2210                2215                2220

Ser Ile  Thr Ile Asp Pro Pro  Glu Ser Gln Gly Pro  Arg Thr Pro
    2225                2230                2235

Pro Ser  Pro Gly Ile Cys Leu  Arg Arg Arg Ala Pro  Ser Ser Asp
    2240                2245                2250

Ser Lys  Asp Pro Leu Ala Ser  Gly Pro Pro Asp Ser  Met Ala Ala
    2255                2260                2265

Ser Pro  Ser Pro Lys Lys Asp  Val Leu Ser Leu Ser  Gly Leu Ser
    2270                2275                2280

Ser Asp  Pro Ala Asp Leu Asp  Pro
    2285                2290


<210> 10800
<211> 1746
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CACNA1G; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
      type, alpha 1G
      subunit; "

<220>
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<223> /note="Uniprot ID:  O43497; "
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<220>
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<400> 10800
Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1   5   10   15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100   105   110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115   120   125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130   135   140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145   150   155   160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165   170   175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180   185   190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195   200   205

```
Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430
```

```
Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
```

660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

```
Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
                965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
            980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065

Ser Pro  His Ser Pro Trp Ser  Ala Ala Ser Ser Trp  Thr Ser Arg
    1070                1075                1080

Arg Ser  Ser Arg Asn Ser Leu  Gly Arg Ala Pro Ser  Leu Lys Arg
    1085                1090                1095

Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110
```

```
Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                 1120                 1125

Ser Pro  Ala Gly Ser Asp His  Arg His Arg Gly Ser  Leu Glu Arg
    1130                 1135                 1140

Glu Ala  Lys Ser Ser Phe Asp  Leu Pro Asp Thr Leu  Gln Val Pro
    1145                 1150                 1155

Gly Leu  His Arg Thr Ala Ser  Gly Arg Gly Ser Ala  Ser Glu His
    1160                 1165                 1170

Gln Asp  Cys Asn Gly Lys Ser  Ala Ser Gly Arg Leu  Ala Arg Ala
    1175                 1180                 1185

Leu Arg  Pro Asp Asp Pro Pro  Leu Asp Gly Asp Asp  Ala Asp Asp
    1190                 1195                 1200

Glu Gly  Asn Leu Ser Lys Gly  Glu Arg Val Arg Ala  Trp Ile Arg
    1205                 1210                 1215

Ala Arg  Leu Pro Ala Cys Cys  Leu Glu Arg Asp Ser  Trp Ser Ala
    1220                 1225                 1230

Tyr Ile  Phe Pro Pro Gln Ser  Arg Phe Arg Leu Leu  Cys His Arg
    1235                 1240                 1245

Ile Ile  Thr His Lys Met Phe  Asp His Val Val Leu  Val Ile Ile
    1250                 1255                 1260

Phe Leu  Asn Cys Ile Thr Ile  Ala Met Glu Arg Pro  Lys Ile Asp
    1265                 1270                 1275

Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
    1280                 1285                 1290

Phe Thr  Ala Val Phe Leu Ala  Glu Met Thr Val Lys  Val Val Ala
    1295                 1300                 1305

Leu Gly  Trp Cys Phe Gly Glu  Gln Ala Tyr Leu Arg  Ser Ser Trp
    1310                 1315                 1320
```

Asn Val Leu Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile
1325 1330 1335

Leu Val Ser Met Val Ser Asp Ser Gly Thr Lys Ile Leu Gly Met
1340 1345 1350

Leu Arg Val Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val
1355 1360 1365

Ile Ser Arg Ala Gln Gly Leu Lys Leu Val Val Glu Thr Leu Met
1370 1375 1380

Ser Ser Leu Lys Pro Ile Gly Asn Ile Val Val Ile Cys Cys Ala
1385 1390 1395

Phe Phe Ile Ile Phe Gly Ile Leu Gly Val Gln Leu Phe Lys Gly
1400 1405 1410

Lys Phe Phe Val Cys Gln Gly Glu Asp Thr Arg Asn Ile Thr Asn
1415 1420 1425

Lys Ser Asp Cys Ala Glu Ala Ser Tyr Arg Trp Val Arg His Lys
1430 1435 1440

Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser Leu Phe Val
1445 1450 1455

Leu Ala Ser Lys Asp Gly Trp Val Asp Ile Met Tyr Asp Gly Leu
1460 1465 1470

Asp Ala Val Gly Val Asp Gln Gln Pro Ile Met Asn His Asn Pro
1475 1480 1485

Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ala Phe
1490 1495 1500

Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His
1505 1510 1515

Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu
1520 1525 1530

Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Asn Leu Met
1535 1540 1545

Leu Asp Asp Val Ile Ala Ser Gly Ser Ser Ala Ser Ala Ala Ser
1550 1555 1560

Glu Ala Gln Cys Lys Pro Tyr Tyr Ser Asp Tyr Ser Arg Phe Arg
1565 1570 1575

Leu Leu Val His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe
1580 1585 1590

Ile Thr Gly Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu
1595 1600 1605

His Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys
1610 1615 1620

Asn Tyr Ile Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys
1625 1630 1635

Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn
1640 1645 1650

Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr
1655 1660 1665

Leu Glu Glu Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr
1670 1675 1680

Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys
1685 1690 1695

Leu Leu Lys Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Leu
1700 1705 1710

Trp Ala Trp Ser Ser Leu Glu Thr Trp Ser Val Thr Arg His Thr
1715 1720 1725

Pro Val Arg Ala Trp Ala Val Met Pro Pro Phe Gly Thr Leu Ala
1730 1735 1740

Trp Pro Ser

1745

<210> 10801
<211> 1765
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: CACNA1G; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1G
subunit; "

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1 5 10 15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
20 25 30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65 70 75 80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
85 90 95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

```
Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335
```

```
Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560
```

```
Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
```

785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
965 970 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser
Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val

1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro
1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

```
Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440
```

```
Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                1510                1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                1525                1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                1555                1560

Glu Lys  Lys Arg Arg Ser Lys  Glu Lys Gln Met Ala  Glu Ala Gln
    1565                1570                1575

Cys Lys  Pro Tyr Tyr Ser Asp  Tyr Ser Arg Phe Arg  Leu Leu Val
    1580                1585                1590

His His  Leu Cys Thr Ser His  Tyr Leu Asp Leu Phe  Ile Thr Gly
    1595                1600                1605

Val Ile  Gly Leu Asn Val Val  Thr Met Ala Met Glu  His Tyr Gln
    1610                1615                1620

Gln Pro  Gln Ile Leu Asp Glu  Ala Leu Lys Ile Cys  Asn Tyr Ile
    1625                1630                1635

Phe Thr  Val Ile Phe Val Leu  Glu Ser Val Phe Lys  Leu Val Ala
    1640                1645                1650
```

```
Phe Gly  Phe Arg Arg Phe Phe  Gln Asp Arg Trp Asn  Gln Leu Asp
    1655                1660                1665

Leu Ala  Ile Val Leu Leu Ser  Ile Met Gly Ile Thr  Leu Glu Glu
    1670                1675                1680

Ile Glu  Val Asn Ala Ser Leu  Pro Ile Asn Pro Thr  Ile Ile Arg
    1685                1690                1695

Ile Met  Arg Val Leu Arg Ile  Ala Arg Val Leu Lys  Leu Leu Lys
    1700                1705                1710

Met Ala  Val Gly Met Arg Ala  Leu Leu Asp Thr Val  Met Gln Ala
    1715                1720                1725

Leu Pro  Gln Leu Trp Ala Trp  Ser Ser Leu Glu Thr  Trp Ser Val
    1730                1735                1740

Thr Arg  His Thr Pro Val Arg  Ala Trp Ala Val Met  Pro Pro Phe
    1745                1750                1755

Gly Thr  Leu Ala Trp Pro Ser
    1760                1765


<210> 10802
<211> 2239
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2145; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA1G; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, T
      type, alpha 1G
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  O43497; "

<220>
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<223> /note="ENSP ID: ENSP00000425451"

<400> 10802

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1               5                  10                  15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220
```

```
Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445
```

```
Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670
```

```
Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
```

```
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005

Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
```

1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro
1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

```
Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Asn  Phe His Lys Cys Arg  Gln His Gln Glu Glu  Glu Glu Ala
    1505                1510                1515

Arg Arg  Arg Glu Glu Lys Arg  Leu Arg Arg Leu Glu  Lys Lys Arg
    1520                1525                1530

Arg Ser  Lys Glu Lys Gln Met  Ala Glu Ala Gln Cys  Lys Pro Tyr
    1535                1540                1545
```

Tyr Ser Asp Tyr Ser Arg Phe Arg Leu Leu Val His His Leu Cys
1550 1555 1560

Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Gly Val Ile Gly Leu
1565 1570 1575

Asn Val Val Thr Met Ala Met Glu His Tyr Gln Gln Pro Gln Ile
1580 1585 1590

Leu Asp Glu Ala Leu Lys Ile Cys Asn Tyr Ile Phe Thr Val Ile
1595 1600 1605

Phe Val Leu Glu Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg
1610 1615 1620

Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val
1625 1630 1635

Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu Ile Glu Val Asn
1640 1645 1650

Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val
1655 1660 1665

Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly
1670 1675 1680

Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val
1685 1690 1695

Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala
1700 1705 1710

Ala Leu Gly Val Glu Leu Phe Gly Asp Leu Glu Cys Asp Glu Thr
1715 1720 1725

His Pro Cys Glu Gly Leu Gly Arg His Ala Thr Phe Arg Asn Phe
1730 1735 1740

Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Asn
1745 1750 1755

```
Trp Asn  Gly Ile Met Lys Asp  Thr Leu Arg Asp Cys  Asp Gln Glu
    1760                1765                1770

Ser Thr  Cys Tyr Asn Thr Val  Ile Ser Pro Ile Tyr  Phe Val Ser
    1775                1780                1785

Phe Val  Leu Thr Ala Gln Phe  Val Leu Val Asn Val  Val Ile Ala
    1790                1795                1800

Val Leu  Met Lys His Leu Glu  Glu Ser Asn Lys Glu  Ala Lys Glu
    1805                1810                1815

Glu Ala  Glu Leu Glu Ala Glu  Leu Glu Leu Glu Met  Lys Thr Leu
    1820                1825                1830

Ser Pro  Gln Pro His Ser Pro  Leu Gly Ser Pro Phe  Leu Trp Pro
    1835                1840                1845

Gly Val  Glu Gly Pro Asp Ser  Pro Asp Ser Pro Lys  Pro Gly Ala
    1850                1855                1860

Leu His  Pro Ala Ala His Ala  Arg Ser Ala Ser His  Phe Ser Leu
    1865                1870                1875

Glu His  Pro Thr Met Gln Pro  His Pro Thr Glu Leu  Pro Gly Pro
    1880                1885                1890

Asp Leu  Leu Thr Val Arg Lys  Ser Gly Val Ser Arg  Thr His Ser
    1895                1900                1905

Leu Pro  Asn Asp Ser Tyr Met  Cys Arg His Gly Ser  Thr Ala Glu
    1910                1915                1920

Gly Pro  Leu Gly His Arg Gly  Trp Gly Leu Pro Lys  Ala Gln Ser
    1925                1930                1935

Gly Ser  Val Leu Ser Val His  Ser Gln Pro Ala Asp  Thr Ser Tyr
    1940                1945                1950

Ile Leu  Gln Leu Pro Lys Asp  Ala Pro His Leu Leu  Gln Pro His
    1955                1960                1965

Ser Ala  Pro Thr Trp Gly Thr  Ile Pro Lys Leu Pro  Pro Pro Gly
```

1970 1975 1980

Arg Ser Pro Leu Ala Gln Arg Pro Leu Arg Arg Gln Ala Ala Ile
1985 1990 1995

Arg Thr Asp Ser Leu Asp Val Gln Gly Leu Gly Ser Arg Glu Asp
2000 2005 2010

Leu Leu Ala Glu Val Ser Gly Pro Ser Pro Pro Leu Ala Arg Ala
2015 2020 2025

Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala Gln Gln His Ser
2030 2035 2040

Arg Ser His Ser Lys Ile Ser Lys His Met Thr Pro Pro Ala Pro
2045 2050 2055

Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro Pro Glu Thr
2060 2065 2070

Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp Ile Ser Gly
2075 2080 2085

Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro Pro Ser Pro Arg
2090 2095 2100

Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser Cys Gln Arg
2105 2110 2115

Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg Arg His Ser Ile Ala
2120 2125 2130

Val Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu Gly Thr Asp
2135 2140 2145

Pro Ser Asn Leu Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg
2150 2155 2160

Pro Lys Lys Lys Leu Ser Pro Pro Ser Ile Thr Ile Asp Pro Pro
2165 2170 2175

Glu Ser Gln Gly Pro Arg Thr Pro Pro Ser Pro Gly Ile Cys Leu
2180 2185 2190

```
Arg Arg  Arg Ala Pro Ser Ser  Asp Ser Lys Asp Pro  Leu Ala Ser
    2195                2200                2205


Gly Pro  Pro Asp Ser Met Ala  Ala Ser Pro Ser Pro  Lys Lys Asp
    2210                2215                2220


Val Leu  Ser Leu Ser Gly Leu  Ser Ser Asp Pro Ala  Asp Leu Asp
    2225                2230                2235


Pro
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<210> 10803
<211> 2306
<212> PRT
<213> Homo sapiens

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<220>
<221> source
<223> /note="Gene Symbol: CACNA1G; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1G
subunit; "

<220>
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<223> /note="Uniprot ID: O43497; "

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<400> 10803

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1               5                  10                  15


Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30


Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45
```

```
Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270
```

```
Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
```

```
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735
```

```
Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960
```

```
Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
               965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
           980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065

Ser Pro  His Ser Pro Trp Ser  Ala Ala Ser Ser Trp  Thr Ser Arg
    1070                1075                1080

Arg Ser  Ser Arg Asn Ser Leu  Gly Arg Ala Pro Ser  Leu Lys Arg
    1085                1090                1095

Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110

Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                1120                1125

Ser Pro  Ala Gly Ser Asp His  Arg His Arg Gly Ser  Leu Glu Arg
    1130                1135                1140

Glu Ala  Lys Ser Ser Phe Asp  Leu Pro Asp Thr Leu  Gln Val Pro
    1145                1150                1155

Gly Leu  His Arg Thr Ala Ser  Gly Arg Gly Ser Ala  Ser Glu His
    1160                1165                1170
```

```
Gln Asp  Cys Asn Gly Lys Ser  Ala Ser Gly Arg Leu  Ala Arg Ala
    1175                1180                1185

Leu Arg  Pro Asp Asp Pro Pro  Leu Asp Gly Asp Asp  Ala Asp Asp
    1190                1195                1200

Glu Gly  Asn Leu Ser Lys Gly  Glu Arg Val Arg Ala  Trp Ile Arg
    1205                1210                1215

Ala Arg  Leu Pro Ala Cys Cys  Leu Glu Arg Asp Ser  Trp Ser Ala
    1220                1225                1230

Tyr Ile  Phe Pro Pro Gln Ser  Arg Phe Arg Leu Leu  Cys His Arg
    1235                1240                1245

Ile Ile  Thr His Lys Met Phe  Asp His Val Val Leu  Val Ile Ile
    1250                1255                1260

Phe Leu  Asn Cys Ile Thr Ile  Ala Met Glu Arg Pro  Lys Ile Asp
    1265                1270                1275

Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
    1280                1285                1290

Phe Thr  Ala Val Phe Leu Ala  Glu Met Thr Val Lys  Val Val Ala
    1295                1300                1305

Leu Gly  Trp Cys Phe Gly Glu  Gln Ala Tyr Leu Arg  Ser Ser Trp
    1310                1315                1320

Asn Val  Leu Asp Gly Leu Leu  Val Leu Ile Ser Val  Ile Asp Ile
    1325                1330                1335

Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380
```

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Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
    1490                1495                1500

Phe Val  Leu Asn Met Phe Val  Gly Val Val Val Glu  Asn Phe His
    1505                1510                1515

Lys Cys  Arg Gln His Gln Glu  Glu Glu Glu Ala Arg  Arg Arg Glu
    1520                1525                1530

Glu Lys  Arg Leu Arg Arg Leu  Glu Lys Lys Arg Arg  Asn Leu Met
    1535                1540                1545

Leu Asp  Asp Val Ile Ala Ser  Gly Ser Ser Ala Ser  Ala Ala Ser
    1550                1555                1560

Glu Ala  Gln Cys Lys Pro Tyr  Tyr Ser Asp Tyr Ser  Arg Phe Arg
    1565                1570                1575

Leu Leu  Val His His Leu Cys  Thr Ser His Tyr Leu  Asp Leu Phe
    1580                1585                1590

Ile Thr  Gly Val Ile Gly Leu  Asn Val Val Thr Met  Ala Met Glu
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1595 1600 1605

His Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys
1610 1615 1620

Asn Tyr Ile Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys
1625 1630 1635

Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn
1640 1645 1650

Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr
1655 1660 1665

Leu Glu Glu Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr
1670 1675 1680

Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys
1685 1690 1695

Leu Leu Lys Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Val
1700 1705 1710

Met Gln Ala Leu Pro Gln Val Gly Asn Leu Gly Leu Leu Phe Met
1715 1720 1725

Leu Leu Phe Phe Ile Phe Ala Ala Leu Gly Val Glu Leu Phe Gly
1730 1735 1740

Asp Leu Glu Cys Asp Glu Thr His Pro Cys Glu Gly Leu Gly Arg
1745 1750 1755

His Ala Thr Phe Arg Asn Phe Gly Met Ala Phe Leu Thr Leu Phe
1760 1765 1770

Arg Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr
1775 1780 1785

Leu Arg Asp Cys Asp Gln Glu Ser Thr Cys Tyr Asn Thr Val Ile
1790 1795 1800

Ser Pro Ile Tyr Phe Val Ser Phe Val Leu Thr Ala Gln Phe Val
1805 1810 1815

```
Leu Val  Asn Val Val Ile Ala  Val Leu Met Lys His  Leu Glu Glu
    1820                1825                1830

Ser Asn  Lys Glu Ala Lys Glu  Glu Ala Glu Leu Glu  Ala Glu Leu
    1835                1840                1845

Glu Leu  Glu Met Lys Thr Leu  Ser Pro Gln Pro His  Ser Pro Leu
    1850                1855                1860

Gly Ser  Pro Phe Leu Trp Pro  Gly Val Glu Gly Pro  Asp Ser Pro
    1865                1870                1875

Asp Ser  Pro Lys Pro Gly Ala  Leu His Pro Ala Ala  His Ala Arg
    1880                1885                1890

Ser Ala  Ser His Phe Ser Leu  Glu His Pro Thr Ile  Pro Leu Ala
    1895                1900                1905

Glu Met  Glu Ala Leu Ser Leu  Thr Ser Glu Ile Val  Ser Glu Pro
    1910                1915                1920

Ser Cys  Ser Leu Ala Leu Thr  Asp Asp Ser Leu Pro  Asp Asp Met
    1925                1930                1935

His Thr  Leu Leu Leu Ser Ala  Leu Glu Ser Asn Met  Gln Pro His
    1940                1945                1950

Pro Thr  Glu Leu Pro Gly Pro  Asp Leu Leu Thr Val  Arg Lys Ser
    1955                1960                1965

Gly Val  Ser Arg Thr His Ser  Leu Pro Asn Asp Ser  Tyr Met Cys
    1970                1975                1980

Arg His  Gly Ser Thr Ala Glu  Gly Pro Leu Gly His  Arg Gly Trp
    1985                1990                1995

Gly Leu  Pro Lys Ala Gln Ser  Gly Ser Val Leu Ser  Val His Ser
    2000                2005                2010

Gln Pro  Ala Asp Thr Ser Tyr  Ile Leu Gln Leu Pro  Lys Asp Ala
    2015                2020                2025
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Pro His Leu Leu Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile
2030 2035 2040

Pro Lys Leu Pro Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro
2045 2050 2055

Leu Arg Arg Gln Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln
2060 2065 2070

Gly Leu Gly Ser Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro
2075 2080 2085

Ser Pro Pro Leu Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser
2090 2095 2100

Thr Gln Ala Gln Gln His Ser Arg Ser His Ser Lys Ile Ser Lys
2105 2110 2115

His Met Thr Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp
2120 2125 2130

Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr
2135 2140 2145

Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln
2150 2155 2160

Glu Glu Pro Pro Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val
2165 2170 2175

Glu Ala Gln Ser Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu
2180 2185 2190

Gln Arg Arg His Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser
2195 2200 2205

Gln Pro His Leu Gly Thr Asp Pro Ser Asn Leu Gly Gly Gln Pro
2210 2215 2220

Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys Lys Leu Ser Pro Pro
2225 2230 2235

```
Ser Ile  Thr Ile Asp Pro Pro  Glu Ser Gln Gly Pro  Arg Thr Pro
    2240                2245                2250

Pro Ser  Pro Gly Ile Cys Leu  Arg Arg Arg Ala Pro  Ser Ser Asp
    2255                2260                2265

Ser Lys  Asp Pro Leu Ala Ser  Gly Pro Pro Asp Ser  Met Ala Ala
    2270                2275                2280

Ser Pro  Ser Pro Lys Lys Asp  Val Leu Ser Leu Ser  Gly Leu Ser
    2285                2290                2295

Ser Asp  Pro Ala Asp Leu Asp  Pro
    2300                2305


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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
```

```
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270
```

```
Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495
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```
His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720
```

```
Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
```

945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
965 970 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser
Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp

1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro
1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Leu Leu
1340 1345 1350

Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser Asp
1355 1360 1365

Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu
1370 1375 1380

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Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                1510                1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                1525                1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                1540                1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                1555                1560

Glu Lys  Lys Arg Arg Lys Ala  Gln Cys Lys Pro Tyr  Tyr Ser Asp
    1565                1570                1575

Tyr Ser  Arg Phe Arg Leu Leu  Val His His Leu Cys  Thr Ser His
    1580                1585                1590
```

```
Tyr Leu  Asp Leu Phe Ile Thr  Gly Val Ile Gly Leu  Asn Val Val
    1595                1600                1605

Thr Met  Ala Met Glu His Tyr  Gln Gln Pro Gln Ile  Leu Asp Glu
    1610                1615                1620

Ala Leu  Lys Ile Cys Asn Tyr  Ile Phe Thr Val Ile  Phe Val Leu
    1625                1630                1635

Glu Ser  Val Phe Lys Leu Val  Ala Phe Gly Phe Arg  Arg Phe Phe
    1640                1645                1650

Gln Asp  Arg Trp Asn Gln Leu  Asp Leu Ala Ile Val  Leu Leu Ser
    1655                1660                1665

Ile Met  Gly Ile Thr Leu Glu  Glu Ile Glu Val Asn  Ala Ser Leu
    1670                1675                1680

Pro Ile  Asn Pro Thr Ile Ile  Arg Ile Met Arg Val  Leu Arg Ile
    1685                1690                1695

Ala Arg  Val Leu Lys Leu Leu  Lys Met Ala Val Gly  Met Arg Ala
    1700                1705                1710

Leu Leu  Asp Thr Val Gly Asn  Leu Gly Leu Leu Phe  Met Leu Leu
    1715                1720                1725

Phe Phe  Ile Phe Ala Ala Leu  Gly Val Glu Leu Phe  Gly Asp Leu
    1730                1735                1740

Glu Cys  Asp Glu Thr His Pro  Cys Glu Gly Leu Gly  Arg His Ala
    1745                1750                1755

Thr Phe  Arg Asn Phe Gly Met  Ala Phe Leu Thr Leu  Phe Arg Val
    1760                1765                1770

Ser Thr  Gly Asp Asn Trp Asn  Gly Ile Met Lys Asp  Thr Leu Arg
    1775                1780                1785

Asp Cys  Asp Gln Glu Ser Thr  Cys Tyr Asn Thr Val  Ile Ser Pro
    1790                1795                1800
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Ile Tyr  Phe Val Ser Phe Val  Leu Thr Ala Gln Phe  Val Leu Val
    1805                 1810                 1815

Asn Val  Val Ile Ala Val Leu  Met Lys His Leu Glu  Glu Ser Asn
    1820                 1825                 1830

Lys Glu  Ala Lys Glu Glu Ala  Glu Leu Glu Ala Glu  Leu Glu Leu
    1835                 1840                 1845

Glu Met  Lys Thr Leu Ser Pro  Gln Pro His Ser Pro  Leu Gly Ser
    1850                 1855                 1860

Pro Phe  Leu Trp Pro Gly Val  Glu Gly Pro Asp Ser  Pro Asp Ser
    1865                 1870                 1875

Pro Lys  Pro Gly Ala Leu His  Pro Ala Ala His Ala  Arg Ser Ala
    1880                 1885                 1890

Ser His  Phe Ser Leu Glu His  Pro Thr Met Gln Pro  His Pro Thr
    1895                 1900                 1905

Glu Leu  Pro Gly Pro Asp Leu  Leu Thr Val Arg Lys  Ser Gly Val
    1910                 1915                 1920

Ser Arg  Thr His Ser Leu Pro  Asn Asp Ser Tyr Met  Cys Arg His
    1925                 1930                 1935

Gly Ser  Thr Ala Glu Gly Pro  Leu Gly His Arg Gly  Trp Gly Leu
    1940                 1945                 1950

Pro Lys  Ala Gln Ser Gly Ser  Val Leu Ser Val His  Ser Gln Pro
    1955                 1960                 1965

Ala Asp  Thr Ser Tyr Ile Leu  Gln Leu Pro Lys Asp  Ala Pro His
    1970                 1975                 1980

Leu Leu  Gln Pro His Ser Ala  Pro Thr Trp Gly Thr  Ile Pro Lys
    1985                 1990                 1995

Leu Pro  Pro Pro Gly Arg Ser  Pro Leu Ala Gln Arg  Pro Leu Arg
    2000                 2005                 2010

Arg Gln  Ala Ala Ile Arg Thr  Asp Ser Leu Asp Val  Gln Gly Leu
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2015 2020 2025

Gly Ser Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro Ser Pro
2030 2035 2040

Pro Leu Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln
2045 2050 2055

Ala Gln Gln His Ser Arg Ser His Ser Lys Ile Ser Lys His Met
2060 2065 2070

Thr Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys
2075 2080 2085

Gly Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu
2090 2095 2100

Ser Trp Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu
2105 2110 2115

Pro Pro Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala
2120 2125 2130

Gln Ser Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg
2135 2140 2145

Arg His Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser Gln Pro
2150 2155 2160

His Leu Gly Thr Asp Pro Ser Asn Leu Gly Gly Gln Pro Leu Gly
2165 2170 2175

Gly Pro Gly Ser Arg Pro Lys Lys Lys Leu Ser Pro Pro Ser Ile
2180 2185 2190

Thr Ile Asp Pro Pro Glu Ser Gln Gly Pro Arg Thr Pro Pro Ser
2195 2200 2205

Pro Gly Ile Cys Leu Arg Arg Arg Ala Pro Ser Ser Asp Ser Lys
2210 2215 2220

Asp Pro Leu Ala Ser Gly Pro Pro Asp Ser Met Ala Ala Ser Pro
2225 2230 2235

Ser Pro Lys Lys Asp Val Leu Ser Leu Ser Gly Leu Ser Ser Asp
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Pro Ala Asp Leu Asp Pro
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subunit; "

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1 5 10 15

Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
20 25 30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65 70 75 80

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Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300
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```
Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
```

```
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765
```

```
Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990
```

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

```
Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                 1210                 1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                 1225                 1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                 1240                 1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                 1255                 1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                 1270                 1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                 1285                 1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                 1300                 1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                 1315                 1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                 1330                 1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                 1345                 1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                 1360                 1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                 1375                 1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                 1390                 1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                 1405                 1410
```

```
Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                 1420                 1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                 1435                 1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                 1450                 1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                 1465                 1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                 1480                 1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                 1495                 1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                 1510                 1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                 1525                 1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                 1540                 1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                 1555                 1560

Glu Lys  Lys Arg Arg Asn Leu  Met Leu Asp Asp Val  Ile Ala Ser
    1565                 1570                 1575

Gly Ser  Ser Ala Ser Ala Ala  Ser Glu Ala Gln Cys  Lys Pro Tyr
    1580                 1585                 1590

Tyr Ser  Asp Tyr Ser Arg Phe  Arg Leu Leu Val His  His Leu Cys
    1595                 1600                 1605

Thr Ser  His Tyr Leu Asp Leu  Phe Ile Thr Gly Val  Ile Gly Leu
    1610                 1615                 1620

Asn Val  Val Thr Met Ala Met  Glu His Tyr Gln Gln  Pro Gln Ile
```

1625 1630 1635

Leu Asp Glu Ala Leu Lys Ile Cys Asn Tyr Ile Phe Thr Val Ile
1640 1645 1650

Phe Val Leu Glu Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg
1655 1660 1665

Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val
1670 1675 1680

Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu Ile Glu Val Asn
1685 1690 1695

Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val
1700 1705 1710

Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly
1715 1720 1725

Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val
1730 1735 1740

Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala
1745 1750 1755

Ala Leu Gly Val Glu Leu Phe Gly Asp Leu Glu Cys Asp Glu Thr
1760 1765 1770

His Pro Cys Glu Gly Leu Gly Arg His Ala Thr Phe Arg Asn Phe
1775 1780 1785

Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Asn
1790 1795 1800

Trp Asn Gly Ile Met Lys Asp Thr Leu Arg Asp Cys Asp Gln Glu
1805 1810 1815

Ser Thr Cys Tyr Asn Thr Val Ile Ser Pro Ile Tyr Phe Val Ser
1820 1825 1830

Phe Val Leu Thr Ala Gln Phe Val Leu Val Asn Val Val Ile Ala
1835 1840 1845

```
Val Leu  Met Lys His Leu Glu  Glu Ser Asn Lys Glu  Ala Lys Glu
    1850                1855                1860

Glu Ala  Glu Leu Glu Ala Glu  Leu Glu Leu Glu Met  Lys Thr Leu
    1865                1870                1875

Ser Pro  Gln Pro His Ser Pro  Leu Gly Ser Pro Phe  Leu Trp Pro
    1880                1885                1890

Gly Val  Glu Gly Pro Asp Ser  Pro Asp Ser Pro Lys  Pro Gly Ala
    1895                1900                1905

Leu His  Pro Ala Ala His Ala  Arg Ser Ala Ser His  Phe Ser Leu
    1910                1915                1920

Glu His  Pro Thr Met Gln Pro  His Pro Thr Glu Leu  Pro Gly Pro
    1925                1930                1935

Asp Leu  Leu Thr Val Arg Lys  Ser Gly Val Ser Arg  Thr His Ser
    1940                1945                1950

Leu Pro  Asn Asp Ser Tyr Met  Cys Arg His Gly Ser  Thr Ala Glu
    1955                1960                1965

Gly Pro  Leu Gly His Arg Gly  Trp Gly Leu Pro Lys  Ala Gln Ser
    1970                1975                1980

Gly Ser  Val Leu Ser Val His  Ser Gln Pro Ala Asp  Thr Ser Tyr
    1985                1990                1995

Ile Leu  Gln Leu Pro Lys Asp  Ala Pro His Leu Leu  Gln Pro His
    2000                2005                2010

Ser Ala  Pro Thr Trp Gly Thr  Ile Pro Lys Leu Pro  Pro Pro Gly
    2015                2020                2025

Arg Ser  Pro Leu Ala Gln Arg  Pro Leu Arg Arg Gln  Ala Ala Ile
    2030                2035                2040

Arg Thr  Asp Ser Leu Asp Val  Gln Gly Leu Gly Ser  Arg Glu Asp
    2045                2050                2055
```

```
Leu Leu  Ala Glu Val Ser Gly  Pro Ser Pro Pro Leu  Ala Arg Ala
    2060                2065                2070

Tyr Ser  Phe Trp Gly Gln Ser  Ser Thr Gln Ala Gln  Gln His Ser
    2075                2080                2085

Arg Ser  His Ser Lys Ile Ser  Lys His Met Thr Pro  Pro Ala Pro
    2090                2095                2100

Cys Pro  Gly Pro Glu Pro Asn  Trp Gly Lys Gly Pro  Pro Glu Thr
    2105                2110                2115

Arg Ser  Ser Leu Glu Leu Asp  Thr Glu Leu Ser Trp  Ile Ser Gly
    2120                2125                2130

Asp Leu  Leu Pro Pro Gly Gly  Gln Glu Glu Pro Pro  Ser Pro Arg
    2135                2140                2145

Asp Leu  Lys Lys Cys Tyr Ser  Val Glu Ala Gln Ser  Cys Gln Arg
    2150                2155                2160

Arg Pro  Thr Ser Trp Leu Asp  Glu Gln Arg Arg His  Ser Ile Ala
    2165                2170                2175

Val Ser  Cys Leu Asp Ser Gly  Ser Gln Pro His Leu  Gly Thr Asp
    2180                2185                2190

Pro Ser  Asn Leu Gly Gly Gln  Pro Leu Gly Gly Pro  Gly Ser Arg
    2195                2200                2205

Pro Lys  Lys Lys Leu Ser Pro  Pro Ser Ile Thr Ile  Asp Pro Pro
    2210                2215                2220

Glu Ser  Gln Gly Pro Arg Thr  Pro Pro Ser Pro Gly  Ile Cys Leu
    2225                2230                2235

Arg Arg  Arg Ala Pro Ser Ser  Asp Ser Lys Asp Pro  Leu Ala Ser
    2240                2245                2250

Gly Pro  Pro Asp Ser Met Ala  Ala Ser Pro Ser Pro  Lys Lys Asp
    2255                2260                2265
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Val Leu Ser Leu Ser Gly Leu Ser Ser Asp Pro Ala Asp Leu Asp
2270 2275 2280

Pro

<210> 10806
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<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: CACNA1G; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
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subunit; "

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
20 25 30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65 70 75 80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val

```
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320
```

```
Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540
```

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

```
Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
```

Pro

995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro

1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Leu Leu
1340 1345 1350

Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser Asp
1355 1360 1365

Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu
1370 1375 1380

Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly Leu
1385 1390 1395

Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu Lys Pro Ile Gly
1400 1405 1410

Asn Ile Val Val Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile
1415 1420 1425

```
Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Asn  Phe His Lys Cys Arg  Gln His Gln Glu Glu  Glu Glu Ala
    1505                1510                1515

Arg Arg  Arg Glu Glu Lys Arg  Leu Arg Arg Leu Glu  Lys Lys Arg
    1520                1525                1530

Arg Ser  Lys Glu Lys Gln Met  Ala Glu Ala Gln Cys  Lys Pro Tyr
    1535                1540                1545

Tyr Ser  Asp Tyr Ser Arg Phe  Arg Leu Leu Val His  His Leu Cys
    1550                1555                1560

Thr Ser  His Tyr Leu Asp Leu  Phe Ile Thr Gly Val  Ile Gly Leu
    1565                1570                1575

Asn Val  Val Thr Met Ala Met  Glu His Tyr Gln Gln  Pro Gln Ile
    1580                1585                1590

Leu Asp  Glu Ala Leu Lys Ile  Cys Asn Tyr Ile Phe  Thr Val Ile
    1595                1600                1605

Phe Val  Leu Glu Ser Val Phe  Lys Leu Val Ala Phe  Gly Phe Arg
    1610                1615                1620

Arg Phe  Phe Gln Asp Arg Trp  Asn Gln Leu Asp Leu  Ala Ile Val
    1625                1630                1635
```

```
Leu Leu  Ser Ile Met Gly Ile  Thr Leu Glu Glu Ile  Glu Val Asn
    1640                1645                1650

Ala Ser  Leu Pro Ile Asn Pro  Thr Ile Ile Arg Ile  Met Arg Val
    1655                1660                1665

Leu Arg  Ile Ala Arg Val Leu  Lys Leu Leu Lys Met  Ala Val Gly
    1670                1675                1680

Met Arg  Ala Leu Leu Asp Thr  Val Met Gln Ala Leu  Pro Gln Val
    1685                1690                1695

Gly Asn  Leu Gly Leu Leu Phe  Met Leu Leu Phe Phe  Ile Phe Ala
    1700                1705                1710

Ala Leu  Gly Val Glu Leu Phe  Gly Asp Leu Glu Cys  Asp Glu Thr
    1715                1720                1725

His Pro  Cys Glu Gly Leu Gly  Arg His Ala Thr Phe  Arg Asn Phe
    1730                1735                1740

Gly Met  Ala Phe Leu Thr Leu  Phe Arg Val Ser Thr  Gly Asp Asn
    1745                1750                1755

Trp Asn  Gly Ile Met Lys Asp  Thr Leu Arg Asp Cys  Asp Gln Glu
    1760                1765                1770

Ser Thr  Cys Tyr Asn Thr Val  Ile Ser Pro Ile Tyr  Phe Val Ser
    1775                1780                1785

Phe Val  Leu Thr Ala Gln Phe  Val Leu Val Asn Val  Val Ile Ala
    1790                1795                1800

Val Leu  Met Lys His Leu Glu  Glu Ser Asn Lys Glu  Ala Lys Glu
    1805                1810                1815

Glu Ala  Glu Leu Glu Ala Glu  Leu Glu Leu Glu Met  Lys Thr Leu
    1820                1825                1830

Ser Pro  Gln Pro His Ser Pro  Leu Gly Ser Pro Phe  Leu Trp Pro
    1835                1840                1845
```

Gly Val Glu Gly Pro Asp Ser Pro Asp Ser Pro Lys Pro Gly Ala
1850 1855 1860

Leu His Pro Ala Ala His Ala Arg Ser Ala Ser His Phe Ser Leu
1865 1870 1875

Glu His Pro Thr Asp Arg Gln Leu Phe Asp Thr Ile Ser Leu Leu
1880 1885 1890

Ile Gln Gly Ser Leu Glu Trp Glu Leu Lys Leu Met Asp Glu Leu
1895 1900 1905

Ala Gly Pro Gly Gly Gln Pro Ser Ala Phe Pro Ser Ala Pro Ser
1910 1915 1920

Leu Gly Gly Ser Asp Pro Gln Met Gln Pro His Pro Thr Glu Leu
1925 1930 1935

Pro Gly Pro Asp Leu Leu Thr Val Arg Lys Ser Gly Val Ser Arg
1940 1945 1950

Thr His Ser Leu Pro Asn Asp Ser Tyr Met Cys Arg His Gly Ser
1955 1960 1965

Thr Ala Glu Gly Pro Leu Gly His Arg Gly Trp Gly Leu Pro Lys
1970 1975 1980

Ala Gln Ser Gly Ser Val Leu Ser Val His Ser Gln Pro Ala Asp
1985 1990 1995

Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp Ala Pro His Leu Leu
2000 2005 2010

Gln Pro His Ser Ala Pro Thr Trp Gly Thr Ile Pro Lys Leu Pro
2015 2020 2025

Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg Pro Leu Arg Arg Gln
2030 2035 2040

Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln Gly Leu Gly Ser
2045 2050 2055

Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro Ser Pro Pro Leu

2060 2065 2070

Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala Gln
2075 2080 2085

Gln His Ser Arg Ser His Ser Lys Ile Ser Lys His Met Thr Pro
2090 2095 2100

Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro
2105 2110 2115

Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp
2120 2125 2130

Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro Pro
2135 2140 2145

Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser
2150 2155 2160

Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg Arg His
2165 2170 2175

Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu
2180 2185 2190

Gly Thr Asp Pro Ser Asn Leu Gly Gly Gln Pro Leu Gly Gly Pro
2195 2200 2205

Gly Ser Arg Pro Lys Lys Lys Leu Ser Pro Pro Ser Ile Thr Ile
2210 2215 2220

Asp Pro Pro Glu Ser Gln Gly Pro Arg Thr Pro Pro Ser Pro Gly
2225 2230 2235

Ile Cys Leu Arg Arg Arg Ala Pro Ser Ser Asp Ser Lys Asp Pro
2240 2245 2250

Leu Ala Ser Gly Pro Pro Asp Ser Met Ala Ala Ser Pro Ser Pro
2255 2260 2265

Lys Lys Asp Val Leu Ser Leu Ser Gly Leu Ser Ser Asp Pro Ala
2270 2275 2280

Asp Leu Asp Pro
    2285

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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
115 120 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
130 135 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145 150 155 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
165 170 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
180 185 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
195 200 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
210 215 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225 230 235 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
245 250 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
260 265 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
275 280 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
290 295 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305 310 315 320

```
Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
```

545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

```
Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005
```

```
Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155

Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215
```

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Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425
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Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                 1435                 1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                 1450                 1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                 1465                 1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                 1480                 1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                 1495                 1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                 1510                 1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                 1525                 1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                 1540                 1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                 1555                 1560

Glu Lys  Lys Arg Arg Ser Lys  Glu Lys Gln Met Ala  Glu Ala Gln
    1565                 1570                 1575

Cys Lys  Pro Tyr Tyr Ser Asp  Tyr Ser Arg Phe Arg  Leu Leu Val
    1580                 1585                 1590

His His  Leu Cys Thr Ser His  Tyr Leu Asp Leu Phe  Ile Thr Gly
    1595                 1600                 1605

Val Ile  Gly Leu Asn Val Val  Thr Met Ala Met Glu  His Tyr Gln
    1610                 1615                 1620

Gln Pro  Gln Ile Leu Asp Glu  Ala Leu Lys Ile Cys  Asn Tyr Ile
    1625                 1630                 1635

Phe Thr  Val Ile Phe Val Leu  Glu Ser Val Phe Lys  Leu Val Ala
```

1640 1645 1650

Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp
1655 1660 1665

Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu
1670 1675 1680

Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg
1685 1690 1695

Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys
1700 1705 1710

Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala
1715 1720 1725

Leu Pro Gln Val Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe
1730 1735 1740

Phe Ile Phe Ala Ala Leu Gly Val Glu Leu Phe Gly Asp Leu Glu
1745 1750 1755

Cys Asp Glu Thr His Pro Cys Glu Gly Leu Gly Arg His Ala Thr
1760 1765 1770

Phe Arg Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser
1775 1780 1785

Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg Asp
1790 1795 1800

Cys Asp Gln Glu Ser Thr Cys Tyr Asn Thr Val Ile Ser Pro Ile
1805 1810 1815

Tyr Phe Val Ser Phe Val Leu Thr Ala Gln Phe Val Leu Val Asn
1820 1825 1830

Val Val Ile Ala Val Leu Met Lys His Leu Glu Glu Ser Asn Lys
1835 1840 1845

Glu Ala Lys Glu Glu Ala Glu Leu Glu Ala Glu Leu Glu Leu Glu
1850 1855 1860

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Met Lys  Thr Leu Ser Pro Gln  Pro His Ser Pro Leu  Gly Ser Pro
    1865                1870                1875

Phe Leu  Trp Pro Gly Val Glu  Gly Pro Asp Ser Pro  Asp Ser Pro
    1880                1885                1890

Lys Pro  Gly Ala Leu His Pro  Ala Ala His Ala Arg  Ser Ala Ser
    1895                1900                1905

His Phe  Ser Leu Glu His Pro  Thr Asp Arg Gln Leu  Phe Asp Thr
    1910                1915                1920

Ile Ser  Leu Leu Ile Gln Gly  Ser Leu Glu Trp Glu  Leu Lys Leu
    1925                1930                1935

Met Asp  Glu Leu Ala Gly Pro  Gly Gly Gln Pro Ser  Ala Phe Pro
    1940                1945                1950

Ser Ala  Pro Ser Leu Gly Gly  Ser Asp Pro Gln Met  Gln Pro His
    1955                1960                1965

Pro Thr  Glu Leu Pro Gly Pro  Asp Leu Leu Thr Val  Arg Lys Ser
    1970                1975                1980

Gly Val  Ser Arg Thr His Ser  Leu Pro Asn Asp Ser  Tyr Met Cys
    1985                1990                1995

Arg His  Gly Ser Thr Ala Glu  Gly Pro Leu Gly His  Arg Gly Trp
    2000                2005                2010

Gly Leu  Pro Lys Ala Gln Ser  Gly Ser Val Leu Ser  Val His Ser
    2015                2020                2025

Gln Pro  Ala Asp Thr Ser Tyr  Ile Leu Gln Leu Pro  Lys Asp Ala
    2030                2035                2040

Pro His  Leu Leu Gln Pro His  Ser Ala Pro Thr Trp  Gly Thr Ile
    2045                2050                2055

Pro Lys  Leu Pro Pro Pro Gly  Arg Ser Pro Leu Ala  Gln Arg Pro
    2060                2065                2070
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Leu Arg Arg Gln Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gln
2075 2080 2085

Gly Leu Gly Ser Arg Glu Asp Leu Leu Ala Glu Val Ser Gly Pro
2090 2095 2100

Ser Pro Pro Leu Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser
2105 2110 2115

Thr Gln Ala Gln Gln His Ser Arg Ser His Ser Lys Ile Ser Lys
2120 2125 2130

His Met Thr Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp
2135 2140 2145

Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr
2150 2155 2160

Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln
2165 2170 2175

Glu Glu Pro Pro Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val
2180 2185 2190

Glu Ala Gln Ser Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu
2195 2200 2205

Gln Arg Arg His Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser
2210 2215 2220

Gln Pro His Leu Gly Thr Asp Pro Ser Asn Leu Gly Gly Gln Pro
2225 2230 2235

Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys Lys Leu Ser Pro Pro
2240 2245 2250

Ser Ile Thr Ile Asp Pro Pro Glu Ser Gln Gly Pro Arg Thr Pro
2255 2260 2265

Pro Ser Pro Gly Ile Cys Leu Arg Arg Arg Ala Pro Ser Ser Asp
2270 2275 2280

Ser Lys Asp Pro Leu Ala Ser Gly Pro Pro Asp Ser Met Ala Ala
2285 2290 2295

Ser Pro Ser Pro Lys Lys Asp Val Leu Ser Leu Ser Gly Leu Ser
2300 2305 2310

Ser Asp Pro Ala Asp Leu Asp Pro
2315 2320

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20 25 30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn

65 70 75 80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
85 90 95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
115 120 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
130 135 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145 150 155 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
165 170 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
180 185 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
195 200 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
210 215 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225 230 235 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
245 250 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
260 265 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
275 280 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
290 295 300

```
Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525
```

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Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750
```

```
Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
```

980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser

1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro
1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Leu Leu
1340 1345 1350

Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser Asp
1355 1360 1365

Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu
1370 1375 1380

Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly Leu
1385 1390 1395

Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu Lys Pro Ile Gly
1400 1405 1410

```
Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                 1420                 1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                 1435                 1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                 1450                 1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                 1465                 1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                 1480                 1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                 1495                 1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                 1510                 1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                 1525                 1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                 1540                 1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                 1555                 1560

Glu Lys  Lys Arg Arg Ser Lys  Glu Lys Gln Met Ala  Glu Ala Gln
    1565                 1570                 1575

Cys Lys  Pro Tyr Tyr Ser Asp  Tyr Ser Arg Phe Arg  Leu Leu Val
    1580                 1585                 1590

His His  Leu Cys Thr Ser His  Tyr Leu Asp Leu Phe  Ile Thr Gly
    1595                 1600                 1605

Val Ile  Gly Leu Asn Val Val  Thr Met Ala Met Glu  His Tyr Gln
    1610                 1615                 1620
```

```
Gln Pro  Gln Ile Leu Asp Glu  Ala Leu Lys Ile Cys  Asn Tyr Ile
    1625                1630                1635

Phe Thr  Val Ile Phe Val Leu  Glu Ser Val Phe Lys  Leu Val Ala
    1640                1645                1650

Phe Gly  Phe Arg Arg Phe Phe  Gln Asp Arg Trp Asn  Gln Leu Asp
    1655                1660                1665

Leu Ala  Ile Val Leu Leu Ser  Ile Met Gly Ile Thr  Leu Glu Glu
    1670                1675                1680

Ile Glu  Val Asn Ala Ser Leu  Pro Ile Asn Pro Thr  Ile Ile Arg
    1685                1690                1695

Ile Met  Arg Val Leu Arg Ile  Ala Arg Val Leu Lys  Leu Leu Lys
    1700                1705                1710

Met Ala  Val Gly Met Arg Ala  Leu Leu Asp Thr Val  Met Gln Ala
    1715                1720                1725

Leu Pro  Gln Val Gly Asn Leu  Gly Leu Leu Phe Met  Leu Leu Phe
    1730                1735                1740

Phe Ile  Phe Ala Ala Leu Gly  Val Glu Leu Phe Gly  Asp Leu Glu
    1745                1750                1755

Cys Asp  Glu Thr His Pro Cys  Glu Gly Leu Gly Arg  His Ala Thr
    1760                1765                1770

Phe Arg  Asn Phe Gly Met Ala  Phe Leu Thr Leu Phe  Arg Val Ser
    1775                1780                1785

Thr Gly  Asp Asn Trp Asn Gly  Ile Met Lys Asp Thr  Leu Arg Asp
    1790                1795                1800

Cys Asp  Gln Glu Ser Thr Cys  Tyr Asn Thr Val Ile  Ser Pro Ile
    1805                1810                1815

Tyr Phe  Val Ser Phe Val Leu  Thr Ala Gln Phe Val  Leu Val Asn
    1820                1825                1830
```

```
Val Val  Ile Ala Val Leu Met  Lys His Leu Glu Glu  Ser Asn Lys
    1835                1840                1845

Glu Ala  Lys Glu Glu Ala Glu  Leu Glu Ala Glu Leu  Glu Leu Glu
    1850                1855                1860

Met Lys  Thr Leu Ser Pro Gln  Pro His Ser Pro Leu  Gly Ser Pro
    1865                1870                1875

Phe Leu  Trp Pro Gly Val Glu  Gly Pro Asp Ser Pro  Asp Ser Pro
    1880                1885                1890

Lys Pro  Gly Ala Leu His Pro  Ala Ala His Ala Arg  Ser Ala Ser
    1895                1900                1905

His Phe  Ser Leu Glu His Pro  Thr Met Gln Pro His  Pro Thr Glu
    1910                1915                1920

Leu Pro  Gly Pro Asp Leu Leu  Thr Val Arg Lys Ser  Gly Val Ser
    1925                1930                1935

Arg Thr  His Ser Leu Pro Asn  Asp Ser Tyr Met Cys  Arg His Gly
    1940                1945                1950

Ser Thr  Ala Glu Gly Pro Leu  Gly His Arg Gly Trp  Gly Leu Pro
    1955                1960                1965

Lys Ala  Gln Ser Gly Ser Val  Leu Ser Val His Ser  Gln Pro Ala
    1970                1975                1980

Asp Thr  Ser Tyr Ile Leu Gln  Leu Pro Lys Asp Ala  Pro His Leu
    1985                1990                1995

Leu Gln  Pro His Ser Ala Pro  Thr Trp Gly Thr Ile  Pro Lys Leu
    2000                2005                2010

Pro Pro  Pro Gly Arg Ser Pro  Leu Ala Gln Arg Pro  Leu Arg Arg
    2015                2020                2025

Gln Ala  Ala Ile Arg Thr Asp  Ser Leu Asp Val Gln  Gly Leu Gly
    2030                2035                2040

Ser Arg  Glu Asp Leu Leu Ala  Glu Val Ser Gly Pro  Ser Pro Pro
```

2045 2050 2055

Leu Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala
2060 2065 2070

Gln Gln His Ser Arg Ser His Ser Lys Ile Ser Lys His Met Thr
2075 2080 2085

Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly
2090 2095 2100

Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser
2105 2110 2115

Trp Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro
2120 2125 2130

Pro Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln
2135 2140 2145

Ser Cys Gln Arg Arg Pro Thr Ser Trp Leu Asp Glu Gln Arg Arg
2150 2155 2160

His Ser Ile Ala Val Ser Cys Leu Asp Ser Gly Ser Gln Pro His
2165 2170 2175

Leu Gly Thr Asp Pro Ser Asn Leu Gly Gly Gln Pro Leu Gly Gly
2180 2185 2190

Pro Gly Ser Arg Pro Lys Lys Lys Leu Ser Pro Pro Ser Ile Thr
2195 2200 2205

Ile Asp Pro Pro Glu Ser Gln Gly Pro Arg Thr Pro Pro Ser Pro
2210 2215 2220

Gly Ile Cys Leu Arg Arg Arg Ala Pro Ser Ser Asp Ser Lys Asp
2225 2230 2235

Pro Leu Ala Ser Gly Pro Pro Asp Ser Met Ala Ala Ser Pro Ser
2240 2245 2250

Pro Lys Lys Asp Val Leu Ser Leu Ser Gly Leu Ser Ser Asp Pro
2255 2260 2265

Ala Asp Leu Asp Pro
    2270

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

```
Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320
```

```
Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
```

545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

```
Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005
```

```
Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050

Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155

Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215
```

```
Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425
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```
Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                 1435                 1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                 1450                 1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                 1465                 1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                 1480                 1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                 1495                 1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                 1510                 1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                 1525                 1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                 1540                 1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                 1555                 1560

Glu Lys  Lys Arg Arg Asn Leu  Met Leu Asp Asp Val  Ile Ala Ser
    1565                 1570                 1575

Gly Ser  Ser Ala Ser Ala Ala  Ser Glu Ala Gln Cys  Lys Pro Tyr
    1580                 1585                 1590

Tyr Ser  Asp Tyr Ser Arg Phe  Arg Leu Leu Val His  His Leu Cys
    1595                 1600                 1605

Thr Ser  His Tyr Leu Asp Leu  Phe Ile Thr Gly Val  Ile Gly Leu
    1610                 1615                 1620

Asn Val  Val Thr Met Ala Met  Glu His Tyr Gln Gln  Pro Gln Ile
    1625                 1630                 1635

Leu Asp  Glu Ala Leu Lys Ile  Cys Asn Tyr Ile Phe  Thr Val Ile
```

```
    1640                1645                1650

Phe Val  Leu Glu Ser Val Phe  Lys Leu Val Ala Phe  Gly Phe Arg
    1655                1660                1665

Arg Phe  Phe Gln Asp Arg Trp  Asn Gln Leu Asp Leu  Ala Ile Val
    1670                1675                1680

Leu Leu  Ser Ile Met Gly Ile  Thr Leu Glu Glu Ile  Glu Val Asn
    1685                1690                1695

Ala Ser  Leu Pro Ile Asn Pro  Thr Ile Ile Arg Ile  Met Arg Val
    1700                1705                1710

Leu Arg  Ile Ala Arg Val Leu  Lys Leu Leu Lys Met  Ala Val Gly
    1715                1720                1725

Met Arg  Ala Leu Leu Asp Thr  Val Met Gln Ala Leu  Pro Gln Leu
    1730                1735                1740

Trp Ala  Trp Ser Ser Leu Glu  Thr Trp Ser Val Thr  Arg His Thr
    1745                1750                1755

Pro Val  Arg Ala Trp Ala Val  Met Pro Pro Phe Gly  Thr Leu Ala
    1760                1765                1770

Trp Pro  Ser
    1775


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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100   105   110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115   120   125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130   135   140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145   150   155   160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165   170   175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180   185   190

```
Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415
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```
Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
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645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
965 970 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
980 985 990

Arg Lys Lys Cys Leu Ala Leu Val Ser Leu Gly Glu His Pro Glu
Leu
995 1000 1005

Arg Lys Ser Leu Leu Pro Pro Leu Ile Ile His Thr Ala Ala Thr
1010 1015 1020

Pro Met Ser Leu Pro Lys Ser Thr Ser Thr Gly Leu Gly Glu Ala
1025 1030 1035

Leu Gly Pro Ala Ser Arg Arg Thr Ser Ser Ser Gly Ser Ala Glu
1040 1045 1050

Pro Gly Ala Ala His Glu Met Lys Ser Pro Pro Ser Ala Arg Ser
1055 1060 1065

Ser Pro His Ser Pro Trp Ser Ala Ala Ser Ser Trp Thr Ser Arg
1070 1075 1080

Arg Ser Ser Arg Asn Ser Leu Gly Arg Ala Pro Ser Leu Lys Arg
1085 1090 1095

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Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110

Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                1120                1125

Ser Pro  Ala Gly Ser Asp His  Arg His Arg Gly Ser  Leu Glu Arg
    1130                1135                1140

Glu Ala  Lys Ser Ser Phe Asp  Leu Pro Asp Thr Leu  Gln Val Pro
    1145                1150                1155

Gly Leu  His Arg Thr Ala Ser  Gly Arg Gly Ser Ala  Ser Glu His
    1160                1165                1170

Gln Asp  Cys Asn Gly Lys Ser  Ala Ser Gly Arg Leu  Ala Arg Ala
    1175                1180                1185

Leu Arg  Pro Asp Asp Pro Pro  Leu Asp Gly Asp Asp  Ala Asp Asp
    1190                1195                1200

Glu Gly  Asn Leu Ser Lys Gly  Glu Arg Val Arg Ala  Trp Ile Arg
    1205                1210                1215

Ala Arg  Leu Pro Ala Cys Cys  Leu Glu Arg Asp Ser  Trp Ser Ala
    1220                1225                1230

Tyr Ile  Phe Pro Pro Gln Ser  Arg Phe Arg Leu Leu  Cys His Arg
    1235                1240                1245

Ile Ile  Thr His Lys Met Phe  Asp His Val Val Leu  Val Ile Ile
    1250                1255                1260

Phe Leu  Asn Cys Ile Thr Ile  Ala Met Glu Arg Pro  Lys Ile Asp
    1265                1270                1275

Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
    1280                1285                1290

Phe Thr  Ala Val Phe Leu Ala  Glu Met Thr Val Lys  Val Val Ala
    1295                1300                1305
```

```
Leu Gly  Trp Cys Phe Gly Glu  Gln Ala Tyr Leu Arg  Ser Ser Trp
    1310                1315                1320

Asn Val  Leu Asp Gly Leu Leu  Val Leu Ile Ser Val  Ile Asp Ile
    1325                1330                1335

Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380

Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
    1490                1495                1500

Phe Val  Leu Asn Met Phe Val  Gly Val Val Val Glu  Asn Phe His
    1505                1510                1515
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Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu
1520 1525 1530

Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Lys Ala Gln
1535 1540 1545

Cys Lys Pro Tyr Tyr Ser Asp Tyr Ser Arg Phe Arg Leu Leu Val
1550 1555 1560

His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Gly
1565 1570 1575

Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu His Tyr Gln
1580 1585 1590

Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys Asn Tyr Ile
1595 1600 1605

Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys Leu Val Ala
1610 1615 1620

Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp
1625 1630 1635

Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu
1640 1645 1650

Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg
1655 1660 1665

Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys
1670 1675 1680

Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala
1685 1690 1695

Leu Pro Gln Leu Trp Ala Trp Ser Ser Leu Glu Thr Trp Ser Val
1700 1705 1710

Thr Arg His Thr Pro Val Arg Ala Trp Ala Val Met Pro Pro Phe
1715 1720 1725

Gly Thr Leu Ala Trp Pro Ser

1730 1735

<210> 10811
<211> 2232
<212> PRT
<213> Homo sapiens

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<221> source
<223> /note="Gene Symbol: CACNA1G; "

<220>
<221> source
<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1G
subunit; "

<220>
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<223> /note="Uniprot ID: O43497; "

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
20 25 30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
35 40 45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50 55 60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65 70 75 80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
85 90 95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

```
Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335
```

```
Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560
```

```
Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
```

785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
965 970 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
980 985 990

Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser
Pro
995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val

1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro
1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

```
Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260

Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440
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Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Asn  Phe His Lys Cys Arg  Gln His Gln Glu Glu  Glu Glu Ala
    1505                1510                1515

Arg Arg  Arg Glu Glu Lys Arg  Leu Arg Arg Leu Glu  Lys Lys Arg
    1520                1525                1530

Arg Lys  Ala Gln Cys Lys Pro  Tyr Tyr Ser Asp Tyr  Ser Arg Phe
    1535                1540                1545

Arg Leu  Leu Val His His Leu  Cys Thr Ser His Tyr  Leu Asp Leu
    1550                1555                1560

Phe Ile  Thr Gly Val Ile Gly  Leu Asn Val Val Thr  Met Ala Met
    1565                1570                1575

Glu His  Tyr Gln Gln Pro Gln  Ile Leu Asp Glu Ala  Leu Lys Ile
    1580                1585                1590

Cys Asn  Tyr Ile Phe Thr Val  Ile Phe Val Leu Glu  Ser Val Phe
    1595                1600                1605

Lys Leu  Val Ala Phe Gly Phe  Arg Arg Phe Phe Gln  Asp Arg Trp
    1610                1615                1620

Asn Gln  Leu Asp Leu Ala Ile  Val Leu Leu Ser Ile  Met Gly Ile
    1625                1630                1635

Thr Leu  Glu Glu Ile Glu Val  Asn Ala Ser Leu Pro  Ile Asn Pro
    1640                1645                1650
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Thr Ile  Ile Arg Ile Met Arg  Val Leu Arg Ile Ala  Arg Val Leu
    1655                1660                1665

Lys Leu  Leu Lys Met Ala Val  Gly Met Arg Ala Leu  Leu Asp Thr
    1670                1675                1680

Val Met  Gln Ala Leu Pro Gln  Val Gly Asn Leu Gly  Leu Leu Phe
    1685                1690                1695

Met Leu  Leu Phe Phe Ile Phe  Ala Ala Leu Gly Val  Glu Leu Phe
    1700                1705                1710

Gly Asp  Leu Glu Cys Asp Glu  Thr His Pro Cys Glu  Gly Leu Gly
    1715                1720                1725

Arg His  Ala Thr Phe Arg Asn  Phe Gly Met Ala Phe  Leu Thr Leu
    1730                1735                1740

Phe Arg  Val Ser Thr Gly Asp  Asn Trp Asn Gly Ile  Met Lys Asp
    1745                1750                1755

Thr Leu  Arg Asp Cys Asp Gln  Glu Ser Thr Cys Tyr  Asn Thr Val
    1760                1765                1770

Ile Ser  Pro Ile Tyr Phe Val  Ser Phe Val Leu Thr  Ala Gln Phe
    1775                1780                1785

Val Leu  Val Asn Val Val Ile  Ala Val Leu Met Lys  His Leu Glu
    1790                1795                1800

Glu Ser  Asn Lys Glu Ala Lys  Glu Glu Ala Glu Leu  Glu Ala Glu
    1805                1810                1815

Leu Glu  Leu Glu Met Lys Thr  Leu Ser Pro Gln Pro  His Ser Pro
    1820                1825                1830

Leu Gly  Ser Pro Phe Leu Trp  Pro Gly Val Glu Gly  Pro Asp Ser
    1835                1840                1845

Pro Asp  Ser Pro Lys Pro Gly  Ala Leu His Pro Ala  Ala His Ala
    1850                1855                1860

Arg Ser  Ala Ser His Phe Ser  Leu Glu His Pro Thr  Met Gln Pro
```

1865 1870 1875

His Pro Thr Glu Leu Pro Gly Pro Asp Leu Leu Thr Val Arg Lys
1880 1885 1890

Ser Gly Val Ser Arg Thr His Ser Leu Pro Asn Asp Ser Tyr Met
1895 1900 1905

Cys Arg His Gly Ser Thr Ala Glu Gly Pro Leu Gly His Arg Gly
1910 1915 1920

Trp Gly Leu Pro Lys Ala Gln Ser Gly Ser Val Leu Ser Val His
1925 1930 1935

Ser Gln Pro Ala Asp Thr Ser Tyr Ile Leu Gln Leu Pro Lys Asp
1940 1945 1950

Ala Pro His Leu Leu Gln Pro His Ser Ala Pro Thr Trp Gly Thr
1955 1960 1965

Ile Pro Lys Leu Pro Pro Pro Gly Arg Ser Pro Leu Ala Gln Arg
1970 1975 1980

Pro Leu Arg Arg Gln Ala Ala Ile Arg Thr Asp Ser Leu Asp Val
1985 1990 1995

Gln Gly Leu Gly Ser Arg Glu Asp Leu Leu Ala Glu Val Ser Gly
2000 2005 2010

Pro Ser Pro Pro Leu Ala Arg Ala Tyr Ser Phe Trp Gly Gln Ser
2015 2020 2025

Ser Thr Gln Ala Gln Gln His Ser Arg Ser His Ser Lys Ile Ser
2030 2035 2040

Lys His Met Thr Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn
2045 2050 2055

Trp Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp
2060 2065 2070

Thr Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu Pro Pro Gly Gly
2075 2080 2085

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Gln Glu  Glu Pro Pro Ser Pro  Arg Asp Leu Lys Lys  Cys Tyr Ser
    2090                2095                2100

Val Glu  Ala Gln Ser Cys Gln  Arg Arg Pro Thr Ser  Trp Leu Asp
    2105                2110                2115

Glu Gln  Arg Arg His Ser Ile  Ala Val Ser Cys Leu  Asp Ser Gly
    2120                2125                2130

Ser Gln  Pro His Leu Gly Thr  Asp Pro Ser Asn Leu  Gly Gly Gln
    2135                2140                2145

Pro Leu  Gly Gly Pro Gly Ser  Arg Pro Lys Lys Lys  Leu Ser Pro
    2150                2155                2160

Pro Ser  Ile Thr Ile Asp Pro  Pro Glu Ser Gln Gly  Pro Arg Thr
    2165                2170                2175

Pro Pro  Ser Pro Gly Ile Cys  Leu Arg Arg Arg Ala  Pro Ser Ser
    2180                2185                2190

Asp Ser  Lys Asp Pro Leu Ala  Ser Gly Pro Pro Asp  Ser Met Ala
    2195                2200                2205

Ala Ser  Pro Ser Pro Lys Lys  Asp Val Leu Ser Leu  Ser Gly Leu
    2210                2215                2220

Ser Ser  Asp Pro Ala Asp Leu  Asp Pro
    2225                2230


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subunit; "

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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85                  90                  95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100                 105                 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115                 120                 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130                 135                 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175
```

```
Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
```

405 410 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
420 425 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
435 440 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
450 455 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465 470 475 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
485 490 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
500 505 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
515 520 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
530 535 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545 550 555 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
565 570 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
580 585 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
835 840 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
850 855 860

```
Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
                965                 970                 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
            980                 985                 990

Arg Lys Lys Cys Leu Ala Leu Val  Ser Leu Gly Glu His  Pro Glu
Leu
        995                 1000                1005

Arg Lys  Ser Leu Leu Pro Pro  Leu Ile Ile His Thr  Ala Ala Thr
    1010                1015                1020

Pro Met  Ser Leu Pro Lys Ser  Thr Ser Thr Gly Leu  Gly Glu Ala
    1025                1030                1035

Leu Gly  Pro Ala Ser Arg Arg  Thr Ser Ser Ser Gly  Ser Ala Glu
    1040                1045                1050

Pro Gly  Ala Ala His Glu Met  Lys Ser Pro Pro Ser  Ala Arg Ser
    1055                1060                1065

Ser Pro  His Ser Pro Trp Ser  Ala Ala Ser Ser Trp  Thr Ser Arg
    1070                1075                1080
```

```
Arg Ser  Ser Arg Asn Ser Leu  Gly Arg Ala Pro Ser  Leu Lys Arg
    1085                1090                1095

Arg Ser  Pro Ser Gly Glu Arg  Arg Ser Leu Leu Ser  Gly Glu Gly
    1100                1105                1110

Gln Glu  Ser Gln Asp Glu Glu  Glu Ser Ser Glu Glu  Glu Arg Ala
    1115                1120                1125

Ser Pro  Ala Gly Ser Asp His  Arg His Arg Gly Ser  Leu Glu Arg
    1130                1135                1140

Glu Ala  Lys Ser Ser Phe Asp  Leu Pro Asp Thr Leu  Gln Val Pro
    1145                1150                1155

Gly Leu  His Arg Thr Ala Ser  Gly Arg Gly Ser Ala  Ser Glu His
    1160                1165                1170

Gln Asp  Cys Asn Gly Lys Ser  Ala Ser Gly Arg Leu  Ala Arg Ala
    1175                1180                1185

Leu Arg  Pro Asp Asp Pro Pro  Leu Asp Gly Asp Asp  Ala Asp Asp
    1190                1195                1200

Glu Gly  Asn Leu Ser Lys Gly  Glu Arg Val Arg Ala  Trp Ile Arg
    1205                1210                1215

Ala Arg  Leu Pro Ala Cys Cys  Leu Glu Arg Asp Ser  Trp Ser Ala
    1220                1225                1230

Tyr Ile  Phe Pro Pro Gln Ser  Arg Phe Arg Leu Leu  Cys His Arg
    1235                1240                1245

Ile Ile  Thr His Lys Met Phe  Asp His Val Val Leu  Val Ile Ile
    1250                1255                1260

Phe Leu  Asn Cys Ile Thr Ile  Ala Met Glu Arg Pro  Lys Ile Asp
    1265                1270                1275

Pro His  Ser Ala Glu Arg Ile  Phe Leu Thr Leu Ser  Asn Tyr Ile
    1280                1285                1290
```

```
Phe Thr  Ala Val Phe Leu Ala  Glu Met Thr Val Lys  Val Val Ala
    1295                1300                1305

Leu Gly  Trp Cys Phe Gly Glu  Gln Ala Tyr Leu Arg  Ser Ser Trp
    1310                1315                1320

Asn Val  Leu Asp Gly Leu Leu  Val Leu Ile Ser Val  Ile Asp Ile
    1325                1330                1335

Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380

Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
    1490                1495                1500

Phe Val  Leu Asn Met Phe Val  Gly Val Val Val Glu  Asn Phe His
```

1505 1510 1515

Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu
1520 1525 1530

Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Ser Lys Glu
1535 1540 1545

Lys Gln Met Ala Glu Ala Gln Cys Lys Pro Tyr Tyr Ser Asp Tyr
1550 1555 1560

Ser Arg Phe Arg Leu Leu Val His His Leu Cys Thr Ser His Tyr
1565 1570 1575

Leu Asp Leu Phe Ile Thr Gly Val Ile Gly Leu Asn Val Val Thr
1580 1585 1590

Met Ala Met Glu His Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala
1595 1600 1605

Leu Lys Ile Cys Asn Tyr Ile Phe Thr Val Ile Phe Val Leu Glu
1610 1615 1620

Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Gln
1625 1630 1635

Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Ile
1640 1645 1650

Met Gly Ile Thr Leu Glu Glu Ile Glu Val Asn Ala Ser Leu Pro
1655 1660 1665

Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala
1670 1675 1680

Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly Met Arg Ala Leu
1685 1690 1695

Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val Gly Asn Leu Gly
1700 1705 1710

Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala Ala Leu Gly Val
1715 1720 1725

```
Glu Leu  Phe Gly Asp Leu Glu  Cys Asp Glu Thr His  Pro Cys Glu
    1730                1735                1740

Gly Leu  Gly Arg His Ala Thr  Phe Arg Asn Phe Gly  Met Ala Phe
    1745                1750                1755

Leu Thr  Leu Phe Arg Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile
    1760                1765                1770

Met Lys  Asp Thr Leu Arg Asp  Cys Asp Gln Glu Ser  Thr Cys Tyr
    1775                1780                1785

Asn Thr  Val Ile Ser Pro Ile  Tyr Phe Val Ser Phe  Val Leu Thr
    1790                1795                1800

Ala Gln  Phe Val Leu Val Asn  Val Val Ile Ala Val  Leu Met Lys
    1805                1810                1815

His Leu  Glu Glu Ser Asn Lys  Glu Ala Lys Glu Glu  Ala Glu Leu
    1820                1825                1830

Glu Ala  Glu Leu Glu Leu Glu  Met Lys Thr Leu Ser  Pro Gln Pro
    1835                1840                1845

His Ser  Pro Leu Gly Ser Pro  Phe Leu Trp Pro Gly  Val Glu Gly
    1850                1855                1860

Pro Asp  Ser Pro Asp Ser Pro  Lys Pro Gly Ala Leu  His Pro Ala
    1865                1870                1875

Ala His  Ala Arg Ser Ala Ser  His Phe Ser Leu Glu  His Pro Thr
    1880                1885                1890

Asp Arg  Gln Leu Phe Asp Thr  Ile Ser Leu Leu Ile  Gln Gly Ser
    1895                1900                1905

Leu Glu  Trp Glu Leu Lys Leu  Met Asp Glu Leu Ala  Gly Pro Gly
    1910                1915                1920

Gly Gln  Pro Ser Ala Phe Pro  Ser Ala Pro Ser Leu  Gly Gly Ser
    1925                1930                1935
```

```
Asp Pro  Gln Met Gln Pro His  Pro Thr Glu Leu Pro  Gly Pro Asp
    1940                1945                1950

Leu Leu  Thr Val Arg Lys Ser  Gly Val Ser Arg Thr  His Ser Leu
    1955                1960                1965

Pro Asn  Asp Ser Tyr Met Cys  Arg His Gly Ser Thr  Ala Glu Gly
    1970                1975                1980

Pro Leu  Gly His Arg Gly Trp  Gly Leu Pro Lys Ala  Gln Ser Gly
    1985                1990                1995

Ser Val  Leu Ser Val His Ser  Gln Pro Ala Asp Thr  Ser Tyr Ile
    2000                2005                2010

Leu Gln  Leu Pro Lys Asp Ala  Pro His Leu Leu Gln  Pro His Ser
    2015                2020                2025

Ala Pro  Thr Trp Gly Thr Ile  Pro Lys Leu Pro Pro  Pro Gly Arg
    2030                2035                2040

Ser Pro  Leu Ala Gln Arg Pro  Leu Arg Arg Gln Ala  Ala Ile Arg
    2045                2050                2055

Thr Asp  Ser Leu Asp Val Gln  Gly Leu Gly Ser Arg  Glu Asp Leu
    2060                2065                2070

Leu Ala  Glu Val Ser Gly Pro  Ser Pro Pro Leu Ala  Arg Ala Tyr
    2075                2080                2085

Ser Phe  Trp Gly Gln Ser Ser  Thr Gln Ala Gln Gln  His Ser Arg
    2090                2095                2100

Ser His  Ser Lys Ile Ser Lys  His Met Thr Pro Pro  Ala Pro Cys
    2105                2110                2115

Pro Gly  Pro Glu Pro Asn Trp  Gly Lys Gly Pro Pro  Glu Thr Arg
    2120                2125                2130

Ser Ser  Leu Glu Leu Asp Thr  Glu Leu Ser Trp Ile  Ser Gly Asp
    2135                2140                2145
```

```
Leu Leu  Pro Pro Gly Gly Gln  Glu Glu Pro Pro Ser  Pro Arg Asp
    2150                2155                2160

Leu Lys  Lys Cys Tyr Ser Val  Glu Ala Gln Ser Cys  Gln Arg Arg
    2165                2170                2175

Pro Thr  Ser Trp Leu Asp Glu  Gln Arg Arg His Ser  Ile Ala Val
    2180                2185                2190

Ser Cys  Leu Asp Ser Gly Ser  Gln Pro His Leu Gly  Thr Asp Pro
    2195                2200                2205

Ser Asn  Leu Gly Gly Gln Pro  Leu Gly Gly Pro Gly  Ser Arg Pro
    2210                2215                2220

Lys Lys  Lys Leu Ser Pro Pro  Ser Ile Thr Ile Asp  Pro Pro Glu
    2225                2230                2235

Ser Gln  Gly Pro Arg Thr Pro  Pro Ser Pro Gly Ile  Cys Leu Arg
    2240                2245                2250

Arg Arg  Ala Pro Ser Ser Asp  Ser Lys Asp Pro Leu  Ala Ser Gly
    2255                2260                2265

Pro Pro  Asp Ser Met Ala Ala  Ser Pro Ser Pro Lys  Lys Asp Val
    2270                2275                2280

Leu Ser  Leu Ser Gly Leu Ser  Ser Asp Pro Ala Asp  Leu Asp Pro
    2285                2290                2295


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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100   105   110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115   120   125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130   135   140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145   150   155   160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165   170   175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180   185   190

```
Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415
```

```
Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640
```

```
Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
```

865 870 875 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
885 890 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
900 905 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
915 920 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
930 935 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945 950 955 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Asn Lys Ser
965 970 975

Glu Ser Glu Pro Asp Phe Phe Ser Pro Ser Leu Asp Gly Asp Gly Asp
980 985 990

Arg Lys Lys Cys Leu Ala Leu Val Ser Leu Gly Glu His Pro Glu
Leu
995 1000 1005

Arg Lys Ser Leu Leu Pro Pro Leu Ile Ile His Thr Ala Ala Thr
1010 1015 1020

Pro Met Ser Leu Pro Lys Ser Thr Ser Thr Gly Leu Gly Glu Ala
1025 1030 1035

Leu Gly Pro Ala Ser Arg Arg Thr Ser Ser Ser Gly Ser Ala Glu
1040 1045 1050

Pro Gly Ala Ala His Glu Met Lys Ser Pro Pro Ser Ala Arg Ser
1055 1060 1065

Ser Pro His Ser Pro Trp Ser Ala Ala Ser Ser Trp Thr Ser Arg
1070 1075 1080

Arg Ser Ser Arg Asn Ser Leu Gly Arg Ala Pro Ser Leu Lys Arg

1085 1090 1095

Arg Ser Pro Ser Gly Glu Arg Arg Ser Leu Leu Ser Gly Glu Gly
1100 1105 1110

Gln Glu Ser Gln Asp Glu Glu Glu Ser Ser Glu Glu Glu Arg Ala
1115 1120 1125

Ser Pro Ala Gly Ser Asp His Arg His Arg Gly Ser Leu Glu Arg
1130 1135 1140

Glu Ala Lys Ser Ser Phe Asp Leu Pro Asp Thr Leu Gln Val Pro
1145 1150 1155

Gly Leu His Arg Thr Ala Ser Gly Arg Gly Ser Ala Ser Glu His
1160 1165 1170

Gln Asp Cys Asn Gly Lys Ser Ala Ser Gly Arg Leu Ala Arg Ala
1175 1180 1185

Leu Arg Pro Asp Asp Pro Pro Leu Asp Gly Asp Asp Ala Asp Asp
1190 1195 1200

Glu Gly Asn Leu Ser Lys Gly Glu Arg Val Arg Ala Trp Ile Arg
1205 1210 1215

Ala Arg Leu Pro Ala Cys Cys Leu Glu Arg Asp Ser Trp Ser Ala
1220 1225 1230

Tyr Ile Phe Pro Pro Gln Ser Arg Phe Arg Leu Leu Cys His Arg
1235 1240 1245

Ile Ile Thr His Lys Met Phe Asp His Val Val Leu Val Ile Ile
1250 1255 1260

Phe Leu Asn Cys Ile Thr Ile Ala Met Glu Arg Pro Lys Ile Asp
1265 1270 1275

Pro His Ser Ala Glu Arg Ile Phe Leu Thr Leu Ser Asn Tyr Ile
1280 1285 1290

Phe Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala
1295 1300 1305

```
Leu Gly  Trp Cys Phe Gly Glu  Gln Ala Tyr Leu Arg  Ser Ser Trp
    1310                1315                1320

Asn Val  Leu Asp Gly Leu Leu  Val Leu Ile Ser Val  Ile Asp Ile
    1325                1330                1335

Leu Val  Ser Met Val Ser Asp  Ser Gly Thr Lys Ile  Leu Gly Met
    1340                1345                1350

Leu Arg  Val Leu Arg Leu Leu  Arg Thr Leu Arg Pro  Leu Arg Val
    1355                1360                1365

Ile Ser  Arg Ala Gln Gly Leu  Lys Leu Val Val Glu  Thr Leu Met
    1370                1375                1380

Ser Ser  Leu Lys Pro Ile Gly  Asn Ile Val Val Ile  Cys Cys Ala
    1385                1390                1395

Phe Phe  Ile Ile Phe Gly Ile  Leu Gly Val Gln Leu  Phe Lys Gly
    1400                1405                1410

Lys Phe  Phe Val Cys Gln Gly  Glu Asp Thr Arg Asn  Ile Thr Asn
    1415                1420                1425

Lys Ser  Asp Cys Ala Glu Ala  Ser Tyr Arg Trp Val  Arg His Lys
    1430                1435                1440

Tyr Asn  Phe Asp Asn Leu Gly  Gln Ala Leu Met Ser  Leu Phe Val
    1445                1450                1455

Leu Ala  Ser Lys Asp Gly Trp  Val Asp Ile Met Tyr  Asp Gly Leu
    1460                1465                1470

Asp Ala  Val Gly Val Asp Gln  Gln Pro Ile Met Asn  His Asn Pro
    1475                1480                1485

Trp Met  Leu Leu Tyr Phe Ile  Ser Phe Leu Leu Ile  Val Ala Phe
    1490                1495                1500

Phe Val  Leu Asn Met Phe Val  Gly Val Val Val Glu  Asn Phe His
    1505                1510                1515
```

Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala Arg Arg Arg Glu
1520 1525 1530

Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Asn Leu Met
1535 1540 1545

Leu Asp Asp Val Ile Ala Ser Gly Ser Ser Ala Ser Ala Ala Ser
1550 1555 1560

Glu Ala Gln Cys Lys Pro Tyr Tyr Ser Asp Tyr Ser Arg Phe Arg
1565 1570 1575

Leu Leu Val His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe
1580 1585 1590

Ile Thr Gly Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu
1595 1600 1605

His Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys
1610 1615 1620

Asn Tyr Ile Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys
1625 1630 1635

Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn
1640 1645 1650

Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr
1655 1660 1665

Leu Glu Glu Ile Glu Val Asn Ala Ser Leu Pro Ile Asn Pro Thr
1670 1675 1680

Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys
1685 1690 1695

Leu Leu Lys Met Ala Val Gly Met Arg Ala Leu Leu Asp Thr Val
1700 1705 1710

Met Gln Ala Leu Pro Gln Leu Trp Ala Trp Ser Ser Leu Glu Thr
1715 1720 1725

```
Trp Ser  Val Thr Arg His Thr  Pro Val Arg Ala Trp  Ala Val Met
    1730                1735                1740


Pro Pro  Phe Gly Thr Leu Ala  Trp Pro Ser
    1745                1750


<210> 10814
<211> 2250
<212> PRT
<213> Homo sapiens

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<221> source
<223> /note="Gene Symbol: CACNA1G; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
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      subunit; "

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<400> 10814
Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
1               5                  10                  15


Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20                  25                  30


Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35                  40                  45


Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50                  55                  60


Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65                  70                  75                  80


Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
```

85 90 95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100 105 110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
115 120 125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
130 135 140

Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145 150 155 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
165 170 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
180 185 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
195 200 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
210 215 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225 230 235 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
245 250 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
260 265 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
275 280 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
290 295 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305 310 315 320

```
Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365

Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540
```

```
Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
        595                 600                 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
    610                 615                 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625                 630                 635                 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
                645                 650                 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
            660                 665                 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
        675                 680                 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
    690                 695                 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705                 710                 715                 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
                725                 730                 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
            740                 745                 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
        755                 760                 765
```

```
Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
    770                 775                 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785                 790                 795                 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
                805                 810                 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
            820                 825                 830

Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
```

Pro

995 1000 1005

Ser Leu Asp Gly Asp Gly Asp Arg Lys Lys Cys Leu Ala Leu Val
1010 1015 1020

Ser Leu Gly Glu His Pro Glu Leu Arg Lys Ser Leu Leu Pro Pro
1025 1030 1035

Leu Ile Ile His Thr Ala Ala Thr Pro Met Ser Leu Pro Lys Ser
1040 1045 1050

Thr Ser Thr Gly Leu Gly Glu Ala Leu Gly Pro Ala Ser Arg Arg
1055 1060 1065

Thr Ser Ser Ser Gly Ser Ala Glu Pro Gly Ala Ala His Glu Met
1070 1075 1080

Lys Ser Pro Pro Ser Ala Arg Ser Ser Pro His Ser Pro Trp Ser
1085 1090 1095

Ala Ala Ser Ser Trp Thr Ser Arg Arg Ser Ser Arg Asn Ser Leu
1100 1105 1110

Gly Arg Ala Pro Ser Leu Lys Arg Arg Ser Pro Ser Gly Glu Arg
1115 1120 1125

Arg Ser Leu Leu Ser Gly Glu Gly Gln Glu Ser Gln Asp Glu Glu
1130 1135 1140

Glu Ser Ser Glu Glu Glu Arg Ala Ser Pro Ala Gly Ser Asp His
1145 1150 1155

Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phe Asp
1160 1165 1170

Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Arg Thr Ala Ser
1175 1180 1185

Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser
1190 1195 1200

Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro

1205 1210 1215

Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
1220 1225 1230

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys
1235 1240 1245

Leu Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser
1250 1255 1260

Arg Phe Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe
1265 1270 1275

Asp His Val Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile
1280 1285 1290

Ala Met Glu Arg Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile
1295 1300 1305

Phe Leu Thr Leu Ser Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala
1310 1315 1320

Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys Phe Gly Glu
1325 1330 1335

Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Leu Leu
1340 1345 1350

Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser Asp
1355 1360 1365

Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu
1370 1375 1380

Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly Leu
1385 1390 1395

Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu Lys Pro Ile Gly
1400 1405 1410

Asn Ile Val Val Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile
1415 1420 1425

```
Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470

Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                1480                1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                1495                1500

Gln Asn  Phe His Lys Cys Arg  Gln His Gln Glu Glu  Glu Glu Ala
    1505                1510                1515

Arg Arg  Arg Glu Glu Lys Arg  Leu Arg Arg Leu Glu  Lys Lys Arg
    1520                1525                1530

Arg Asn  Leu Met Leu Asp Asp  Val Ile Ala Ser Gly  Ser Ser Ala
    1535                1540                1545

Ser Ala  Ala Ser Glu Ala Gln  Cys Lys Pro Tyr Tyr  Ser Asp Tyr
    1550                1555                1560

Ser Arg  Phe Arg Leu Leu Val  His His Leu Cys Thr  Ser His Tyr
    1565                1570                1575

Leu Asp  Leu Phe Ile Thr Gly  Val Ile Gly Leu Asn  Val Val Thr
    1580                1585                1590

Met Ala  Met Glu His Tyr Gln  Gln Pro Gln Ile Leu  Asp Glu Ala
    1595                1600                1605

Leu Lys  Ile Cys Asn Tyr Ile  Phe Thr Val Ile Phe  Val Leu Glu
    1610                1615                1620

Ser Val  Phe Lys Leu Val Ala  Phe Gly Phe Arg Arg  Phe Phe Gln
    1625                1630                1635
```

```
Asp Arg  Trp Asn Gln Leu Asp  Leu Ala Ile Val Leu  Leu Ser Ile
    1640                1645                1650

Met Gly  Ile Thr Leu Glu Glu  Ile Glu Val Asn Ala  Ser Leu Pro
    1655                1660                1665

Ile Asn  Pro Thr Ile Ile Arg  Ile Met Arg Val Leu  Arg Ile Ala
    1670                1675                1680

Arg Val  Leu Lys Leu Leu Lys  Met Ala Val Gly Met  Arg Ala Leu
    1685                1690                1695

Leu Asp  Thr Val Met Gln Ala  Leu Pro Gln Val Gly  Asn Leu Gly
    1700                1705                1710

Leu Leu  Phe Met Leu Leu Phe  Phe Ile Phe Ala Ala  Leu Gly Val
    1715                1720                1725

Glu Leu  Phe Gly Asp Leu Glu  Cys Asp Glu Thr His  Pro Cys Glu
    1730                1735                1740

Gly Leu  Gly Arg His Ala Thr  Phe Arg Asn Phe Gly  Met Ala Phe
    1745                1750                1755

Leu Thr  Leu Phe Arg Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile
    1760                1765                1770

Met Lys  Asp Thr Leu Arg Asp  Cys Asp Gln Glu Ser  Thr Cys Tyr
    1775                1780                1785

Asn Thr  Val Ile Ser Pro Ile  Tyr Phe Val Ser Phe  Val Leu Thr
    1790                1795                1800

Ala Gln  Phe Val Leu Val Asn  Val Val Ile Ala Val  Leu Met Lys
    1805                1810                1815

His Leu  Glu Glu Ser Asn Lys  Glu Ala Lys Glu Glu  Ala Glu Leu
    1820                1825                1830

Glu Ala  Glu Leu Glu Leu Glu  Met Lys Thr Leu Ser  Pro Gln Pro
    1835                1840                1845
```

```
His Ser  Pro Leu Gly Ser Pro  Phe Leu Trp Pro Gly  Val Glu Gly
    1850                1855                1860

Pro Asp  Ser Pro Asp Ser Pro  Lys Pro Gly Ala Leu  His Pro Ala
    1865                1870                1875

Ala His  Ala Arg Ser Ala Ser  His Phe Ser Leu Glu  His Pro Thr
    1880                1885                1890

Met Gln  Pro His Pro Thr Glu  Leu Pro Gly Pro Asp  Leu Leu Thr
    1895                1900                1905

Val Arg  Lys Ser Gly Val Ser  Arg Thr His Ser Leu  Pro Asn Asp
    1910                1915                1920

Ser Tyr  Met Cys Arg His Gly  Ser Thr Ala Glu Gly  Pro Leu Gly
    1925                1930                1935

His Arg  Gly Trp Gly Leu Pro  Lys Ala Gln Ser Gly  Ser Val Leu
    1940                1945                1950

Ser Val  His Ser Gln Pro Ala  Asp Thr Ser Tyr Ile  Leu Gln Leu
    1955                1960                1965

Pro Lys  Asp Ala Pro His Leu  Leu Gln Pro His Ser  Ala Pro Thr
    1970                1975                1980

Trp Gly  Thr Ile Pro Lys Leu  Pro Pro Pro Gly Arg  Ser Pro Leu
    1985                1990                1995

Ala Gln  Arg Pro Leu Arg Arg  Gln Ala Ala Ile Arg  Thr Asp Ser
    2000                2005                2010

Leu Asp  Val Gln Gly Leu Gly  Ser Arg Glu Asp Leu  Leu Ala Glu
    2015                2020                2025

Val Ser  Gly Pro Ser Pro Pro  Leu Ala Arg Ala Tyr  Ser Phe Trp
    2030                2035                2040

Gly Gln  Ser Ser Thr Gln Ala  Gln Gln His Ser Arg  Ser His Ser
    2045                2050                2055

Lys Ile  Ser Lys His Met Thr  Pro Pro Ala Pro Cys  Pro Gly Pro
```

2060 2065 2070

Glu Pro Asn Trp Gly Lys Gly Pro Pro Glu Thr Arg Ser Ser Leu
2075 2080 2085

Glu Leu Asp Thr Glu Leu Ser Trp Ile Ser Gly Asp Leu Leu Pro
2090 2095 2100

Pro Gly Gly Gln Glu Glu Pro Pro Ser Pro Arg Asp Leu Lys Lys
2105 2110 2115

Cys Tyr Ser Val Glu Ala Gln Ser Cys Gln Arg Arg Pro Thr Ser
2120 2125 2130

Trp Leu Asp Glu Gln Arg Arg His Ser Ile Ala Val Ser Cys Leu
2135 2140 2145

Asp Ser Gly Ser Gln Pro His Leu Gly Thr Asp Pro Ser Asn Leu
2150 2155 2160

Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys Lys
2165 2170 2175

Leu Ser Pro Pro Ser Ile Thr Ile Asp Pro Pro Glu Ser Gln Gly
2180 2185 2190

Pro Arg Thr Pro Pro Ser Pro Gly Ile Cys Leu Arg Arg Arg Ala
2195 2200 2205

Pro Ser Ser Asp Ser Lys Asp Pro Leu Ala Ser Gly Pro Pro Asp
2210 2215 2220

Ser Met Ala Ala Ser Pro Ser Pro Lys Lys Asp Val Leu Ser Leu
2225 2230 2235

Ser Gly Leu Ser Ser Asp Pro Ala Asp Leu Asp Pro
2240 2245 2250

<210> 10815
<211> 1758
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Symbol: CACNA1G; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1G
subunit; "

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Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Gln Pro
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Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro
            20   25   30

Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala
        35   40   45

Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
    50   55   60

Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65   70   75   80

Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
                85   90   95

Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
            100   105   110

Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
        115   120   125

Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
    130   135   140

```
Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145                 150                 155                 160

Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
                165                 170                 175

Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
            180                 185                 190

Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
        195                 200                 205

Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
    210                 215                 220

Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
225                 230                 235                 240

Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
                245                 250                 255

Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
            260                 265                 270

Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
        275                 280                 285

Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
    290                 295                 300

Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305                 310                 315                 320

Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
                325                 330                 335

Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
            340                 345                 350

Leu Glu Gly Trp Val Asp Ile Met Tyr Phe Val Met Asp Ala His Ser
        355                 360                 365
```

```
Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val Gly Ser Phe
    370                 375                 380

Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln Phe Ser Glu
385                 390                 395                 400

Thr Lys Gln Arg Glu Ser Gln Leu Met Arg Glu Gln Arg Val Arg Phe
                405                 410                 415

Leu Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glu Pro Gly Ser Cys
            420                 425                 430

Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala
        435                 440                 445

Arg Arg Leu Ala Gln Val Ser Arg Ala Ala Gly Val Arg Val Gly Leu
    450                 455                 460

Leu Ser Ser Pro Ala Pro Leu Gly Gly Gln Glu Thr Gln Pro Ser Ser
465                 470                 475                 480

Ser Cys Ser Arg Ser His Arg Arg Leu Ser Val His His Leu Val His
                485                 490                 495

His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu
            500                 505                 510

Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly
        515                 520                 525

Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly
    530                 535                 540

Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp
545                 550                 555                 560

Cys His Leu Glu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Ser Pro
                565                 570                 575

Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr
            580                 585                 590

Val His Thr Ser Pro Pro Pro Glu Thr Leu Lys Glu Lys Ala Leu Val
```

595 600 605

Glu Val Ala Ala Ser Ser Gly Pro Pro Thr Leu Thr Ser Leu Asn Ile
610 615 620

Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser
625 630 635 640

Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys
645 650 655

Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg
660 665 670

Ala Gly Ala Gly Glu Val Glu Leu Ala Asp Arg Glu Met Pro Asp Ser
675 680 685

Asp Ser Glu Ala Val Tyr Glu Phe Thr Gln Asp Ala Gln His Ser Asp
690 695 700

Leu Arg Asp Pro His Ser Arg Arg Gln Arg Ser Leu Gly Pro Asp Ala
705 710 715 720

Glu Pro Ser Ser Val Leu Ala Phe Trp Arg Leu Ile Cys Asp Thr Phe
725 730 735

Arg Lys Ile Val Asp Ser Lys Tyr Phe Gly Arg Gly Ile Met Ile Ala
740 745 750

Ile Leu Val Asn Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro
755 760 765

Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser
770 775 780

Leu Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Val Tyr Gly Pro Phe
785 790 795 800

Gly Tyr Ile Lys Asn Pro Tyr Asn Ile Phe Asp Gly Val Ile Val Val
805 810 815

Ile Ser Val Trp Glu Ile Val Gly Gln Gln Gly Gly Gly Leu Ser Val
820 825 830

```
Leu Arg Thr Phe Arg Leu Met Arg Val Leu Lys Leu Val Arg Phe Leu
        835                 840                 845

Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn
    850                 855                 860

Val Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser
865                 870                 875                 880

Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ala Ser Glu Arg Asp
                885                 890                 895

Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
            900                 905                 910

Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Lys Val
        915                 920                 925

Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
    930                 935                 940

Ile Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
945                 950                 955                 960

Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Glu Ile Ser Lys Arg Glu
                965                 970                 975

Asp Ala Ser Gly Gln Leu Ser Cys Ile Gln Leu Pro Val Asp Ser Gln
            980                 985                 990

Gly Gly Asp Ala Asn Lys Ser Glu  Ser Glu Pro Asp Phe  Phe Ser
Pro
        995                 1000                1005

Ser Leu  Asp Gly Asp Gly Asp  Arg Lys Lys Cys Leu  Ala Leu Val
    1010                1015                1020

Ser Leu  Gly Glu His Pro Glu  Leu Arg Lys Ser Leu  Leu Pro Pro
    1025                1030                1035

Leu Ile  Ile His Thr Ala Ala  Thr Pro Met Ser Leu  Pro Lys Ser
    1040                1045                1050
```

```
Thr Ser  Thr Gly Leu Gly Glu  Ala Leu Gly Pro Ala  Ser Arg Arg
    1055                1060                1065

Thr Ser  Ser Ser Gly Ser Ala  Glu Pro Gly Ala Ala  His Glu Met
    1070                1075                1080

Lys Ser  Pro Pro Ser Ala Arg  Ser Ser Pro His Ser  Pro Trp Ser
    1085                1090                1095

Ala Ala  Ser Ser Trp Thr Ser  Arg Arg Ser Ser Arg  Asn Ser Leu
    1100                1105                1110

Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Ser Pro Ser  Gly Glu Arg
    1115                1120                1125

Arg Ser  Leu Leu Ser Gly Glu  Gly Gln Glu Ser Gln  Asp Glu Glu
    1130                1135                1140

Glu Ser  Ser Glu Glu Glu Arg  Ala Ser Pro Ala Gly  Ser Asp His
    1145                1150                1155

Arg His  Arg Gly Ser Leu Glu  Arg Glu Ala Lys Ser  Ser Phe Asp
    1160                1165                1170

Leu Pro  Asp Thr Leu Gln Val  Pro Gly Leu His Arg  Thr Ala Ser
    1175                1180                1185

Gly Arg  Gly Ser Ala Ser Glu  His Gln Asp Cys Asn  Gly Lys Ser
    1190                1195                1200

Ala Ser  Gly Arg Leu Ala Arg  Ala Leu Arg Pro Asp  Asp Pro Pro
    1205                1210                1215

Leu Asp  Gly Asp Asp Ala Asp  Asp Glu Gly Asn Leu  Ser Lys Gly
    1220                1225                1230

Glu Arg  Val Arg Ala Trp Ile  Arg Ala Arg Leu Pro  Ala Cys Cys
    1235                1240                1245

Leu Glu  Arg Asp Ser Trp Ser  Ala Tyr Ile Phe Pro  Pro Gln Ser
    1250                1255                1260
```

```
Arg Phe  Arg Leu Leu Cys His  Arg Ile Ile Thr His  Lys Met Phe
    1265                1270                1275

Asp His  Val Val Leu Val Ile  Ile Phe Leu Asn Cys  Ile Thr Ile
    1280                1285                1290

Ala Met  Glu Arg Pro Lys Ile  Asp Pro His Ser Ala  Glu Arg Ile
    1295                1300                1305

Phe Leu  Thr Leu Ser Asn Tyr  Ile Phe Thr Ala Val  Phe Leu Ala
    1310                1315                1320

Glu Met  Thr Val Lys Val Val  Ala Leu Gly Trp Cys  Phe Gly Glu
    1325                1330                1335

Gln Ala  Tyr Leu Arg Ser Ser  Trp Asn Val Leu Asp  Gly Leu Leu
    1340                1345                1350

Val Leu  Ile Ser Val Ile Asp  Ile Leu Val Ser Met  Val Ser Asp
    1355                1360                1365

Ser Gly  Thr Lys Ile Leu Gly  Met Leu Arg Val Leu  Arg Leu Leu
    1370                1375                1380

Arg Thr  Leu Arg Pro Leu Arg  Val Ile Ser Arg Ala  Gln Gly Leu
    1385                1390                1395

Lys Leu  Val Val Glu Thr Leu  Met Ser Ser Leu Lys  Pro Ile Gly
    1400                1405                1410

Asn Ile  Val Val Ile Cys Cys  Ala Phe Phe Ile Ile  Phe Gly Ile
    1415                1420                1425

Leu Gly  Val Gln Leu Phe Lys  Gly Lys Phe Phe Val  Cys Gln Gly
    1430                1435                1440

Glu Asp  Thr Arg Asn Ile Thr  Asn Lys Ser Asp Cys  Ala Glu Ala
    1445                1450                1455

Ser Tyr  Arg Trp Val Arg His  Lys Tyr Asn Phe Asp  Asn Leu Gly
    1460                1465                1470
```

```
Gln Ala  Leu Met Ser Leu Phe  Val Leu Ala Ser Lys  Asp Gly Trp
    1475                 1480                 1485

Val Asp  Ile Met Tyr Asp Gly  Leu Asp Ala Val Gly  Val Asp Gln
    1490                 1495                 1500

Gln Pro  Ile Met Asn His Asn  Pro Trp Met Leu Leu  Tyr Phe Ile
    1505                 1510                 1515

Ser Phe  Leu Leu Ile Val Ala  Phe Phe Val Leu Asn  Met Phe Val
    1520                 1525                 1530

Gly Val  Val Val Glu Asn Phe  His Lys Cys Arg Gln  His Gln Glu
    1535                 1540                 1545

Glu Glu  Glu Ala Arg Arg Arg  Glu Glu Lys Arg Leu  Arg Arg Leu
    1550                 1555                 1560

Glu Lys  Lys Arg Arg Lys Ala  Gln Cys Lys Pro Tyr  Tyr Ser Asp
    1565                 1570                 1575

Tyr Ser  Arg Phe Arg Leu Leu  Val His His Leu Cys  Thr Ser His
    1580                 1585                 1590

Tyr Leu  Asp Leu Phe Ile Thr  Gly Val Ile Gly Leu  Asn Val Val
    1595                 1600                 1605

Thr Met  Ala Met Glu His Tyr  Gln Gln Pro Gln Ile  Leu Asp Glu
    1610                 1615                 1620

Ala Leu  Lys Ile Cys Asn Tyr  Ile Phe Thr Val Ile  Phe Val Leu
    1625                 1630                 1635

Glu Ser  Val Phe Lys Leu Val  Ala Phe Gly Phe Arg  Arg Phe Phe
    1640                 1645                 1650

Gln Asp  Arg Trp Asn Gln Leu  Asp Leu Ala Ile Val  Leu Leu Ser
    1655                 1660                 1665

Ile Met  Gly Ile Thr Leu Glu  Glu Ile Glu Val Asn  Ala Ser Leu
    1670                 1675                 1680

Pro Ile  Asn Pro Thr Ile Ile  Arg Ile Met Arg Val  Leu Arg Ile
```

```
    1685                1690                1695

Ala Arg  Val Leu Lys Leu Leu  Lys Met Ala Val Gly  Met Arg Ala
    1700                1705                1710

Leu Leu  Asp Thr Val Met Gln  Ala Leu Pro Gln Leu  Trp Ala Trp
    1715                1720                1725

Ser Ser  Leu Glu Thr Trp Ser  Val Thr Arg His Thr  Pro Val Arg
    1730                1735                1740

Ala Trp  Ala Val Met Pro Pro  Phe Gly Thr Leu Ala  Trp Pro Ser
    1745                1750                1755


<210> 10816
<211> 337
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CACNA1G; "

<220>
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      subunit; "

<220>
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<400> 10816
Thr Ala Ser Gly Arg Gly Ser Ala Ser Glu His Gln Asp Cys Asn Gly
1               5                  10                  15

Lys Ser Ala Ser Gly Arg Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro
            20                  25                  30

Pro Leu Asp Gly Asp Asp Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly
        35                  40                  45

Glu Arg Val Arg Ala Trp Ile Arg Ala Arg Leu Pro Ala Cys Cys Leu
    50                  55                  60
```

```
Glu Arg Asp Ser Trp Ser Ala Tyr Ile Phe Pro Pro Gln Ser Arg Phe
65                  70                  75                  80

Arg Leu Leu Cys His Arg Ile Ile Thr His Lys Met Phe Asp His Val
                85                  90                  95

Val Leu Val Ile Ile Phe Leu Asn Cys Ile Thr Ile Ala Met Glu Arg
            100                 105                 110

Pro Lys Ile Asp Pro His Ser Ala Glu Arg Ile Phe Leu Thr Leu Ser
        115                 120                 125

Asn Tyr Ile Phe Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val
    130                 135                 140

Val Ala Leu Gly Trp Cys Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser
145                 150                 155                 160

Trp Asn Val Leu Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile
                165                 170                 175

Leu Val Ser Met Val Ser Asp Ser Gly Thr Lys Ile Leu Gly Met Leu
            180                 185                 190

Arg Val Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser
        195                 200                 205

Arg Ala Gln Gly Leu Lys Leu Val Val Glu Thr Leu Met Ser Ser Leu
    210                 215                 220

Lys Pro Ile Gly Asn Ile Val Val Ile Cys Cys Ala Phe Phe Ile Ile
225                 230                 235                 240

Phe Gly Ile Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Val Cys
                245                 250                 255

Gln Gly Glu Asp Thr Arg Asn Ile Thr Asn Lys Ser Asp Cys Ala Glu
            260                 265                 270

Ala Ser Tyr Arg Trp Val Arg His Lys Tyr Asn Phe Asp Asn Leu Gly
        275                 280                 285
```

```
Gln Ala Leu Met Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp Val
    290                 295                 300

Asp Ile Met Tyr Asp Gly Leu Asp Ala Val Gly Val Asp Gln Gln Val
305                 310                 315                 320

Gly Leu Arg Trp Ala Gly Ser Ile Cys Gly Leu Arg Ser Leu Ser Met
                325                 330                 335

Gly
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<400> 10817

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Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe Ala Val Glu Met Val Val
1               5                   10                  15

Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr Leu Gly Asp
            20                  25                  30

Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Ile Ala Gly Met Leu Glu
        35                  40                  45

Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe Ser Ala Val Arg Thr Val
    50                  55                  60
```

Arg Val Leu Arg Pro Leu Arg Ala Ile Asn Arg Val Pro Ser Met Arg
65 70 75 80

Ile Leu Val Thr Leu Leu Leu Asp Thr Leu Pro Met Leu Gly Asn Val
85 90 95

Leu Leu Leu Cys Phe Phe Val Phe Phe Ile Phe Gly Ile Val Gly Val
100 105 110

Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe Leu Pro Glu Asn
115 120 125

Phe Ser Leu Pro Leu Ser Val Asp Leu Glu Arg Tyr Tyr Gln Thr Glu
130 135 140

Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser Gln Pro Arg Glu Asn Gly
145 150 155 160

Met Arg Ser Cys Arg Ser Val Pro Thr Leu Arg Gly Asp Gly Gly Gly
165 170 175

Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala Tyr Asn Ser Ser Ser Asn
180 185 190

Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr Thr Asn Cys Ser Ala Gly
195 200 205

Glu His Asn Pro Phe Lys Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr
210 215 220

Ala Trp Ile Ala Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Asp
225 230 235 240

Ile Met Tyr Phe Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr
245 250 255

Phe Ile Leu Leu Ile Ile Phe Leu Ala Leu Arg Thr Ser Pro Val Glu
260 265 270

Arg Ala Ser Ile Ile
275

<210> 10818

<211> 2353
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<213> Homo sapiens

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type, alpha 1H
subunit; "

<220>
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<220>
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Met Thr Glu Gly Ala Arg Ala Ala Asp Glu Val Arg Val Pro Leu Gly
1   5   10   15

Ala Pro Pro Pro Gly Pro Ala Ala Leu Val Gly Ala Ser Pro Glu Ser
            20   25   30

Pro Gly Ala Pro Gly Arg Glu Ala Glu Arg Gly Ser Glu Leu Gly Val
        35   40   45

Ser Pro Ser Glu Ser Pro Ala Ala Glu Arg Gly Ala Glu Leu Gly Ala
    50   55   60

Asp Glu Glu Gln Arg Val Pro Tyr Pro Ala Leu Ala Ala Thr Val Phe
65   70   75   80

Phe Cys Leu Gly Gln Thr Thr Arg Pro Arg Ser Trp Cys Leu Arg Leu
                85   90   95

Val Cys Asn Pro Trp Phe Glu His Val Ser Met Leu Val Ile Met Leu
            100   105   110

Asn Cys Val Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Val Glu Cys
        115   120   125

```
Gly Ser Glu Arg Cys Asn Ile Leu Glu Ala Phe Asp Ala Phe Ile Phe
    130                 135                 140

Ala Phe Phe Ala Val Glu Met Val Ile Lys Met Val Ala Leu Gly Leu
145                 150                 155                 160

Phe Gly Gln Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe
                165                 170                 175

Phe Ile Val Val Ala Gly Met Met Glu Tyr Ser Leu Asp Gly His Asn
            180                 185                 190

Val Ser Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Arg
        195                 200                 205

Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu
    210                 215                 220

Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val
225                 230                 235                 240

Phe Phe Ile Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu
                245                 250                 255

Arg Asn Arg Cys Phe Leu Asp Ser Ala Phe Val Arg Asn Asn Asn Leu
            260                 265                 270

Thr Phe Leu Arg Pro Tyr Tyr Gln Thr Glu Glu Gly Glu Glu Asn Pro
        275                 280                 285

Phe Ile Cys Ser Ser Arg Arg Asp Asn Gly Met Gln Lys Cys Ser His
    290                 295                 300

Ile Pro Gly Arg Arg Glu Leu Arg Met Pro Cys Thr Leu Gly Trp Glu
305                 310                 315                 320

Ala Tyr Thr Gln Pro Gln Ala Glu Gly Val Gly Ala Ala Arg Asn Ala
                325                 330                 335

Cys Ile Asn Trp Asn Gln Tyr Tyr Asn Val Cys Arg Ser Gly Asp Ser
            340                 345                 350
```

```
Asn Pro His Asn Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp
        355                 360                 365

Ile Ala Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Asp Ile Met
    370                 375                 380

Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile
385                 390                 395                 400

Leu Leu Ile Ile Val Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val
                405                 410                 415

Val Ile Ala Thr Gln Phe Ser Glu Thr Lys Gln Arg Glu Ser Gln Leu
            420                 425                 430

Met Arg Glu Gln Arg Ala Arg His Leu Ser Asn Asp Ser Thr Leu Ala
        435                 440                 445

Ser Phe Ser Glu Pro Gly Ser Cys Tyr Glu Glu Leu Leu Lys Tyr Val
    450                 455                 460

Gly His Ile Phe Arg Lys Val Lys Arg Arg Ser Leu Arg Leu Tyr Ala
465                 470                 475                 480

Arg Trp Gln Ser Arg Trp Arg Lys Lys Val Asp Pro Ser Ala Val Gln
                485                 490                 495

Gly Gln Gly Pro Gly His Arg Gln Arg Arg Ala Gly Arg His Thr Ala
            500                 505                 510

Ser Val His His Leu Val Tyr His His His His His His His His His
        515                 520                 525

Tyr His Phe Ser His Gly Ser Pro Arg Arg Pro Gly Pro Glu Pro Gly
    530                 535                 540

Ala Cys Asp Thr Arg Leu Val Arg Ala Gly Ala Pro Pro Ser Pro Pro
545                 550                 555                 560

Ser Pro Gly Arg Gly Pro Pro Asp Ala Glu Ser Val His Ser Ile Tyr
                565                 570                 575
```

```
His Ala Asp Cys His Ile Glu Gly Pro Gln Glu Arg Ala Arg Val Ala
            580                 585                 590

His Ala Ala Ala Thr Ala Ala Ala Ser Leu Arg Leu Ala Thr Gly Leu
        595                 600                 605

Gly Thr Met Asn Tyr Pro Thr Ile Leu Pro Ser Gly Val Gly Ser Gly
    610                 615                 620

Lys Gly Ser Thr Ser Pro Gly Pro Lys Gly Lys Trp Ala Gly Gly Pro
625                 630                 635                 640

Pro Gly Thr Gly Gly His Gly Pro Leu Ser Leu Asn Ser Pro Asp Pro
                645                 650                 655

Tyr Glu Lys Ile Pro His Val Val Gly Glu His Gly Leu Gly Gln Ala
            660                 665                 670

Pro Gly His Leu Ser Gly Leu Ser Val Pro Cys Pro Leu Pro Ser Pro
        675                 680                 685

Pro Ala Gly Thr Leu Thr Cys Glu Leu Lys Ser Cys Pro Tyr Cys Thr
    690                 695                 700

Arg Ala Leu Glu Asp Pro Glu Gly Glu Leu Ser Gly Ser Glu Ser Gly
705                 710                 715                 720

Asp Ser Asp Gly Arg Gly Val Tyr Glu Phe Thr Gln Asp Val Arg His
                725                 730                 735

Gly Asp Arg Trp Asp Pro Thr Arg Pro Pro Arg Ala Thr Asp Thr Pro
            740                 745                 750

Gly Pro Gly Pro Gly Ser Pro Gln Arg Arg Ala Gln Gln Arg Ala Ala
        755                 760                 765

Pro Gly Glu Pro Gly Trp Met Gly Arg Leu Trp Val Thr Phe Ser Gly
    770                 775                 780

Lys Leu Arg Arg Ile Val Asp Ser Lys Tyr Phe Ser Arg Gly Ile Met
785                 790                 795                 800

Met Ala Ile Leu Val Asn Thr Leu Ser Met Gly Val Glu Tyr His Glu
```

805 810 815

Gln Pro Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe
820 825 830

Thr Ser Met Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Ala Cys Gly
835 840 845

Pro Leu Gly Tyr Ile Arg Asn Pro Tyr Asn Ile Phe Asp Gly Ile Ile
850 855 860

Val Val Ile Ser Val Trp Glu Ile Val Gly Gln Ala Asp Gly Gly Leu
865 870 875 880

Ser Val Leu Arg Thr Phe Arg Leu Leu Arg Val Leu Lys Leu Val Arg
885 890 895

Phe Leu Pro Ala Leu Arg Arg Gln Leu Val Val Leu Val Lys Thr Met
900 905 910

Asp Asn Val Ala Thr Phe Cys Thr Leu Leu Met Leu Phe Ile Phe Ile
915 920 925

Phe Ser Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ser Leu Lys
930 935 940

Thr Asp Thr Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu
945 950 955 960

Leu Trp Ala Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp
965 970 975

Asn Val Val Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala
980 985 990

Leu Tyr Phe Val Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe
Asn
995 1000 1005

Leu Leu Val Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp
1010 1015 1020

Ala Asn Arg Ser Asp Thr Asp Glu Asp Lys Thr Ser Val His Phe

1025 1030 1035

Glu Glu Asp Phe His Lys Leu Arg Glu Leu Gln Thr Thr Glu Leu
1040 1045 1050

Lys Met Cys Ser Leu Ala Val Thr Pro Asn Gly His Leu Glu Gly
1055 1060 1065

Arg Gly Ser Leu Ser Pro Pro Leu Ile Met Cys Thr Ala Ala Thr
1070 1075 1080

Pro Met Pro Thr Pro Lys Ser Ser Pro Phe Leu Asp Ala Ala Pro
1085 1090 1095

Ser Leu Pro Asp Ser Arg Arg Gly Ser Ser Ser Ser Gly Asp Pro
1100 1105 1110

Pro Leu Gly Asp Gln Lys Pro Pro Ala Ser Leu Arg Ser Ser Pro
1115 1120 1125

Cys Ala Pro Trp Gly Pro Ser Gly Ala Trp Ser Ser Arg Arg Ser
1130 1135 1140

Ser Trp Ser Ser Leu Gly Arg Ala Pro Ser Leu Lys Arg Arg Gly
1145 1150 1155

Gln Cys Gly Glu Arg Glu Ser Leu Leu Ser Gly Glu Gly Lys Gly
1160 1165 1170

Ser Thr Asp Asp Glu Ala Glu Asp Gly Arg Ala Ala Pro Gly Pro
1175 1180 1185

Arg Ala Thr Pro Leu Arg Arg Ala Glu Ser Leu Asp Pro Arg Pro
1190 1195 1200

Leu Arg Pro Ala Ala Leu Pro Pro Thr Lys Cys Arg Asp Arg Asp
1205 1210 1215

Gly Gln Val Val Ala Leu Pro Ser Asp Phe Phe Leu Arg Ile Asp
1220 1225 1230

Ser His Arg Glu Asp Ala Ala Glu Leu Asp Asp Asp Ser Glu Asp
1235 1240 1245

```
Ser Cys  Cys Leu Arg Leu His  Lys Val Leu Glu Pro  Tyr Lys Pro
    1250                 1255                 1260

Gln Trp  Cys Arg Ser Arg Glu  Ala Trp Ala Leu Tyr  Leu Phe Ser
    1265                 1270                 1275

Pro Gln  Asn Arg Phe Arg Val  Ser Cys Gln Lys Val  Ile Thr His
    1280                 1285                 1290

Lys Met  Phe Asp His Val Val  Leu Val Phe Ile Phe  Leu Asn Cys
    1295                 1300                 1305

Val Thr  Ile Ala Leu Glu Arg  Pro Asp Ile Asp Pro  Gly Ser Thr
    1310                 1315                 1320

Glu Arg  Val Phe Leu Ser Val  Ser Asn Tyr Ile Phe  Thr Ala Ile
    1325                 1330                 1335

Phe Val  Ala Glu Met Met Val  Lys Val Val Ala Leu  Gly Leu Leu
    1340                 1345                 1350

Ser Gly  Glu His Ala Tyr Leu  Gln Ser Ser Trp Asn  Leu Leu Asp
    1355                 1360                 1365

Gly Leu  Leu Val Leu Val Ser  Leu Val Asp Ile Val  Val Ala Met
    1370                 1375                 1380

Ala Ser  Ala Gly Gly Ala Lys  Ile Leu Gly Val Leu  Arg Val Leu
    1385                 1390                 1395

Arg Leu  Leu Arg Thr Leu Arg  Pro Leu Arg Val Ile  Ser Arg Ala
    1400                 1405                 1410

Pro Gly  Leu Lys Leu Val Val  Glu Thr Leu Ile Ser  Ser Leu Arg
    1415                 1420                 1425

Pro Ile  Gly Asn Ile Val Leu  Ile Cys Cys Ala Phe  Phe Ile Ile
    1430                 1435                 1440

Phe Gly  Ile Leu Gly Val Gln  Leu Phe Lys Gly Lys  Phe Tyr Tyr
    1445                 1450                 1455
```

```
Cys Glu  Gly Pro Asp Thr Arg  Asn Ile Ser Thr Lys  Ala Gln Cys
    1460                1465                1470

Arg Ala  Ala His Tyr Arg Trp  Val Arg Arg Lys Tyr  Asn Phe Asp
    1475                1480                1485

Asn Leu  Gly Gln Ala Leu Met  Ser Leu Phe Val Leu  Ser Ser Lys
    1490                1495                1500

Asp Gly  Trp Val Asn Ile Met  Tyr Asp Gly Leu Asp  Ala Val Gly
    1505                1510                1515

Val Asp  Gln Gln Pro Val Gln  Asn His Asn Pro Trp  Met Leu Leu
    1520                1525                1530

Tyr Phe  Ile Ser Phe Leu Leu  Ile Val Ser Phe Phe  Val Leu Asn
    1535                1540                1545

Met Phe  Val Gly Val Val Val  Glu Asn Phe His Lys  Cys Arg Gln
    1550                1555                1560

His Gln  Glu Ala Glu Glu Ala  Arg Arg Arg Glu Glu  Lys Arg Leu
    1565                1570                1575

Arg Arg  Leu Glu Arg Arg Arg  Arg Ser Thr Phe Pro  Ser Pro Glu
    1580                1585                1590

Ala Gln  Arg Arg Pro Tyr Tyr  Ala Asp Tyr Ser Pro  Thr Arg Arg
    1595                1600                1605

Ser Ile  His Ser Leu Cys Thr  Ser His Tyr Leu Asp  Leu Phe Ile
    1610                1615                1620

Thr Phe  Ile Ile Cys Val Asn  Val Ile Thr Met Ser  Met Glu His
    1625                1630                1635

Tyr Asn  Gln Pro Lys Ser Leu  Asp Glu Ala Leu Lys  Tyr Cys Asn
    1640                1645                1650

Tyr Val  Phe Thr Ile Val Phe  Val Phe Glu Ala Ala  Leu Lys Leu
    1655                1660                1665
```

```
Val Ala  Phe Gly Phe Arg Arg  Phe Phe Lys Asp Arg  Trp Asn Gln
    1670                 1675                 1680

Leu Asp  Leu Ala Ile Val Leu  Leu Ser Leu Met Gly  Ile Thr Leu
    1685                 1690                 1695

Glu Glu  Ile Glu Met Ser Ala  Ala Leu Pro Ile Asn  Pro Thr Ile
    1700                 1705                 1710

Ile Arg  Ile Met Arg Val Leu  Arg Ile Ala Arg Val  Leu Lys Leu
    1715                 1720                 1725

Leu Lys  Met Ala Thr Gly Met  Arg Ala Leu Leu Asp  Thr Val Val
    1730                 1735                 1740

Gln Ala  Leu Pro Gln Val Gly  Asn Leu Gly Leu Leu  Phe Met Leu
    1745                 1750                 1755

Leu Phe  Phe Ile Tyr Ala Ala  Leu Gly Val Glu Leu  Phe Gly Arg
    1760                 1765                 1770

Leu Glu  Cys Ser Glu Asp Asn  Pro Cys Glu Gly Leu  Ser Arg His
    1775                 1780                 1785

Ala Thr  Phe Ser Asn Phe Gly  Met Ala Phe Leu Thr  Leu Phe Arg
    1790                 1795                 1800

Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile Met Lys  Asp Thr Leu
    1805                 1810                 1815

Arg Glu  Cys Ser Arg Glu Asp  Lys His Cys Leu Ser  Tyr Leu Pro
    1820                 1825                 1830

Ala Leu  Ser Pro Val Tyr Phe  Val Thr Phe Val Leu  Val Ala Gln
    1835                 1840                 1845

Phe Val  Leu Val Asn Val Val  Val Ala Val Leu Met  Lys His Leu
    1850                 1855                 1860

Glu Glu  Ser Asn Lys Glu Ala  Arg Glu Asp Ala Glu  Leu Asp Ala
    1865                 1870                 1875

Glu Ile  Glu Leu Glu Met Ala  Gln Gly Pro Gly Ser  Ala Arg Arg
```

1880 1885 1890

Val Asp Ala Asp Arg Pro Pro Leu Pro Gln Glu Ser Pro Gly Ala
1895 1900 1905

Arg Asp Ala Pro Asn Leu Val Ala Arg Lys Val Ser Val Ser Arg
1910 1915 1920

Met Leu Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg Pro Val Val
1925 1930 1935

Pro Ala Ser Ala Pro His Pro Arg Pro Leu Gln Glu Val Glu Met
1940 1945 1950

Glu Thr Tyr Gly Ala Gly Thr Pro Leu Gly Ser Val Ala Ser Val
1955 1960 1965

His Ser Pro Pro Ala Glu Ser Cys Ala Ser Leu Gln Ile Pro Leu
1970 1975 1980

Ala Val Ser Ser Pro Ala Arg Ser Gly Glu Pro Leu His Ala Leu
1985 1990 1995

Ser Pro Arg Gly Thr Ala Arg Ser Pro Ser Leu Ser Arg Leu Leu
2000 2005 2010

Cys Arg Gln Glu Ala Val His Thr Asp Ser Leu Glu Gly Lys Ile
2015 2020 2025

Asp Ser Pro Arg Asp Thr Leu Asp Pro Ala Glu Pro Gly Glu Lys
2030 2035 2040

Thr Pro Val Arg Pro Val Thr Gln Gly Gly Ser Leu Gln Ser Pro
2045 2050 2055

Pro Arg Ser Pro Arg Pro Ala Ser Val Arg Thr Arg Lys His Thr
2060 2065 2070

Phe Gly Gln Arg Cys Val Ser Ser Arg Pro Ala Ala Pro Gly Gly
2075 2080 2085

Glu Glu Ala Glu Ala Ser Asp Pro Ala Asp Glu Glu Val Ser His
2090 2095 2100

```
Ile Thr  Ser Ser Ala Cys Pro  Trp Gln Pro Thr Ala  Glu Pro His
    2105                2110                2115

Gly Pro  Glu Ala Ser Pro Val  Ala Gly Gly Glu Arg  Asp Leu Arg
    2120                2125                2130

Arg Leu  Tyr Ser Val Asp Ala  Gln Gly Phe Leu Asp  Lys Pro Gly
    2135                2140                2145

Arg Ala  Asp Glu Gln Trp Arg  Pro Ser Ala Glu Leu  Gly Ser Gly
    2150                2155                2160

Glu Pro  Gly Glu Ala Lys Ala  Trp Gly Pro Glu Ala  Glu Pro Ala
    2165                2170                2175

Leu Gly  Ala Arg Arg Lys Lys  Lys Met Ser Pro Pro  Cys Ile Ser
    2180                2185                2190

Val Glu  Pro Pro Ala Glu Asp  Glu Gly Ser Ala Arg  Pro Ser Ala
    2195                2200                2205

Ala Glu  Gly Gly Ser Thr Thr  Leu Arg Arg Arg Thr  Pro Ser Cys
    2210                2215                2220

Glu Ala  Thr Pro His Arg Asp  Ser Leu Glu Pro Thr  Glu Gly Ser
    2225                2230                2235

Gly Ala  Gly Gly Asp Pro Ala  Ala Lys Gly Glu Arg  Trp Gly Gln
    2240                2245                2250

Ala Ser  Cys Arg Ala Glu His  Leu Thr Val Pro Ser  Phe Ala Phe
    2255                2260                2265

Glu Pro  Leu Asp Leu Gly Val  Pro Ser Gly Asp Pro  Phe Leu Asp
    2270                2275                2280

Gly Ser  His Ser Val Thr Pro  Glu Ser Arg Ala Ser  Ser Ser Gly
    2285                2290                2295

Ala Ile  Val Pro Leu Glu Pro  Pro Glu Ser Glu Pro  Pro Met Pro
    2300                2305                2310
```

```
Val Gly  Asp Pro Pro Glu Lys  Arg Arg Gly Leu Tyr  Leu Thr Val
    2315                2320                2325


Pro Gln  Cys Pro Leu Glu Lys  Pro Gly Ser Pro Ser  Ala Thr Pro
    2330                2335                2340


Ala Pro  Gly Gly Gly Ala Asp  Asp Pro Val
    2345                2350


<210> 10819
<211> 2347
<212> PRT
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      subunit; "

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<400> 10819
Met Thr Glu Gly Ala Arg Ala Ala Asp Glu Val Arg Val Pro Leu Gly
1               5                  10                  15


Ala Pro Pro Pro Gly Pro Ala Ala Leu Val Gly Ala Ser Pro Glu Ser
            20                  25                  30


Pro Gly Ala Pro Gly Arg Glu Ala Glu Arg Gly Ser Glu Leu Gly Val
        35                  40                  45


Ser Pro Ser Glu Ser Pro Ala Ala Glu Arg Gly Ala Glu Leu Gly Ala
    50                  55                  60
```

```
Asp Glu Glu Gln Arg Val Pro Tyr Pro Ala Leu Ala Ala Thr Val Phe
65                  70                  75                  80

Phe Cys Leu Gly Gln Thr Thr Arg Pro Arg Ser Trp Cys Leu Arg Leu
                85                  90                  95

Val Cys Asn Pro Trp Phe Glu His Val Ser Met Leu Val Ile Met Leu
            100                 105                 110

Asn Cys Val Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Val Glu Cys
        115                 120                 125

Gly Ser Glu Arg Cys Asn Ile Leu Glu Ala Phe Asp Ala Phe Ile Phe
    130                 135                 140

Ala Phe Phe Ala Val Glu Met Val Ile Lys Met Val Ala Leu Gly Leu
145                 150                 155                 160

Phe Gly Gln Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe
                165                 170                 175

Phe Ile Val Val Ala Gly Met Met Glu Tyr Ser Leu Asp Gly His Asn
            180                 185                 190

Val Ser Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Arg
        195                 200                 205

Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu
    210                 215                 220

Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val
225                 230                 235                 240

Phe Phe Ile Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu
                245                 250                 255

Arg Asn Arg Cys Phe Leu Asp Ser Ala Phe Val Arg Asn Asn Asn Leu
            260                 265                 270

Thr Phe Leu Arg Pro Tyr Tyr Gln Thr Glu Glu Gly Glu Glu Asn Pro
        275                 280                 285

Phe Ile Cys Ser Ser Arg Arg Asp Asn Gly Met Gln Lys Cys Ser His
```

```
    290                 295                 300

Ile Pro Gly Arg Arg Glu Leu Arg Met Pro Cys Thr Leu Gly Trp Glu
305                 310                 315                 320

Ala Tyr Thr Gln Pro Gln Ala Glu Gly Val Gly Ala Ala Arg Asn Ala
                325                 330                 335

Cys Ile Asn Trp Asn Gln Tyr Tyr Asn Val Cys Arg Ser Gly Asp Ser
            340                 345                 350

Asn Pro His Asn Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp
        355                 360                 365

Ile Ala Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Asp Ile Met
    370                 375                 380

Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile
385                 390                 395                 400

Leu Leu Ile Ile Val Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val
                405                 410                 415

Val Ile Ala Thr Gln Phe Ser Glu Thr Lys Gln Arg Glu Ser Gln Leu
            420                 425                 430

Met Arg Glu Gln Arg Ala Arg His Leu Ser Asn Asp Ser Thr Leu Ala
        435                 440                 445

Ser Phe Ser Glu Pro Gly Ser Cys Tyr Glu Glu Leu Leu Lys Tyr Val
    450                 455                 460

Gly His Ile Phe Arg Lys Val Lys Arg Arg Ser Leu Arg Leu Tyr Ala
465                 470                 475                 480

Arg Trp Gln Ser Arg Trp Arg Lys Lys Val Asp Pro Ser Ala Val Gln
                485                 490                 495

Gly Gln Gly Pro Gly His Arg Gln Arg Arg Ala Gly Arg His Thr Ala
            500                 505                 510

Ser Val His His Leu Val Tyr His His His His His His His His His
        515                 520                 525
```

```
Tyr His Phe Ser His Gly Ser Pro Arg Arg Pro Gly Pro Glu Pro Gly
    530                 535                 540

Ala Cys Asp Thr Arg Leu Val Arg Ala Gly Ala Pro Pro Ser Pro Pro
545                 550                 555                 560

Ser Pro Gly Arg Gly Pro Pro Asp Ala Glu Ser Val His Ser Ile Tyr
                565                 570                 575

His Ala Asp Cys His Ile Glu Gly Pro Gln Glu Arg Ala Arg Val Ala
            580                 585                 590

His Ala Ala Ala Thr Ala Ala Ala Ser Leu Arg Leu Ala Thr Gly Leu
        595                 600                 605

Gly Thr Met Asn Tyr Pro Thr Ile Leu Pro Ser Gly Val Gly Ser Gly
    610                 615                 620

Lys Gly Ser Thr Ser Pro Gly Pro Lys Gly Lys Trp Ala Gly Gly Pro
625                 630                 635                 640

Pro Gly Thr Gly Gly His Gly Pro Leu Ser Leu Asn Ser Pro Asp Pro
                645                 650                 655

Tyr Glu Lys Ile Pro His Val Val Gly Glu His Gly Leu Gly Gln Ala
            660                 665                 670

Pro Gly His Leu Ser Gly Leu Ser Val Pro Cys Pro Leu Pro Ser Pro
        675                 680                 685

Pro Ala Gly Thr Leu Thr Cys Glu Leu Lys Ser Cys Pro Tyr Cys Thr
    690                 695                 700

Arg Ala Leu Glu Asp Pro Glu Gly Glu Leu Ser Gly Ser Glu Ser Gly
705                 710                 715                 720

Asp Ser Asp Gly Arg Gly Val Tyr Glu Phe Thr Gln Asp Val Arg His
                725                 730                 735

Gly Asp Arg Trp Asp Pro Thr Arg Pro Pro Arg Ala Thr Asp Thr Pro
            740                 745                 750
```

```
Gly Pro Gly Pro Gly Ser Pro Gln Arg Arg Ala Gln Gln Arg Ala Ala
        755                 760                 765

Pro Gly Glu Pro Gly Trp Met Gly Arg Leu Trp Val Thr Phe Ser Gly
    770                 775                 780

Lys Leu Arg Arg Ile Val Asp Ser Lys Tyr Phe Ser Arg Gly Ile Met
785                 790                 795                 800

Met Ala Ile Leu Val Asn Thr Leu Ser Met Gly Val Glu Tyr His Glu
                805                 810                 815

Gln Pro Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe
            820                 825                 830

Thr Ser Met Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Ala Cys Gly
        835                 840                 845

Pro Leu Gly Tyr Ile Arg Asn Pro Tyr Asn Ile Phe Asp Gly Ile Ile
    850                 855                 860

Val Val Ile Ser Val Trp Glu Ile Val Gly Gln Ala Asp Gly Gly Leu
865                 870                 875                 880

Ser Val Leu Arg Thr Phe Arg Leu Leu Arg Val Leu Lys Leu Val Arg
                885                 890                 895

Phe Leu Pro Ala Leu Arg Arg Gln Leu Val Val Leu Val Lys Thr Met
            900                 905                 910

Asp Asn Val Ala Thr Phe Cys Thr Leu Leu Met Leu Phe Ile Phe Ile
        915                 920                 925

Phe Ser Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ser Leu Lys
    930                 935                 940

Thr Asp Thr Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu
945                 950                 955                 960

Leu Trp Ala Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp
                965                 970                 975
```

```
Asn Val Val Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala
            980                 985                 990

Leu Tyr Phe Val Ala Leu Met Thr  Phe Gly Asn Tyr Val  Leu Phe
Asn
        995                1000                1005

Leu Leu  Val Ala Ile Leu Val  Glu Gly Phe Gln Ala  Glu Gly Asp
    1010                1015                1020

Ala Asn  Arg Ser Asp Thr Asp  Glu Asp Lys Thr Ser  Val His Phe
    1025                1030                1035

Glu Glu  Asp Phe His Lys Leu  Arg Glu Leu Gln Thr  Thr Glu Leu
    1040                1045                1050

Lys Met  Cys Ser Leu Ala Val  Thr Pro Asn Gly His  Leu Glu Gly
    1055                1060                1065

Arg Gly  Ser Leu Ser Pro Pro  Leu Ile Met Cys Thr  Ala Ala Thr
    1070                1075                1080

Pro Met  Pro Thr Pro Lys Ser  Ser Pro Phe Leu Asp  Ala Ala Pro
    1085                1090                1095

Ser Leu  Pro Asp Ser Arg Arg  Gly Ser Ser Ser Ser  Gly Asp Pro
    1100                1105                1110

Pro Leu  Gly Asp Gln Lys Pro  Pro Ala Ser Leu Arg  Ser Ser Pro
    1115                1120                1125

Cys Ala  Pro Trp Gly Pro Ser  Gly Ala Trp Ser Ser  Arg Arg Ser
    1130                1135                1140

Ser Trp  Ser Ser Leu Gly Arg  Ala Pro Ser Leu Lys  Arg Arg Gly
    1145                1150                1155

Gln Cys  Gly Glu Arg Glu Ser  Leu Leu Ser Gly Glu  Gly Lys Gly
    1160                1165                1170

Ser Thr  Asp Asp Glu Ala Glu  Asp Gly Arg Ala Ala  Pro Gly Pro
    1175                1180                1185
```

```
Arg Ala  Thr Pro Leu Arg Arg  Ala Glu Ser Leu Asp  Pro Arg Pro
    1190                1195                1200

Leu Arg  Pro Ala Ala Leu Pro  Pro Thr Lys Cys Arg  Asp Arg Asp
    1205                1210                1215

Gly Gln  Val Val Ala Leu Pro  Ser Asp Phe Phe Leu  Arg Ile Asp
    1220                1225                1230

Ser His  Arg Glu Asp Ala Ala  Glu Leu Asp Asp Asp  Ser Glu Asp
    1235                1240                1245

Ser Cys  Cys Leu Arg Leu His  Lys Val Leu Glu Pro  Tyr Lys Pro
    1250                1255                1260

Gln Trp  Cys Arg Ser Arg Glu  Ala Trp Ala Leu Tyr  Leu Phe Ser
    1265                1270                1275

Pro Gln  Asn Arg Phe Arg Val  Ser Cys Gln Lys Val  Ile Thr His
    1280                1285                1290

Lys Met  Phe Asp His Val Val  Leu Val Phe Ile Phe  Leu Asn Cys
    1295                1300                1305

Val Thr  Ile Ala Leu Glu Arg  Pro Asp Ile Asp Pro  Gly Ser Thr
    1310                1315                1320

Glu Arg  Val Phe Leu Ser Val  Ser Asn Tyr Ile Phe  Thr Ala Ile
    1325                1330                1335

Phe Val  Ala Glu Met Met Val  Lys Val Val Ala Leu  Gly Leu Leu
    1340                1345                1350

Ser Gly  Glu His Ala Tyr Leu  Gln Ser Ser Trp Asn  Leu Leu Asp
    1355                1360                1365

Gly Leu  Leu Val Leu Val Ser  Leu Val Asp Ile Val  Val Ala Met
    1370                1375                1380

Ala Ser  Ala Gly Gly Ala Lys  Ile Leu Gly Val Leu  Arg Val Leu
    1385                1390                1395

Arg Leu  Leu Arg Thr Leu Arg  Pro Leu Arg Val Ile  Ser Arg Ala
```

1400 1405 1410

Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Arg
1415 1420 1425

Pro Ile Gly Asn Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile
1430 1435 1440

Phe Gly Ile Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr Tyr
1445 1450 1455

Cys Glu Gly Pro Asp Thr Arg Asn Ile Ser Thr Lys Ala Gln Cys
1460 1465 1470

Arg Ala Ala His Tyr Arg Trp Val Arg Arg Lys Tyr Asn Phe Asp
1475 1480 1485

Asn Leu Gly Gln Ala Leu Met Ser Leu Phe Val Leu Ser Ser Lys
1490 1495 1500

Asp Gly Trp Val Asn Ile Met Tyr Asp Gly Leu Asp Ala Val Gly
1505 1510 1515

Val Asp Gln Gln Pro Val Gln Asn His Asn Pro Trp Met Leu Leu
1520 1525 1530

Tyr Phe Ile Ser Phe Leu Leu Ile Val Ser Phe Phe Val Leu Asn
1535 1540 1545

Met Phe Val Gly Val Val Val Glu Asn Phe His Lys Cys Arg Gln
1550 1555 1560

His Gln Glu Ala Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu
1565 1570 1575

Arg Arg Leu Glu Arg Arg Arg Arg Lys Ala Gln Arg Arg Pro Tyr
1580 1585 1590

Tyr Ala Asp Tyr Ser Pro Thr Arg Arg Ser Ile His Ser Leu Cys
1595 1600 1605

Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Phe Ile Ile Cys Val
1610 1615 1620

```
Asn Val  Ile Thr Met Ser Met  Glu His Tyr Asn Gln  Pro Lys Ser
    1625                1630                1635

Leu Asp  Glu Ala Leu Lys Tyr  Cys Asn Tyr Val Phe  Thr Ile Val
    1640                1645                1650

Phe Val  Phe Glu Ala Ala Leu  Lys Leu Val Ala Phe  Gly Phe Arg
    1655                1660                1665

Arg Phe  Phe Lys Asp Arg Trp  Asn Gln Leu Asp Leu  Ala Ile Val
    1670                1675                1680

Leu Leu  Ser Leu Met Gly Ile  Thr Leu Glu Glu Ile  Glu Met Ser
    1685                1690                1695

Ala Ala  Leu Pro Ile Asn Pro  Thr Ile Ile Arg Ile  Met Arg Val
    1700                1705                1710

Leu Arg  Ile Ala Arg Val Leu  Lys Leu Leu Lys Met  Ala Thr Gly
    1715                1720                1725

Met Arg  Ala Leu Leu Asp Thr  Val Val Gln Ala Leu  Pro Gln Val
    1730                1735                1740

Gly Asn  Leu Gly Leu Leu Phe  Met Leu Leu Phe Phe  Ile Tyr Ala
    1745                1750                1755

Ala Leu  Gly Val Glu Leu Phe  Gly Arg Leu Glu Cys  Ser Glu Asp
    1760                1765                1770

Asn Pro  Cys Glu Gly Leu Ser  Arg His Ala Thr Phe  Ser Asn Phe
    1775                1780                1785

Gly Met  Ala Phe Leu Thr Leu  Phe Arg Val Ser Thr  Gly Asp Asn
    1790                1795                1800

Trp Asn  Gly Ile Met Lys Asp  Thr Leu Arg Glu Cys  Ser Arg Glu
    1805                1810                1815

Asp Lys  His Cys Leu Ser Tyr  Leu Pro Ala Leu Ser  Pro Val Tyr
    1820                1825                1830
```

```
Phe Val  Thr Phe Val Leu Val  Ala Gln Phe Val Leu  Val Asn Val
    1835                1840                1845

Val Val  Ala Val Leu Met Lys  His Leu Glu Glu Ser  Asn Lys Glu
    1850                1855                1860

Ala Arg  Glu Asp Ala Glu Leu  Asp Ala Glu Ile Glu  Leu Glu Met
    1865                1870                1875

Ala Gln  Gly Pro Gly Ser Ala  Arg Arg Val Asp Ala  Asp Arg Pro
    1880                1885                1890

Pro Leu  Pro Gln Glu Ser Pro  Gly Ala Arg Asp Ala  Pro Asn Leu
    1895                1900                1905

Val Ala  Arg Lys Val Ser Val  Ser Arg Met Leu Ser  Leu Pro Asn
    1910                1915                1920

Asp Ser  Tyr Met Phe Arg Pro  Val Val Pro Ala Ser  Ala Pro His
    1925                1930                1935

Pro Arg  Pro Leu Gln Glu Val  Glu Met Glu Thr Tyr  Gly Ala Gly
    1940                1945                1950

Thr Pro  Leu Gly Ser Val Ala  Ser Val His Ser Pro  Pro Ala Glu
    1955                1960                1965

Ser Cys  Ala Ser Leu Gln Ile  Pro Leu Ala Val Ser  Ser Pro Ala
    1970                1975                1980

Arg Ser  Gly Glu Pro Leu His  Ala Leu Ser Pro Arg  Gly Thr Ala
    1985                1990                1995

Arg Ser  Pro Ser Leu Ser Arg  Leu Leu Cys Arg Gln  Glu Ala Val
    2000                2005                2010

His Thr  Asp Ser Leu Glu Gly  Lys Ile Asp Ser Pro  Arg Asp Thr
    2015                2020                2025

Leu Asp  Pro Ala Glu Pro Gly  Glu Lys Thr Pro Val  Arg Pro Val
    2030                2035                2040
```

```
Thr Gln  Gly Gly Ser Leu Gln  Ser Pro Pro Arg Ser  Pro Arg Pro
    2045                2050                2055

Ala Ser  Val Arg Thr Arg Lys  His Thr Phe Gly Gln  Arg Cys Val
    2060                2065                2070

Ser Ser  Arg Pro Ala Ala Pro  Gly Gly Glu Glu Ala  Glu Ala Ser
    2075                2080                2085

Asp Pro  Ala Asp Glu Glu Val  Ser His Ile Thr Ser  Ser Ala Cys
    2090                2095                2100

Pro Trp  Gln Pro Thr Ala Glu  Pro His Gly Pro Glu  Ala Ser Pro
    2105                2110                2115

Val Ala  Gly Gly Glu Arg Asp  Leu Arg Arg Leu Tyr  Ser Val Asp
    2120                2125                2130

Ala Gln  Gly Phe Leu Asp Lys  Pro Gly Arg Ala Asp  Glu Gln Trp
    2135                2140                2145

Arg Pro  Ser Ala Glu Leu Gly  Ser Gly Glu Pro Gly  Glu Ala Lys
    2150                2155                2160

Ala Trp  Gly Pro Glu Ala Glu  Pro Ala Leu Gly Ala  Arg Arg Lys
    2165                2170                2175

Lys Lys  Met Ser Pro Pro Cys  Ile Ser Val Glu Pro  Pro Ala Glu
    2180                2185                2190

Asp Glu  Gly Ser Ala Arg Pro  Ser Ala Ala Glu Gly  Gly Ser Thr
    2195                2200                2205

Thr Leu  Arg Arg Arg Thr Pro  Ser Cys Glu Ala Thr  Pro His Arg
    2210                2215                2220

Asp Ser  Leu Glu Pro Thr Glu  Gly Ser Gly Ala Gly  Gly Asp Pro
    2225                2230                2235

Ala Ala  Lys Gly Glu Arg Trp  Gly Gln Ala Ser Cys  Arg Ala Glu
    2240                2245                2250

His Leu  Thr Val Pro Ser Phe  Ala Phe Glu Pro Leu  Asp Leu Gly
```

```
    2255                2260                2265

Val Pro  Ser Gly Asp Pro Phe  Leu Asp Gly Ser His  Ser Val Thr
    2270                2275                2280

Pro Glu  Ser Arg Ala Ser Ser  Ser Gly Ala Ile Val  Pro Leu Glu
    2285                2290                2295

Pro Pro  Glu Ser Glu Pro Pro  Met Pro Val Gly Asp  Pro Pro Glu
    2300                2305                2310

Lys Arg  Arg Gly Leu Tyr Leu  Thr Val Pro Gln Cys  Pro Leu Glu
    2315                2320                2325

Lys Pro  Gly Ser Pro Ser Ala  Thr Pro Ala Pro Gly  Gly Gly Ala
    2330                2335                2340

Asp Asp  Pro Val
    2345


<210> 10820
<211> 1078
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2146; "

<220>
<221> source
<223> /note="Gene Symbol: CACNA1H; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
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      subunit; "

<220>
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<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10820
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Xaa Pro Tyr Lys Pro Gln Trp Cys Arg Ser Arg Glu Ala Trp Ala Leu
1               5                  10                  15

Tyr Leu Phe Ser Pro Gln Asn Arg Phe Arg Val Ser Cys Gln Lys Val
            20                  25                  30

Ile Thr His Lys Met Phe Asp His Val Val Leu Val Phe Ile Phe Leu
        35                  40                  45

Asn Cys Val Thr Ile Ala Leu Glu Arg Pro Asp Ile Asp Pro Gly Ser
    50                  55                  60

Thr Glu Arg Val Phe Leu Ser Val Ser Asn Tyr Ile Phe Thr Ala Ile
65                  70                  75                  80

Phe Val Ala Glu Met Met Val Lys Val Val Ala Leu Gly Leu Leu Ser
                85                  90                  95

Gly Glu His Ala Tyr Leu Gln Ser Ser Trp Asn Leu Leu Asp Gly Leu
            100                 105                 110

Leu Val Leu Val Ser Leu Val Asp Ile Val Val Ala Met Ala Ser Ala
        115                 120                 125

Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val Leu Arg Leu Leu Arg
    130                 135                 140

Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Pro Gly Leu Lys Leu
145                 150                 155                 160

Val Val Glu Thr Leu Ile Ser Ser Leu Arg Pro Ile Gly Asn Ile Val
                165                 170                 175

Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile Leu Gly Val Gln
            180                 185                 190

Leu Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly Pro Asp Thr Arg Asn
        195                 200                 205

Ile Ser Thr Lys Ala Gln Cys Arg Ala Ala His Tyr Arg Trp Val Arg
    210                 215                 220

Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser Leu Phe
```

225 230 235 240

Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile Met Tyr Asp Gly Leu
245 250 255

Asp Ala Val Gly Val Asp Gln Gln Pro Val Gln Asn His Asn Pro Trp
260 265 270

Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ser Phe Phe Val
275 280 285

Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His Lys Cys Arg
290 295 300

Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu
305 310 315 320

Arg Arg Leu Glu Arg Arg Arg Arg Lys Ala Gln Arg Arg Pro Tyr Tyr
325 330 335

Ala Asp Tyr Ser Pro Thr Arg Arg Ser Ile His Ser Leu Cys Thr Ser
340 345 350

His Tyr Leu Asp Leu Phe Ile Thr Phe Ile Ile Cys Val Asn Val Ile
355 360 365

Thr Met Ser Met Glu His Tyr Asn Gln Pro Lys Ser Leu Asp Glu Ala
370 375 380

Leu Lys Tyr Cys Asn Tyr Val Phe Thr Ile Val Phe Val Phe Glu Ala
385 390 395 400

Ala Leu Lys Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Lys Asp Arg
405 410 415

Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Leu Met Gly Ile
420 425 430

Thr Leu Glu Glu Ile Glu Met Ser Ala Ala Leu Pro Ile Asn Pro Thr
435 440 445

Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu
450 455 460

```
Leu Lys Met Ala Thr Gly Met Arg Ala Leu Leu Asp Thr Val Val Gln
465                 470                 475                 480

Ala Leu Pro Gln Val Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe
                485                 490                 495

Phe Ile Tyr Ala Ala Leu Gly Val Glu Leu Phe Gly Arg Leu Glu Cys
            500                 505                 510

Ser Glu Asp Asn Pro Cys Glu Gly Leu Ser Arg His Ala Thr Phe Ser
        515                 520                 525

Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp
    530                 535                 540

Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg Glu Cys Ser Arg Glu
545                 550                 555                 560

Asp Lys His Cys Leu Ser Tyr Leu Pro Ala Leu Ser Pro Val Tyr Phe
                565                 570                 575

Val Thr Phe Val Leu Val Ala Gln Phe Val Leu Val Asn Val Val Val
            580                 585                 590

Ala Val Leu Met Lys His Leu Glu Glu Ser Asn Lys Glu Ala Arg Glu
        595                 600                 605

Asp Ala Glu Leu Asp Ala Glu Ile Glu Leu Glu Met Ala Gln Gly Pro
    610                 615                 620

Gly Ser Ala Arg Arg Val Asp Ala Asp Arg Pro Pro Leu Pro Gln Glu
625                 630                 635                 640

Ser Pro Gly Ala Arg Asp Ala Pro Asn Leu Val Ala Arg Lys Val Ser
                645                 650                 655

Val Ser Arg Met Leu Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg Pro
            660                 665                 670

Val Val Pro Ala Ser Ala Pro His Pro Arg Pro Leu Gln Glu Val Glu
        675                 680                 685
```

```
Met Glu Thr Tyr Gly Ala Gly Thr Pro Leu Glu Ser Cys Ala Ser Leu
    690                 695                 700

Gln Ile Pro Leu Ala Val Ser Ser Pro Ala Arg Ser Gly Glu Pro Leu
705                 710                 715                 720

His Ala Leu Ser Pro Arg Gly Thr Ala Arg Ser Pro Ser Leu Ser Arg
                725                 730                 735

Leu Leu Cys Arg Gln Glu Ala Val His Thr Asp Ser Leu Glu Gly Lys
            740                 745                 750

Ile Asp Ser Pro Arg Asp Thr Leu Asp Pro Ala Glu Pro Gly Glu Lys
        755                 760                 765

Thr Pro Val Arg Pro Val Thr Gln Gly Gly Ser Leu Gln Ser Pro Pro
    770                 775                 780

Arg Ser Pro Arg Pro Ala Ser Val Arg Thr Arg Lys His Thr Phe Gly
785                 790                 795                 800

Gln Arg Cys Val Ser Ser Arg Pro Ala Ala Pro Gly Gly Glu Glu Ala
                805                 810                 815

Glu Ala Ser Asp Pro Ala Asp Glu Glu Val Ser His Ile Thr Ser Ser
            820                 825                 830

Ala Cys Pro Trp Gln Pro Thr Ala Glu Pro His Gly Pro Glu Ala Ser
        835                 840                 845

Pro Val Ala Gly Gly Glu Arg Asp Leu Arg Arg Leu Tyr Ser Val Asp
    850                 855                 860

Ala Gln Gly Phe Leu Asp Lys Pro Gly Arg Ala Asp Glu Gln Trp Arg
865                 870                 875                 880

Pro Ser Ala Glu Leu Gly Ser Gly Glu Pro Gly Glu Ala Lys Ala Trp
                885                 890                 895

Gly Pro Glu Ala Glu Pro Ala Leu Gly Ala Arg Arg Lys Lys Lys Met
            900                 905                 910
```

```
Ser Pro Pro Cys Ile Ser Val Glu Pro Pro Ala Glu Asp Glu Gly Ser
        915                 920                 925

Ala Arg Pro Ser Ala Ala Glu Gly Gly Ser Thr Thr Leu Arg Arg Arg
    930                 935                 940

Thr Pro Ser Cys Glu Ala Thr Pro His Arg Asp Ser Leu Glu Pro Thr
945                 950                 955                 960

Glu Gly Ser Gly Ala Gly Gly Asp Pro Ala Ala Lys Gly Glu Arg Trp
                965                 970                 975

Gly Gln Ala Ser Cys Arg Ala Glu His Leu Thr Val Pro Ser Phe Ala
            980                 985                 990

Phe Glu Pro Leu Asp Leu Gly Val  Pro Ser Gly Asp Pro  Phe Leu
Asp
        995                 1000                1005

Gly Ser  His Ser Val Thr Pro  Glu Ser Arg Ala Ser  Ser Ser Gly
    1010                1015                1020

Ala Ile  Val Pro Leu Glu Pro  Pro Glu Ser Glu Pro  Pro Met Pro
    1025                1030                1035

Val Gly  Asp Pro Pro Glu Lys  Arg Arg Gly Leu Tyr  Leu Thr Val
    1040                1045                1050

Pro Gln  Cys Pro Leu Glu Lys  Pro Gly Ser Pro Ser  Ala Thr Pro
    1055                1060                1065

Ala Pro  Gly Gly Gly Ala Asp  Asp Pro Val
    1070                1075
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<210> 10821
<211> 1100
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2146; "

<220>
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<223> /note="Gene Symbol: CACNA1H; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1H
subunit; "

<220>
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10821
Xaa Pro Tyr Lys Pro Gln Trp Cys Arg Ser Arg Glu Ala Trp Ala Leu
1 5 10 15

Tyr Leu Phe Ser Pro Gln Asn Arg Phe Arg Val Ser Cys Gln Lys Val
20 25 30

Ile Thr His Lys Met Phe Asp His Val Val Leu Val Phe Ile Phe Leu
35 40 45

Asn Cys Val Thr Ile Ala Leu Glu Arg Pro Asp Ile Asp Pro Gly Ser
50 55 60

Thr Glu Arg Val Phe Leu Ser Val Ser Asn Tyr Ile Phe Thr Ala Ile
65 70 75 80

Phe Val Ala Glu Met Met Val Lys Val Val Ala Leu Gly Leu Leu Ser
85 90 95

Gly Glu His Ala Tyr Leu Gln Ser Ser Trp Asn Leu Leu Asp Gly Leu
100 105 110

Leu Val Leu Val Ser Leu Val Asp Ile Val Val Ala Met Ala Ser Ala
115 120 125

Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val Leu Arg Leu Leu Arg
130 135 140

Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Pro Gly Leu Lys Leu
145 150 155 160

```
Val Val Glu Thr Leu Ile Ser Ser Leu Arg Pro Ile Gly Asn Ile Val
                165                 170                 175

Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile Leu Gly Val Gln
            180                 185                 190

Leu Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly Pro Asp Thr Arg Asn
        195                 200                 205

Ile Ser Thr Lys Ala Gln Cys Arg Ala Ala His Tyr Arg Trp Val Arg
    210                 215                 220

Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser Leu Phe
225                 230                 235                 240

Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile Met Tyr Asp Gly Leu
                245                 250                 255

Asp Ala Val Gly Val Asp Gln Gln Pro Val Gln Asn His Asn Pro Trp
            260                 265                 270

Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ser Phe Phe Val
        275                 280                 285

Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His Lys Cys Arg
    290                 295                 300

Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu
305                 310                 315                 320

Arg Arg Leu Glu Arg Arg Arg Arg Ser Lys Ala Leu Pro Val Ala Val
                325                 330                 335

Ala Val Ala Glu Ala Gln Arg Arg Pro Tyr Tyr Ala Asp Tyr Ser Pro
            340                 345                 350

Thr Arg Arg Ser Ile His Ser Leu Cys Thr Ser His Tyr Leu Asp Leu
        355                 360                 365

Phe Ile Thr Phe Ile Ile Cys Val Asn Val Ile Thr Met Ser Met Glu
    370                 375                 380
```

```
His Tyr Asn Gln Pro Lys Ser Leu Asp Glu Ala Leu Lys Tyr Cys Asn
385                 390                 395                 400

Tyr Val Phe Thr Ile Val Phe Val Phe Glu Ala Ala Leu Lys Leu Val
                405                 410                 415

Ala Phe Gly Phe Arg Arg Phe Phe Lys Asp Arg Trp Asn Gln Leu Asp
            420                 425                 430

Leu Ala Ile Val Leu Leu Ser Leu Met Gly Ile Thr Leu Glu Glu Ile
        435                 440                 445

Glu Met Ser Ala Ala Leu Pro Ile Asn Pro Thr Ile Ile Arg Ile Met
    450                 455                 460

Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys Met Ala Thr
465                 470                 475                 480

Gly Met Arg Ala Leu Leu Asp Thr Val Val Gln Ala Leu Pro Gln Val
                485                 490                 495

Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Tyr Ala Ala
            500                 505                 510

Leu Gly Val Glu Leu Phe Gly Arg Leu Glu Cys Ser Glu Asp Asn Pro
        515                 520                 525

Cys Glu Gly Leu Ser Arg His Ala Thr Phe Ser Asn Phe Gly Met Ala
    530                 535                 540

Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Asn Trp Asn Gly Ile
545                 550                 555                 560

Met Lys Asp Thr Leu Arg Glu Cys Ser Arg Glu Asp Lys His Cys Leu
                565                 570                 575

Ser Tyr Leu Pro Ala Leu Ser Pro Val Tyr Phe Val Thr Phe Val Leu
            580                 585                 590

Val Ala Gln Phe Val Leu Val Asn Val Val Val Ala Val Leu Met Lys
        595                 600                 605

His Leu Glu Glu Ser Asn Lys Glu Ala Arg Glu Asp Ala Glu Leu Asp
```

610 615 620

Ala Glu Ile Glu Leu Glu Met Ala Gln Gly Pro Gly Ser Ala Arg Arg
625 630 635 640

Val Asp Ala Asp Arg Pro Pro Leu Pro Gln Glu Ser Pro Gly Ala Arg
645 650 655

Asp Ala Pro Asn Leu Val Ala Arg Lys Val Ser Val Ser Arg Met Leu
660 665 670

Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg Pro Val Val Pro Ala Ser
675 680 685

Ala Pro His Pro Arg Pro Leu Gln Glu Val Glu Met Glu Thr Tyr Gly
690 695 700

Ala Gly Thr Pro Leu Gly Ser Val Ala Ser Val His Ser Pro Pro Ala
705 710 715 720

Glu Ser Cys Ala Ser Leu Gln Ile Pro Leu Ala Val Ser Ser Pro Ala
725 730 735

Arg Ser Gly Glu Pro Leu His Ala Leu Ser Pro Arg Gly Thr Ala Arg
740 745 750

Ser Pro Ser Leu Ser Arg Leu Leu Cys Arg Gln Glu Ala Val His Thr
755 760 765

Asp Ser Leu Glu Gly Lys Ile Asp Ser Pro Arg Asp Thr Leu Asp Pro
770 775 780

Ala Glu Pro Gly Glu Lys Thr Pro Val Arg Pro Val Thr Gln Gly Gly
785 790 795 800

Ser Leu Gln Ser Pro Pro Arg Ser Pro Arg Pro Ala Ser Val Arg Thr
805 810 815

Arg Lys His Thr Phe Gly Gln Arg Cys Val Ser Ser Arg Pro Ala Ala
820 825 830

Pro Gly Gly Glu Glu Ala Glu Ala Ser Asp Pro Ala Asp Glu Glu Val
835 840 845

```
Ser His Ile Thr Ser Ser Ala Cys Pro Trp Gln Pro Thr Ala Glu Pro
    850                 855                 860

His Gly Pro Glu Ala Ser Pro Val Ala Gly Gly Glu Arg Asp Leu Arg
865                 870                 875                 880

Arg Leu Tyr Ser Val Asp Ala Gln Gly Phe Leu Asp Lys Pro Gly Arg
                885                 890                 895

Ala Asp Glu Gln Trp Arg Pro Ser Ala Glu Leu Gly Ser Gly Glu Pro
            900                 905                 910

Gly Glu Ala Lys Ala Trp Gly Pro Glu Ala Glu Pro Ala Leu Gly Ala
        915                 920                 925

Arg Arg Lys Lys Lys Met Ser Pro Pro Cys Ile Ser Val Glu Pro Pro
    930                 935                 940

Ala Glu Asp Glu Gly Ser Ala Arg Pro Ser Ala Ala Glu Gly Gly Ser
945                 950                 955                 960

Thr Thr Leu Arg Arg Arg Thr Pro Ser Cys Glu Ala Thr Pro His Arg
                965                 970                 975

Asp Ser Leu Glu Pro Thr Glu Gly Ser Gly Ala Gly Gly Asp Pro Ala
            980                 985                 990

Ala Lys Gly Glu Arg Trp Gly Gln  Ala Ser Cys Arg Ala  Glu His
Leu
        995                 1000                1005

Thr Val  Pro Ser Phe Ala Phe  Glu Pro Leu Asp Leu  Gly Val Pro
    1010                1015                1020

Ser Gly  Asp Pro Phe Leu Asp  Gly Ser His Ser Val  Thr Pro Glu
    1025                1030                1035

Ser Arg  Ala Ser Ser Ser Gly  Ala Ile Val Pro Leu  Glu Pro Pro
    1040                1045                1050

Glu Ser  Glu Pro Pro Met Pro  Val Gly Asp Pro Pro  Glu Lys Arg
    1055                1060                1065
```

```
Arg Gly  Leu Tyr Leu Thr Val  Pro Gln Cys Pro Leu  Glu Lys Pro
    1070                1075                1080

Gly Ser  Pro Ser Ala Thr Pro  Ala Pro Gly Gly Gly  Ala Asp Asp
    1085                1090                1095

Pro Val
    1100
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<210> 10822
<211> 897
<212> PRT
<213> Homo sapiens

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<220>
<221> source
<223> /note="Gene Symbol: CACNA1H; "

<220>
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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1H
subunit; "

<220>
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<220>
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<222> (1)..(1)
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<400> 10822

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Xaa Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly Pro Asp Thr Arg Asn
1               5                  10                  15

Ile Ser Thr Lys Ala Gln Cys Arg Ala Ala His Tyr Arg Trp Val Arg
            20                  25                  30

Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser Leu Phe
        35                  40                  45

Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile Met Tyr Asp Gly Leu
```

```
    50                  55                  60

Asp Ala Val Gly Val Asp Gln Gln Pro Val Gln Asn His Asn Pro Trp
65                  70                  75                  80

Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ser Phe Phe Val
                85                  90                  95

Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His Lys Cys Arg
            100                 105                 110

Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu
        115                 120                 125

Arg Arg Leu Glu Arg Arg Arg Arg Lys Ala Gln Arg Arg Pro Tyr Tyr
    130                 135                 140

Ala Asp Tyr Ser Pro Thr Arg Arg Ser Ile His Ser Leu Cys Thr Ser
145                 150                 155                 160

His Tyr Leu Asp Leu Phe Ile Thr Phe Ile Ile Cys Val Asn Val Ile
                165                 170                 175

Thr Met Ser Met Glu His Tyr Asn Gln Pro Lys Ser Leu Asp Glu Ala
            180                 185                 190

Leu Lys Tyr Cys Asn Tyr Val Phe Thr Ile Val Phe Val Phe Glu Ala
        195                 200                 205

Ala Leu Lys Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Lys Asp Arg
    210                 215                 220

Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu Ser Leu Met Gly Ile
225                 230                 235                 240

Thr Leu Glu Glu Ile Glu Met Ser Ala Ala Leu Pro Ile Asn Pro Thr
                245                 250                 255

Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu
            260                 265                 270

Leu Lys Met Ala Thr Gly Met Arg Ala Leu Leu Asp Thr Val Val Gln
        275                 280                 285
```

```
Ala Leu Pro Gln Val Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe
    290                 295                 300

Phe Ile Tyr Ala Ala Leu Gly Val Glu Leu Phe Gly Arg Leu Glu Cys
305                 310                 315                 320

Ser Glu Asp Asn Pro Cys Glu Gly Leu Ser Arg His Ala Thr Phe Ser
                325                 330                 335

Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp
            340                 345                 350

Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg Glu Cys Ser Arg Glu
        355                 360                 365

Asp Lys His Cys Leu Ser Tyr Leu Pro Ala Leu Ser Pro Val Tyr Phe
    370                 375                 380

Val Thr Phe Val Leu Val Ala Gln Phe Val Leu Val Asn Val Val Val
385                 390                 395                 400

Ala Val Leu Met Lys His Leu Glu Glu Ser Asn Lys Glu Ala Arg Glu
                405                 410                 415

Asp Ala Glu Leu Asp Ala Glu Ile Glu Leu Glu Met Ala Gln Gly Pro
            420                 425                 430

Gly Ser Ala Arg Arg Val Asp Ala Asp Arg Pro Pro Leu Pro Gln Glu
        435                 440                 445

Ser Pro Gly Ala Arg Asp Ala Pro Asn Leu Val Ala Arg Lys Val Ser
    450                 455                 460

Val Ser Arg Met Leu Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg Pro
465                 470                 475                 480

Val Val Pro Ala Ser Ala Pro His Pro Arg Pro Leu Gln Glu Val Glu
                485                 490                 495

Met Glu Thr Tyr Gly Ala Gly Thr Pro Leu Gly Ser Val Ala Ser Val
            500                 505                 510
```

```
His Ser Pro Pro Ala Glu Ser Cys Ala Ser Leu Gln Ile Pro Leu Ala
        515                 520                 525

Val Ser Ser Pro Ala Arg Ser Gly Glu Pro Leu His Ala Leu Ser Pro
    530                 535                 540

Arg Gly Thr Ala Arg Ser Pro Ser Leu Ser Arg Leu Leu Cys Arg Gln
545                 550                 555                 560

Glu Ala Val His Thr Asp Ser Leu Glu Gly Lys Ile Asp Ser Pro Arg
                565                 570                 575

Asp Thr Leu Asp Pro Ala Glu Pro Gly Glu Lys Thr Pro Val Arg Pro
            580                 585                 590

Val Thr Gln Gly Gly Ser Leu Gln Ser Pro Pro Arg Ser Pro Arg Pro
        595                 600                 605

Ala Ser Val Arg Thr Arg Lys His Thr Phe Gly Gln Arg Cys Val Ser
    610                 615                 620

Ser Arg Pro Ala Ala Pro Gly Gly Glu Glu Ala Glu Ala Ser Asp Pro
625                 630                 635                 640

Ala Asp Glu Glu Val Ser His Ile Thr Ser Ser Ala Cys Pro Trp Gln
                645                 650                 655

Pro Thr Ala Glu Pro His Gly Pro Glu Ala Ser Pro Val Ala Gly Gly
            660                 665                 670

Glu Arg Asp Leu Arg Arg Leu Tyr Ser Val Asp Ala Gln Gly Phe Leu
        675                 680                 685

Asp Lys Pro Gly Arg Ala Asp Glu Gln Trp Arg Pro Ser Ala Glu Leu
    690                 695                 700

Gly Ser Gly Glu Pro Gly Glu Ala Lys Ala Trp Gly Pro Glu Ala Glu
705                 710                 715                 720

Pro Ala Leu Gly Ala Arg Arg Lys Lys Lys Met Ser Pro Pro Cys Ile
                725                 730                 735
```

```
Ser Val Glu Pro Pro Ala Glu Asp Glu Gly Ser Ala Arg Pro Ser Ala
            740                 745                 750

Ala Glu Gly Gly Ser Thr Thr Leu Arg Arg Arg Thr Pro Ser Cys Glu
        755                 760                 765

Ala Thr Pro His Arg Asp Ser Leu Glu Pro Thr Glu Gly Ser Gly Ala
    770                 775                 780

Gly Gly Asp Pro Ala Ala Lys Gly Glu Arg Trp Gly Gln Ala Ser Cys
785                 790                 795                 800

Arg Ala Glu His Leu Thr Val Pro Ser Phe Ala Phe Glu Pro Leu Asp
                805                 810                 815

Leu Gly Val Pro Ser Gly Asp Pro Phe Leu Asp Gly Ser His Ser Val
            820                 825                 830

Thr Pro Glu Ser Arg Ala Ser Ser Ser Gly Ala Ile Val Pro Leu Glu
        835                 840                 845

Pro Pro Glu Ser Glu Pro Pro Met Pro Val Gly Asp Pro Pro Glu Lys
    850                 855                 860

Arg Arg Gly Leu Tyr Leu Thr Val Pro Gln Cys Pro Leu Glu Lys Pro
865                 870                 875                 880

Gly Ser Pro Ser Ala Thr Pro Ala Pro Gly Gly Gly Ala Asp Asp Pro
                885                 890                 895

Val
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<210> 10823
<211> 2347
<212> PRT
<213> Homo sapiens

<220>
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type, alpha 1H
subunit; "

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<400> 10823
Met Thr Glu Gly Ala Arg Ala Ala Asp Glu Val Arg Val Pro Leu Gly
1   5   10   15

Ala Pro Pro Pro Gly Pro Ala Ala Leu Val Gly Ala Ser Pro Glu Ser
            20   25   30

Pro Gly Ala Pro Gly Arg Glu Ala Glu Arg Gly Ser Glu Leu Gly Val
        35   40   45

Ser Pro Ser Glu Ser Pro Ala Ala Glu Arg Gly Ala Glu Leu Gly Ala
    50   55   60

Asp Glu Glu Gln Arg Val Pro Tyr Pro Ala Leu Ala Ala Thr Val Phe
65   70   75   80

Phe Cys Leu Gly Gln Thr Thr Arg Pro Arg Ser Trp Cys Leu Arg Leu
                85   90   95

Val Cys Asn Pro Trp Phe Glu His Val Ser Met Leu Val Ile Met Leu
            100   105   110

Asn Cys Val Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Val Glu Cys
        115   120   125

Gly Ser Glu Arg Cys Asn Ile Leu Glu Ala Phe Asp Ala Phe Ile Phe
    130   135   140

Ala Phe Phe Ala Val Glu Met Val Ile Lys Met Val Ala Leu Gly Leu
145   150   155   160

Phe Gly Gln Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe
                165   170   175

```
Phe Ile Val Val Ala Gly Met Met Glu Tyr Ser Leu Asp Gly His Asn
            180                 185                 190

Val Ser Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Arg
        195                 200                 205

Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu
    210                 215                 220

Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val
225                 230                 235                 240

Phe Phe Ile Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu
                245                 250                 255

Arg Asn Arg Cys Phe Leu Asp Ser Ala Phe Val Arg Asn Asn Asn Leu
            260                 265                 270

Thr Phe Leu Arg Pro Tyr Tyr Gln Thr Glu Glu Gly Glu Glu Asn Pro
        275                 280                 285

Phe Ile Cys Ser Ser Arg Arg Asp Asn Gly Met Gln Lys Cys Ser His
    290                 295                 300

Ile Pro Gly Arg Arg Glu Leu Arg Met Pro Cys Thr Leu Gly Trp Glu
305                 310                 315                 320

Ala Tyr Thr Gln Pro Gln Ala Glu Gly Val Gly Ala Ala Arg Asn Ala
                325                 330                 335

Cys Ile Asn Trp Asn Gln Tyr Tyr Asn Val Cys Arg Ser Gly Asp Ser
            340                 345                 350

Asn Pro His Asn Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp
        355                 360                 365

Ile Ala Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Asp Ile Met
    370                 375                 380

Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile
385                 390                 395                 400
```

```
Leu Leu Ile Ile Val Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val
                405                 410                 415

Val Ile Ala Thr Gln Phe Ser Glu Thr Lys Gln Arg Glu Ser Gln Leu
            420                 425                 430

Met Arg Glu Gln Arg Ala Arg His Leu Ser Asn Asp Ser Thr Leu Ala
        435                 440                 445

Ser Phe Ser Glu Pro Gly Ser Cys Tyr Glu Glu Leu Leu Lys Tyr Val
    450                 455                 460

Gly His Ile Phe Arg Lys Val Lys Arg Arg Ser Leu Arg Leu Tyr Ala
465                 470                 475                 480

Arg Trp Gln Ser Arg Trp Arg Lys Lys Val Asp Pro Ser Ala Val Gln
                485                 490                 495

Gly Gln Gly Pro Gly His Arg Gln Arg Arg Ala Gly Arg His Thr Ala
            500                 505                 510

Ser Val His His Leu Val Tyr His His His His His His His His His
        515                 520                 525

Tyr His Phe Ser His Gly Ser Pro Arg Arg Pro Gly Pro Glu Pro Gly
    530                 535                 540

Ala Cys Asp Thr Arg Leu Val Arg Ala Gly Ala Pro Pro Ser Pro Pro
545                 550                 555                 560

Ser Pro Gly Arg Gly Pro Pro Asp Ala Glu Ser Val His Ser Ile Tyr
                565                 570                 575

His Ala Asp Cys His Ile Glu Gly Pro Gln Glu Arg Ala Arg Val Ala
            580                 585                 590

His Ala Ala Ala Thr Ala Ala Ala Ser Leu Arg Leu Ala Thr Gly Leu
        595                 600                 605

Gly Thr Met Asn Tyr Pro Thr Ile Leu Pro Ser Gly Val Gly Ser Gly
    610                 615                 620
```

```
Lys Gly Ser Thr Ser Pro Gly Pro Lys Gly Lys Trp Ala Gly Gly Pro
625                 630                 635                 640

Pro Gly Thr Gly Gly His Gly Pro Leu Ser Leu Asn Ser Pro Asp Pro
                645                 650                 655

Tyr Glu Lys Ile Pro His Val Val Gly Glu His Gly Leu Gly Gln Ala
            660                 665                 670

Pro Gly His Leu Ser Gly Leu Ser Val Pro Cys Pro Leu Pro Ser Pro
        675                 680                 685

Pro Ala Gly Thr Leu Thr Cys Glu Leu Lys Ser Cys Pro Tyr Cys Thr
    690                 695                 700

Arg Ala Leu Glu Asp Pro Glu Gly Glu Leu Ser Gly Ser Glu Ser Gly
705                 710                 715                 720

Asp Ser Asp Gly Arg Gly Val Tyr Glu Phe Thr Gln Asp Val Arg His
                725                 730                 735

Gly Asp Arg Trp Asp Pro Thr Arg Pro Pro Arg Ala Thr Asp Thr Pro
            740                 745                 750

Gly Pro Gly Pro Gly Ser Pro Gln Arg Arg Ala Gln Gln Arg Ala Ala
        755                 760                 765

Pro Gly Glu Pro Gly Trp Met Gly Arg Leu Trp Val Thr Phe Ser Gly
    770                 775                 780

Lys Leu Arg Arg Ile Val Asp Ser Lys Tyr Phe Ser Arg Gly Ile Met
785                 790                 795                 800

Met Ala Ile Leu Val Asn Thr Leu Ser Met Gly Val Glu Tyr His Glu
                805                 810                 815

Gln Pro Glu Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe
            820                 825                 830

Thr Ser Met Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Ala Cys Gly
        835                 840                 845

Pro Leu Gly Tyr Ile Arg Asn Pro Tyr Asn Ile Phe Asp Gly Ile Ile
```

```
    850                 855                 860

Val Val Ile Ser Val Trp Glu Ile Val Gly Gln Ala Asp Gly Gly Leu
865                 870                 875                 880

Ser Val Leu Arg Thr Phe Arg Leu Leu Arg Val Leu Lys Leu Val Arg
                885                 890                 895

Phe Leu Pro Ala Leu Arg Arg Gln Leu Val Val Leu Val Lys Thr Met
            900                 905                 910

Asp Asn Val Ala Thr Phe Cys Thr Leu Leu Met Leu Phe Ile Phe Ile
        915                 920                 925

Phe Ser Ile Leu Gly Met His Leu Phe Gly Cys Lys Phe Ser Leu Lys
    930                 935                 940

Thr Asp Thr Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu
945                 950                 955                 960

Leu Trp Ala Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp
                965                 970                 975

Asn Val Val Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala
            980                 985                 990

Leu Tyr Phe Val Ala Leu Met Thr  Phe Gly Asn Tyr Val  Leu Phe
Asn
        995                 1000                1005

Leu Leu  Val Ala Ile Leu Val  Glu Gly Phe Gln Ala  Glu Gly Asp
    1010                1015                1020

Ala Asn  Arg Ser Asp Thr Asp  Glu Asp Lys Thr Ser  Val His Phe
    1025                1030                1035

Glu Glu  Asp Phe His Lys Leu  Arg Glu Leu Gln Thr  Thr Glu Leu
    1040                1045                1050

Lys Met  Cys Ser Leu Ala Val  Thr Pro Asn Gly His  Leu Glu Gly
    1055                1060                1065

Arg Gly  Ser Leu Ser Pro Pro  Leu Ile Met Cys Thr  Ala Ala Thr
```

1070 1075 1080

Pro Met Pro Thr Pro Lys Ser Ser Pro Phe Leu Asp Ala Ala Pro
1085 1090 1095

Ser Leu Pro Asp Ser Arg Arg Gly Ser Ser Ser Ser Gly Asp Pro
1100 1105 1110

Pro Leu Gly Asp Gln Lys Pro Pro Ala Ser Leu Arg Ser Ser Pro
1115 1120 1125

Cys Ala Pro Trp Gly Pro Ser Gly Ala Trp Ser Ser Arg Arg Ser
1130 1135 1140

Ser Trp Ser Ser Leu Gly Arg Ala Pro Ser Leu Lys Arg Arg Gly
1145 1150 1155

Gln Cys Gly Glu Arg Glu Ser Leu Leu Ser Gly Glu Gly Lys Gly
1160 1165 1170

Ser Thr Asp Asp Glu Ala Glu Asp Gly Arg Ala Ala Pro Gly Pro
1175 1180 1185

Arg Ala Thr Pro Leu Arg Arg Ala Glu Ser Leu Asp Pro Arg Pro
1190 1195 1200

Leu Arg Pro Ala Ala Leu Pro Pro Thr Lys Cys Arg Asp Arg Asp
1205 1210 1215

Gly Gln Val Val Ala Leu Pro Ser Asp Phe Phe Leu Arg Ile Asp
1220 1225 1230

Ser His Arg Glu Asp Ala Ala Glu Leu Asp Asp Asp Ser Glu Asp
1235 1240 1245

Ser Cys Cys Leu Arg Leu His Lys Val Leu Glu Pro Tyr Lys Pro
1250 1255 1260

Gln Trp Cys Arg Ser Arg Glu Ala Trp Ala Leu Tyr Leu Phe Ser
1265 1270 1275

Pro Gln Asn Arg Phe Arg Val Ser Cys Gln Lys Val Ile Thr His
1280 1285 1290

```
Lys Met  Phe Asp His Val Val  Leu Val Phe Ile Phe  Leu Asn Cys
    1295                1300                1305

Val Thr  Ile Ala Leu Glu Arg  Pro Asp Ile Asp Pro  Gly Ser Thr
    1310                1315                1320

Glu Arg  Val Phe Leu Ser Val  Ser Asn Tyr Ile Phe  Thr Ala Ile
    1325                1330                1335

Phe Val  Ala Glu Met Met Val  Lys Val Val Ala Leu  Gly Leu Leu
    1340                1345                1350

Ser Gly  Glu His Ala Tyr Leu  Gln Ser Ser Trp Asn  Leu Leu Asp
    1355                1360                1365

Gly Leu  Leu Val Leu Val Ser  Leu Val Asp Ile Val  Val Ala Met
    1370                1375                1380

Ala Ser  Ala Gly Gly Ala Lys  Ile Leu Gly Val Leu  Arg Val Leu
    1385                1390                1395

Arg Leu  Leu Arg Thr Leu Arg  Pro Leu Arg Val Ile  Ser Arg Ala
    1400                1405                1410

Pro Gly  Leu Lys Leu Val Val  Glu Thr Leu Ile Ser  Ser Leu Arg
    1415                1420                1425

Pro Ile  Gly Asn Ile Val Leu  Ile Cys Cys Ala Phe  Phe Ile Ile
    1430                1435                1440

Phe Gly  Ile Leu Gly Val Gln  Leu Phe Lys Gly Lys  Phe Tyr Tyr
    1445                1450                1455

Cys Glu  Gly Pro Asp Thr Arg  Asn Ile Ser Thr Lys  Ala Gln Cys
    1460                1465                1470

Arg Ala  Ala His Tyr Arg Trp  Val Arg Arg Lys Tyr  Asn Phe Asp
    1475                1480                1485

Asn Leu  Gly Gln Ala Leu Met  Ser Leu Phe Val Leu  Ser Ser Lys
    1490                1495                1500
```

```
Asp Gly  Trp Val Asn Ile Met  Tyr Asp Gly Leu Asp  Ala Val Gly
    1505                1510                1515

Val Asp  Gln Gln Pro Val Gln  Asn His Asn Pro Trp  Met Leu Leu
    1520                1525                1530

Tyr Phe  Ile Ser Phe Leu Leu  Ile Val Ser Phe Phe  Val Leu Asn
    1535                1540                1545

Met Phe  Val Gly Val Val Val  Glu Asn Phe His Lys  Cys Arg Gln
    1550                1555                1560

His Gln  Glu Ala Glu Glu Ala  Arg Arg Arg Glu Glu  Lys Arg Leu
    1565                1570                1575

Arg Arg  Leu Glu Arg Arg Arg  Arg Lys Ala Gln Arg  Arg Pro Tyr
    1580                1585                1590

Tyr Ala  Asp Tyr Ser Pro Thr  Arg Arg Ser Ile His  Ser Leu Cys
    1595                1600                1605

Thr Ser  His Tyr Leu Asp Leu  Phe Ile Thr Phe Ile  Ile Cys Val
    1610                1615                1620

Asn Val  Ile Thr Met Ser Met  Glu His Tyr Asn Gln  Pro Lys Ser
    1625                1630                1635

Leu Asp  Glu Ala Leu Lys Tyr  Cys Asn Tyr Val Phe  Thr Ile Val
    1640                1645                1650

Phe Val  Phe Glu Ala Ala Leu  Lys Leu Val Ala Phe  Gly Phe Arg
    1655                1660                1665

Arg Phe  Phe Lys Asp Arg Trp  Asn Gln Leu Asp Leu  Ala Ile Val
    1670                1675                1680

Leu Leu  Ser Leu Met Gly Ile  Thr Leu Glu Glu Ile  Glu Met Ser
    1685                1690                1695

Ala Ala  Leu Pro Ile Asn Pro  Thr Ile Ile Arg Ile  Met Arg Val
    1700                1705                1710
```

```
Leu Arg  Ile Ala Arg Val Leu  Lys Leu Leu Lys Met  Ala Thr Gly
    1715                1720                1725

Met Arg  Ala Leu Leu Asp Thr  Val Val Gln Ala Leu  Pro Gln Val
    1730                1735                1740

Gly Asn  Leu Gly Leu Leu Phe  Met Leu Leu Phe Phe  Ile Tyr Ala
    1745                1750                1755

Ala Leu  Gly Val Glu Leu Phe  Gly Arg Leu Glu Cys  Ser Glu Asp
    1760                1765                1770

Asn Pro  Cys Glu Gly Leu Ser  Arg His Ala Thr Phe  Ser Asn Phe
    1775                1780                1785

Gly Met  Ala Phe Leu Thr Leu  Phe Arg Val Ser Thr  Gly Asp Asn
    1790                1795                1800

Trp Asn  Gly Ile Met Lys Asp  Thr Leu Arg Glu Cys  Ser Arg Glu
    1805                1810                1815

Asp Lys  His Cys Leu Ser Tyr  Leu Pro Ala Leu Ser  Pro Val Tyr
    1820                1825                1830

Phe Val  Thr Phe Val Leu Val  Ala Gln Phe Val Leu  Val Asn Val
    1835                1840                1845

Val Val  Ala Val Leu Met Lys  His Leu Glu Glu Ser  Asn Lys Glu
    1850                1855                1860

Ala Arg  Glu Asp Ala Glu Leu  Asp Ala Glu Ile Glu  Leu Glu Met
    1865                1870                1875

Ala Gln  Gly Pro Gly Ser Ala  Arg Arg Val Asp Ala  Asp Arg Pro
    1880                1885                1890

Pro Leu  Pro Gln Glu Ser Pro  Gly Ala Arg Asp Ala  Pro Asn Leu
    1895                1900                1905

Val Ala  Arg Lys Val Ser Val  Ser Arg Met Leu Ser  Leu Pro Asn
    1910                1915                1920

Asp Ser  Tyr Met Phe Arg Pro  Val Val Pro Ala Ser  Ala Pro His
```

1925 1930 1935

Pro Arg Pro Leu Gln Glu Val Glu Met Glu Thr Tyr Gly Ala Gly
1940 1945 1950

Thr Pro Leu Gly Ser Val Ala Ser Val His Ser Pro Pro Ala Glu
1955 1960 1965

Ser Cys Ala Ser Leu Gln Ile Pro Leu Ala Val Ser Ser Pro Ala
1970 1975 1980

Arg Ser Gly Glu Pro Leu His Ala Leu Ser Pro Arg Gly Thr Ala
1985 1990 1995

Arg Ser Pro Ser Leu Ser Arg Leu Leu Cys Arg Gln Glu Ala Val
2000 2005 2010

His Thr Asp Ser Leu Glu Gly Lys Ile Asp Ser Pro Arg Asp Thr
2015 2020 2025

Leu Asp Pro Ala Glu Pro Gly Glu Lys Thr Pro Val Arg Pro Val
2030 2035 2040

Thr Gln Gly Gly Ser Leu Gln Ser Pro Pro Arg Ser Pro Arg Pro
2045 2050 2055

Ala Ser Val Arg Thr Arg Lys His Thr Phe Gly Gln Arg Cys Val
2060 2065 2070

Ser Ser Arg Pro Ala Ala Pro Gly Gly Glu Glu Ala Glu Ala Ser
2075 2080 2085

Asp Pro Ala Asp Glu Glu Val Ser His Ile Thr Ser Ser Ala Cys
2090 2095 2100

Pro Trp Gln Pro Thr Ala Glu Pro His Gly Pro Glu Ala Ser Pro
2105 2110 2115

Val Ala Gly Gly Glu Arg Asp Leu Arg Arg Leu Tyr Ser Val Asp
2120 2125 2130

Ala Gln Gly Phe Leu Asp Lys Pro Gly Arg Ala Asp Glu Gln Trp
2135 2140 2145

```
Arg Pro  Ser Ala Glu Leu Gly  Ser Gly Glu Pro Gly  Glu Ala Lys
    2150                 2155                 2160

Ala Trp  Gly Pro Glu Ala Glu  Pro Ala Leu Gly Ala  Arg Arg Lys
    2165                 2170                 2175

Lys Lys  Met Ser Pro Pro Cys  Ile Ser Val Glu Pro  Pro Ala Glu
    2180                 2185                 2190

Asp Glu  Gly Ser Ala Arg Pro  Ser Ala Ala Glu Gly  Gly Ser Thr
    2195                 2200                 2205

Thr Leu  Arg Arg Arg Thr Pro  Ser Cys Glu Ala Thr  Pro His Arg
    2210                 2215                 2220

Asp Ser  Leu Glu Pro Thr Glu  Gly Ser Gly Ala Gly  Gly Asp Pro
    2225                 2230                 2235

Ala Ala  Lys Gly Glu Arg Trp  Gly Gln Ala Ser Cys  Arg Ala Glu
    2240                 2245                 2250

His Leu  Thr Val Pro Ser Phe  Ala Phe Glu Pro Leu  Asp Leu Gly
    2255                 2260                 2265

Val Pro  Ser Gly Asp Pro Phe  Leu Asp Gly Ser His  Ser Val Thr
    2270                 2275                 2280

Pro Glu  Ser Arg Ala Ser Ser  Ser Gly Ala Ile Val  Pro Leu Glu
    2285                 2290                 2295

Pro Pro  Glu Ser Glu Pro Pro  Met Pro Val Gly Asp  Pro Pro Glu
    2300                 2305                 2310

Lys Arg  Arg Gly Leu Tyr Leu  Thr Val Pro Gln Cys  Pro Leu Glu
    2315                 2320                 2325

Lys Pro  Gly Ser Pro Ser Ala  Thr Pro Ala Pro Gly  Gly Gly Ala
    2330                 2335                 2340

Asp Asp  Pro Val
    2345
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<210> 10824
<211> 1084
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CACNA1H; "

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
type, alpha 1H
subunit; "

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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10824
Xaa Pro Tyr Lys Pro Gln Trp Cys Arg Ser Arg Glu Ala Trp Ala Leu
1 5 10 15

Tyr Leu Phe Ser Pro Gln Asn Arg Phe Arg Val Ser Cys Gln Lys Val
20 25 30

Ile Thr His Lys Met Phe Asp His Val Val Leu Val Phe Ile Phe Leu
35 40 45

Asn Cys Val Thr Ile Ala Leu Glu Arg Pro Asp Ile Asp Pro Gly Ser
50 55 60

Thr Glu Arg Val Phe Leu Ser Val Ser Asn Tyr Ile Phe Thr Ala Ile
65 70 75 80

Phe Val Ala Glu Met Met Val Lys Val Val Ala Leu Gly Leu Leu Ser
85 90 95

Gly Glu His Ala Tyr Leu Gln Ser Ser Trp Asn Leu Leu Asp Gly Leu
100 105 110

```
Leu Val Leu Val Ser Leu Val Asp Ile Val Val Ala Met Ala Ser Ala
        115                 120                 125

Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val Leu Arg Leu Leu Arg
    130                 135                 140

Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Pro Gly Leu Lys Leu
145                 150                 155                 160

Val Val Glu Thr Leu Ile Ser Ser Leu Arg Pro Ile Gly Asn Ile Val
                165                 170                 175

Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile Leu Gly Val Gln
            180                 185                 190

Leu Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly Pro Asp Thr Arg Asn
        195                 200                 205

Ile Ser Thr Lys Ala Gln Cys Arg Ala Ala His Tyr Arg Trp Val Arg
    210                 215                 220

Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala Leu Met Ser Leu Phe
225                 230                 235                 240

Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile Met Tyr Asp Gly Leu
                245                 250                 255

Asp Ala Val Gly Val Asp Gln Gln Pro Val Gln Asn His Asn Pro Trp
            260                 265                 270

Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Ser Phe Phe Val
        275                 280                 285

Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His Lys Cys Arg
    290                 295                 300

Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu
305                 310                 315                 320

Arg Arg Leu Glu Arg Arg Arg Arg Ser Thr Phe Pro Ser Pro Glu Ala
                325                 330                 335
```

```
Gln Arg Arg Pro Tyr Tyr Ala Asp Tyr Ser Pro Thr Arg Arg Ser Ile
            340                 345                 350

His Ser Leu Cys Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Phe Ile
        355                 360                 365

Ile Cys Val Asn Val Ile Thr Met Ser Met Glu His Tyr Asn Gln Pro
    370                 375                 380

Lys Ser Leu Asp Glu Ala Leu Lys Tyr Cys Asn Tyr Val Phe Thr Ile
385                 390                 395                 400

Val Phe Val Phe Glu Ala Ala Leu Lys Leu Val Ala Phe Gly Phe Arg
                405                 410                 415

Arg Phe Phe Lys Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu
            420                 425                 430

Leu Ser Leu Met Gly Ile Thr Leu Glu Glu Ile Glu Met Ser Ala Ala
        435                 440                 445

Leu Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile
    450                 455                 460

Ala Arg Val Leu Lys Leu Leu Lys Met Ala Thr Gly Met Arg Ala Leu
465                 470                 475                 480

Leu Asp Thr Val Val Gln Ala Leu Pro Gln Val Gly Asn Leu Gly Leu
                485                 490                 495

Leu Phe Met Leu Leu Phe Phe Ile Tyr Ala Ala Leu Gly Val Glu Leu
            500                 505                 510

Phe Gly Arg Leu Glu Cys Ser Glu Asp Asn Pro Cys Glu Gly Leu Ser
        515                 520                 525

Arg His Ala Thr Phe Ser Asn Phe Gly Met Ala Phe Leu Thr Leu Phe
    530                 535                 540

Arg Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu
545                 550                 555                 560
```

```
Arg Glu Cys Ser Arg Glu Asp Lys His Cys Leu Ser Tyr Leu Pro Ala
                565                 570                 575

Leu Ser Pro Val Tyr Phe Val Thr Phe Val Leu Val Ala Gln Phe Val
            580                 585                 590

Leu Val Asn Val Val Val Ala Val Leu Met Lys His Leu Glu Glu Ser
        595                 600                 605

Asn Lys Glu Ala Arg Glu Asp Ala Glu Leu Asp Ala Glu Ile Glu Leu
    610                 615                 620

Glu Met Ala Gln Gly Pro Gly Ser Ala Arg Arg Val Asp Ala Asp Arg
625                 630                 635                 640

Pro Pro Leu Pro Gln Glu Ser Pro Gly Ala Arg Asp Ala Pro Asn Leu
                645                 650                 655

Val Ala Arg Lys Val Ser Val Ser Arg Met Leu Ser Leu Pro Asn Asp
            660                 665                 670

Ser Tyr Met Phe Arg Pro Val Val Pro Ala Ser Ala Pro His Pro Arg
        675                 680                 685

Pro Leu Gln Glu Val Glu Met Glu Thr Tyr Gly Ala Gly Thr Pro Leu
    690                 695                 700

Glu Ser Cys Ala Ser Leu Gln Ile Pro Leu Ala Val Ser Ser Pro Ala
705                 710                 715                 720

Arg Ser Gly Glu Pro Leu His Ala Leu Ser Pro Arg Gly Thr Ala Arg
                725                 730                 735

Ser Pro Ser Leu Ser Arg Leu Leu Cys Arg Gln Glu Ala Val His Thr
            740                 745                 750

Asp Ser Leu Glu Gly Lys Ile Asp Ser Pro Arg Asp Thr Leu Asp Pro
        755                 760                 765

Ala Glu Pro Gly Glu Lys Thr Pro Val Arg Pro Val Thr Gln Gly Gly
    770                 775                 780

Ser Leu Gln Ser Pro Pro Arg Ser Pro Arg Pro Ala Ser Val Arg Thr
```

785 790 795 800

Arg Lys His Thr Phe Gly Gln Arg Cys Val Ser Ser Arg Pro Ala Ala
805 810 815

Pro Gly Gly Glu Glu Ala Glu Ala Ser Asp Pro Ala Asp Glu Glu Val
820 825 830

Ser His Ile Thr Ser Ser Ala Cys Pro Trp Gln Pro Thr Ala Glu Pro
835 840 845

His Gly Pro Glu Ala Ser Pro Val Ala Gly Gly Glu Arg Asp Leu Arg
850 855 860

Arg Leu Tyr Ser Val Asp Ala Gln Gly Phe Leu Asp Lys Pro Gly Arg
865 870 875 880

Ala Asp Glu Gln Trp Arg Pro Ser Ala Glu Leu Gly Ser Gly Glu Pro
885 890 895

Gly Glu Ala Lys Ala Trp Gly Pro Glu Ala Glu Pro Ala Leu Gly Ala
900 905 910

Arg Arg Lys Lys Lys Met Ser Pro Pro Cys Ile Ser Val Glu Pro Pro
915 920 925

Ala Glu Asp Glu Gly Ser Ala Arg Pro Ser Ala Ala Glu Gly Gly Ser
930 935 940

Thr Thr Leu Arg Arg Arg Thr Pro Ser Cys Glu Ala Thr Pro His Arg
945 950 955 960

Asp Ser Leu Glu Pro Thr Glu Gly Ser Gly Ala Gly Gly Asp Pro Ala
965 970 975

Ala Lys Gly Glu Arg Trp Gly Gln Ala Ser Cys Arg Ala Glu His Leu
980 985 990

Thr Val Pro Ser Phe Ala Phe Glu Pro Leu Asp Leu Gly Val Pro Ser
995 1000 1005

Gly Asp Pro Phe Leu Asp Gly Ser His Ser Val Thr Pro Glu Ser

```
    1010                1015                1020

Arg Ala  Ser Ser Ser Gly Ala  Ile Val Pro Leu Glu  Pro Pro Glu
    1025                1030                1035

Ser Glu  Pro Pro Met Pro Val  Gly Asp Pro Pro Glu  Lys Arg Arg
    1040                1045                1050

Gly Leu  Tyr Leu Thr Val Pro  Gln Cys Pro Leu Glu  Lys Pro Gly
    1055                1060                1065

Ser Pro  Ser Ala Thr Pro Ala  Pro Gly Gly Gly Ala  Asp Asp Pro
    1070                1075                1080

Val
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<210> 10825
<211> 2016
<212> PRT
<213> Homo sapiens

<220>
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<220>
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type, alpha 1I
subunit; "

<220>
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<223> /note="Uniprot ID: Q9P0X4; "

<220>
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<223> /note="ENSP ID: ENSP00000383887"

<400> 10825

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Met Ala Glu Ser Ala Ser Pro Pro Ser Ser Ser Ala Ala Ala Pro Ala
1               5                  10                  15

Ala Glu Pro Gly Val Thr Thr Glu Gln Pro Gly Pro Arg Ser Pro Pro
            20                  25                  30
```

```
Ser Ser Pro Pro Gly Leu Glu Glu Pro Leu Asp Gly Ala Asp Pro His
        35                  40                  45

Val Pro His Pro Asp Leu Ala Pro Ile Ala Phe Phe Cys Leu Arg Gln
    50                  55                  60

Thr Thr Ser Pro Arg Asn Trp Cys Ile Lys Met Val Cys Asn Pro Trp
65                  70                  75                  80

Phe Glu Cys Val Ser Met Leu Val Ile Leu Leu Asn Cys Val Thr Leu
                85                  90                  95

Gly Met Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys
            100                 105                 110

Lys Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met
        115                 120                 125

Glu Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys
    130                 135                 140

Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala
145                 150                 155                 160

Gly Met Val Glu Tyr Ser Leu Asp Leu Gln Asn Ile Asn Leu Ser Ala
                165                 170                 175

Ile Arg Thr Val Arg Val Leu Arg Pro Leu Lys Ala Ile Asn Arg Val
            180                 185                 190

Pro Ser Met Arg Ile Leu Val Asn Leu Leu Leu Asp Thr Leu Pro Met
        195                 200                 205

Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile Phe Gly
    210                 215                 220

Ile Ile Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe
225                 230                 235                 240

Leu Glu Glu Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr
                245                 250                 255
```

```
Tyr Gln Pro Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Ser
            260                 265                 270

Gly Asp Asn Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu
        275                 280                 285

Gln Gly Arg Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly
    290                 295                 300

Ala Gly Arg Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn
305                 310                 315                 320

Arg Tyr Tyr Asn Val Cys Arg Thr Gly Ser Ala Asn Pro His Lys Gly
                325                 330                 335

Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln
            340                 345                 350

Val Ile Thr Leu Glu Gly Trp Val Glu Ile Met Tyr Tyr Val Met Asp
        355                 360                 365

Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val
    370                 375                 380

Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln
385                 390                 395                 400

Phe Ser Glu Thr Lys Gln Arg Glu His Arg Leu Met Leu Glu Gln Arg
                405                 410                 415

Gln Arg Tyr Leu Ser Ser Ser Thr Val Ala Ser Tyr Ala Glu Pro Gly
            420                 425                 430

Asp Cys Tyr Glu Glu Ile Phe Gln Tyr Val Cys His Ile Leu Arg Lys
        435                 440                 445

Ala Lys Arg Arg Ala Leu Gly Leu Tyr Gln Ala Leu Gln Ser Arg Arg
    450                 455                 460

Gln Ala Leu Gly Pro Glu Ala Pro Ala Pro Ala Lys Pro Gly Pro His
465                 470                 475                 480
```

```
Ala Lys Glu Pro Arg His Tyr His Gly Lys Thr Lys Gly Gln Gly Asp
                485                 490                 495

Glu Gly Arg His Leu Gly Ser Arg His Cys Gln Thr Leu His Gly Pro
            500                 505                 510

Ala Ser Pro Gly Asn Asp His Ser Gly Arg Glu Leu Cys Pro Gln His
        515                 520                 525

Ser Pro Leu Asp Ala Thr Pro His Thr Leu Val Gln Pro Ile Pro Ala
    530                 535                 540

Thr Leu Ala Ser Asp Pro Ala Ser Cys Pro Cys Cys Gln His Glu Asp
545                 550                 555                 560

Gly Arg Arg Pro Ser Gly Leu Gly Ser Thr Asp Ser Gly Gln Glu Gly
                565                 570                 575

Ser Gly Ser Gly Ser Ser Ala Gly Gly Glu Asp Glu Ala Asp Gly Asp
            580                 585                 590

Gly Ala Arg Ser Ser Glu Asp Gly Ala Ser Ser Glu Leu Gly Lys Glu
        595                 600                 605

Glu Glu Glu Glu Glu Gln Ala Asp Gly Ala Val Trp Leu Cys Gly Asp
    610                 615                 620

Val Trp Arg Glu Thr Arg Ala Lys Leu Arg Gly Ile Val Asp Ser Lys
625                 630                 635                 640

Tyr Phe Asn Arg Gly Ile Met Met Ala Ile Leu Val Asn Thr Val Ser
                645                 650                 655

Met Gly Ile Glu His His Glu Gln Pro Glu Glu Leu Thr Asn Ile Leu
            660                 665                 670

Glu Ile Cys Asn Val Val Phe Thr Ser Met Phe Ala Leu Glu Met Ile
        675                 680                 685

Leu Lys Leu Ala Ala Phe Gly Leu Phe Asp Tyr Leu Arg Asn Pro Tyr
    690                 695                 700

Asn Ile Phe Asp Ser Ile Ile Val Ile Ile Ser Ile Trp Glu Ile Val
```

705 710 715 720

Gly Gln Ala Asp Gly Gly Leu Ser Val Leu Arg Thr Phe Arg Leu Leu
725 730 735

Arg Val Leu Lys Leu Val Arg Phe Met Pro Ala Leu Arg Arg Gln Leu
740 745 750

Val Val Leu Met Lys Thr Met Asp Asn Val Ala Thr Phe Cys Met Leu
755 760 765

Leu Met Leu Phe Ile Phe Ile Phe Ser Ile Leu Gly Met His Ile Phe
770 775 780

Gly Cys Lys Phe Ser Leu Arg Thr Asp Thr Gly Asp Thr Val Pro Asp
785 790 795 800

Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala Ile Val Thr Val Phe Gln
805 810 815

Ile Leu Thr Gln Glu Asp Trp Asn Val Val Leu Tyr Asn Gly Met Ala
820 825 830

Ser Thr Ser Pro Trp Ala Ser Leu Tyr Phe Val Ala Leu Met Thr Phe
835 840 845

Gly Asn Tyr Val Leu Phe Asn Leu Leu Val Ala Ile Leu Val Glu Gly
850 855 860

Phe Gln Ala Glu Gly Asp Ala Asn Arg Ser Tyr Ser Asp Glu Asp Gln
865 870 875 880

Ser Ser Ser Asn Ile Glu Glu Phe Asp Lys Leu Gln Glu Gly Leu Asp
885 890 895

Ser Ser Gly Asp Pro Lys Leu Cys Pro Ile Pro Met Thr Pro Asn Gly
900 905 910

His Leu Asp Pro Ser Leu Pro Leu Gly Gly His Leu Gly Pro Ala Gly
915 920 925

Ala Ala Gly Pro Ala Pro Arg Leu Ser Leu Gln Pro Asp Pro Met Leu
930 935 940

```
Val Ala Leu Gly Ser Arg Lys Ser Ser Val Met Ser Leu Gly Arg Met
945                 950                 955                 960

Ser Tyr Asp Gln Arg Ser Leu Ser Ser Ser Arg Ser Ser Tyr Tyr Gly
                965                 970                 975

Pro Trp Gly Arg Ser Ala Ala Trp Ala Ser Arg Arg Ser Ser Trp Asn
            980                 985                 990

Ser Leu Lys His Lys Pro Pro Ser  Ala Glu His Glu Ser  Leu Leu
Ser
        995                 1000                1005

Ala Glu  Arg Gly Gly Gly Ala  Arg Val Cys Glu Val  Ala Ala Asp
    1010                1015                1020

Glu Gly  Pro Pro Arg Ala Ala  Pro Leu His Thr Pro  His Ala His
    1025                1030                1035

His Ile  His His Gly Pro His  Leu Ala His Arg His  Arg His His
    1040                1045                1050

Arg Arg  Thr Leu Ser Leu Asp  Asn Arg Asp Ser Val  Asp Leu Ala
    1055                1060                1065

Glu Leu  Val Pro Ala Val Gly  Ala His Pro Arg Ala  Ala Trp Arg
    1070                1075                1080

Ala Ala  Gly Pro Ala Pro Gly  His Glu Asp Cys Asn  Gly Arg Met
    1085                1090                1095

Pro Ser  Ile Ala Lys Asp Val  Phe Thr Lys Met Gly  Asp Arg Gly
    1100                1105                1110

Asp Arg  Gly Glu Asp Glu Glu  Glu Ile Asp Tyr Thr  Leu Cys Phe
    1115                1120                1125

Arg Val  Arg Lys Met Ile Asp  Val Tyr Lys Pro Asp  Trp Cys Glu
    1130                1135                1140

Val Arg  Glu Asp Trp Ser Val  Tyr Leu Phe Ser Pro  Glu Asn Arg
    1145                1150                1155
```

```
Phe Arg  Val Leu Cys Gln Thr  Ile Ile Ala His Lys  Leu Phe Asp
    1160                1165                1170

Tyr Val  Val Leu Ala Phe Ile  Phe Leu Asn Cys Ile  Thr Ile Ala
    1175                1180                1185

Leu Glu  Arg Pro Gln Ile Glu  Ala Gly Ser Thr Glu  Arg Ile Phe
    1190                1195                1200

Leu Thr  Val Ser Asn Tyr Ile  Phe Thr Ala Ile Phe  Val Gly Glu
    1205                1210                1215

Met Thr  Leu Lys Val Val Ser  Leu Gly Leu Tyr Phe  Gly Glu Gln
    1220                1225                1230

Ala Tyr  Leu Arg Ser Ser Trp  Asn Val Leu Asp Gly  Phe Leu Val
    1235                1240                1245

Phe Val  Ser Ile Ile Asp Ile  Val Val Ser Leu Ala  Ser Ala Gly
    1250                1255                1260

Gly Ala  Lys Ile Leu Gly Val  Leu Arg Val Leu Arg  Leu Leu Arg
    1265                1270                1275

Thr Leu  Arg Pro Leu Arg Val  Ile Ser Arg Ala Pro  Gly Leu Lys
    1280                1285                1290

Leu Val  Val Glu Thr Leu Ile  Ser Ser Leu Lys Pro  Ile Gly Asn
    1295                1300                1305

Ile Val  Leu Ile Cys Cys Ala  Phe Phe Ile Ile Phe  Gly Ile Leu
    1310                1315                1320

Gly Val  Gln Leu Phe Lys Gly  Lys Phe Tyr His Cys  Leu Gly Val
    1325                1330                1335

Asp Thr  Arg Asn Ile Thr Asn  Arg Ser Asp Cys Met  Ala Ala Asn
    1340                1345                1350

Tyr Arg  Trp Val His His Lys  Tyr Asn Phe Asp Asn  Leu Gly Gln
    1355                1360                1365
```

```
Ala Leu  Met Ser Leu Phe Val  Leu Ala Ser Lys Asp  Gly Trp Val
    1370                1375                1380

Asn Ile  Met Tyr Asn Gly Leu  Asp Ala Val Ala Val  Asp Gln Gln
    1385                1390                1395

Pro Val  Thr Asn His Asn Pro  Trp Met Leu Leu Tyr  Phe Ile Ser
    1400                1405                1410

Phe Leu  Leu Ile Val Ser Phe  Phe Val Leu Asn Met  Phe Val Gly
    1415                1420                1425

Val Val  Val Glu Asn Phe His  Lys Cys Arg Gln His  Gln Glu Ala
    1430                1435                1440

Glu Glu  Ala Arg Arg Arg Glu  Glu Lys Arg Leu Arg  Arg Leu Glu
    1445                1450                1455

Lys Lys  Arg Arg Lys Ala Gln  Arg Leu Pro Tyr Tyr  Ala Thr Tyr
    1460                1465                1470

Cys His  Thr Arg Leu Leu Ile  His Ser Met Cys Thr  Ser His Tyr
    1475                1480                1485

Leu Asp  Ile Phe Ile Thr Phe  Ile Ile Cys Leu Asn  Val Val Thr
    1490                1495                1500

Met Ser  Leu Glu His Tyr Asn  Gln Pro Thr Ser Leu  Glu Thr Ala
    1505                1510                1515

Leu Lys  Tyr Cys Asn Tyr Met  Phe Thr Thr Val Phe  Val Leu Glu
    1520                1525                1530

Ala Val  Leu Lys Leu Val Ala  Phe Gly Leu Arg Arg  Phe Phe Lys
    1535                1540                1545

Asp Arg  Trp Asn Gln Leu Asp  Leu Ala Ile Val Leu  Leu Ser Val
    1550                1555                1560

Met Gly  Ile Thr Leu Glu Glu  Ile Glu Ile Asn Ala  Ala Leu Pro
    1565                1570                1575
```

```
Ile Asn  Pro Thr Ile Ile Arg  Ile Met Arg Val Leu  Arg Ile Ala
    1580                 1585                 1590

Arg Val  Leu Lys Leu Leu Lys  Met Ala Thr Gly Met  Arg Ala Leu
    1595                 1600                 1605

Leu Asp  Thr Val Val Gln Ala  Leu Pro Gln Val Gly  Asn Leu Gly
    1610                 1615                 1620

Leu Leu  Phe Met Leu Leu Phe  Phe Ile Tyr Ala Ala  Leu Gly Val
    1625                 1630                 1635

Glu Leu  Phe Gly Lys Leu Val  Cys Asn Asp Glu Asn  Pro Cys Glu
    1640                 1645                 1650

Gly Met  Ser Arg His Ala Thr  Phe Glu Asn Phe Gly  Met Ala Phe
    1655                 1660                 1665

Leu Thr  Leu Phe Gln Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile
    1670                 1675                 1680

Met Lys  Asp Thr Leu Arg Asp  Cys Thr His Asp Glu  Arg Ser Cys
    1685                 1690                 1695

Leu Ser  Ser Leu Gln Phe Val  Ser Pro Leu Tyr Phe  Val Ser Phe
    1700                 1705                 1710

Val Leu  Thr Ala Gln Phe Val  Leu Ile Asn Val Val  Val Ala Val
    1715                 1720                 1725

Leu Met  Lys His Leu Asp Asp  Ser Asn Lys Glu Ala  Gln Glu Asp
    1730                 1735                 1740

Ala Glu  Met Asp Ala Glu Leu  Glu Leu Glu Met Ala  His Gly Leu
    1745                 1750                 1755

Gly Pro  Gly Pro Arg Leu Pro  Thr Gly Ser Pro Gly  Ala Pro Gly
    1760                 1765                 1770

Arg Gly  Pro Gly Gly Ala Gly  Gly Gly Gly Asp Thr  Glu Gly Gly
    1775                 1780                 1785

Leu Cys  Arg Arg Cys Tyr Ser  Pro Ala Gln Glu Asn  Leu Trp Leu
```

1790 1795 1800

Asp Ser Val Ser Leu Ile Ile Lys Asp Ser Leu Glu Gly Glu Leu
1805 1810 1815

Thr Ile Ile Asp Asn Leu Ser Gly Ser Ile Phe His His Tyr Ser
1820 1825 1830

Ser Pro Ala Gly Cys Lys Lys Cys His His Asp Lys Gln Glu Val
1835 1840 1845

Gln Leu Ala Glu Thr Glu Ala Phe Ser Leu Asn Ser Asp Arg Ser
1850 1855 1860

Ser Ser Ile Leu Leu Gly Asp Asp Leu Ser Leu Glu Asp Pro Thr
1865 1870 1875

Ala Cys Pro Pro Gly Arg Lys Asp Ser Lys Gly Glu Leu Asp Pro
1880 1885 1890

Pro Glu Pro Met Arg Val Gly Asp Leu Gly Glu Cys Phe Phe Pro
1895 1900 1905

Leu Ser Ser Thr Ala Val Ser Pro Asp Pro Glu Asn Phe Leu Cys
1910 1915 1920

Glu Met Glu Glu Ile Pro Phe Asn Pro Val Arg Ser Trp Leu Lys
1925 1930 1935

His Asp Ser Ser Gln Ala Pro Pro Ser Pro Phe Ser Pro Asp Ala
1940 1945 1950

Ser Ser Pro Leu Leu Pro Met Pro Ala Glu Phe Phe His Pro Ala
1955 1960 1965

Val Ser Ala Ser Gln Lys Gly Pro Glu Lys Gly Thr Gly Thr Gly
1970 1975 1980

Thr Leu Pro Lys Ile Ala Leu Gln Gly Ser Trp Ala Ser Leu Arg
1985 1990 1995

Ser Pro Arg Val Asn Cys Thr Leu Leu Arg Gln Val Pro Thr Pro
2000 2005 2010

Pro Arg Pro
    2015

<210> 10826
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<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name: calcium channel, voltage-dependent, T
      type, alpha 1I
      subunit; "

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<223> /note="Uniprot ID: Q9P0X4; "

<220>
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<223> /note="ENSP ID: ENSP00000384093"

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Met Ala Glu Ser Ala Ser Pro Pro Ser Ser Ser Ala Ala Ala Pro Ala
1   5   10   15

Ala Glu Pro Gly Val Thr Thr Glu Gln Pro Gly Pro Arg Ser Pro Pro
            20   25   30

Ser Ser Pro Pro Gly Leu Glu Glu Pro Leu Asp Gly Ala Asp Pro His
        35   40   45

Val Pro His Pro Asp Leu Ala Pro Ile Ala Phe Phe Cys Leu Arg Gln
    50   55   60

Thr Thr Ser Pro Arg Asn Trp Cys Ile Lys Met Val Cys Asn Pro Trp
65   70   75   80

Phe Glu Cys Val Ser Met Leu Val Ile Leu Leu Asn Cys Val Thr Leu
                85   90   95

```
Gly Met Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys
            100                 105                 110

Lys Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met
        115                 120                 125

Glu Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys
    130                 135                 140

Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala
145                 150                 155                 160

Gly Met Val Glu Tyr Ser Leu Asp Leu Gln Asn Ile Asn Leu Ser Ala
                165                 170                 175

Ile Arg Thr Val Arg Val Leu Arg Pro Leu Lys Ala Ile Asn Arg Val
            180                 185                 190

Pro Ser Met Arg Ile Leu Val Asn Leu Leu Leu Asp Thr Leu Pro Met
        195                 200                 205

Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile Phe Gly
    210                 215                 220

Ile Ile Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe
225                 230                 235                 240

Leu Glu Glu Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr
                245                 250                 255

Tyr Gln Pro Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Ser
            260                 265                 270

Gly Asp Asn Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu
        275                 280                 285

Gln Gly Arg Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly
    290                 295                 300

Ala Gly Arg Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn
305                 310                 315                 320
```

```
Arg Tyr Tyr Asn Val Cys Arg Thr Gly Ser Ala Asn Pro His Lys Gly
                325                 330                 335

Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln
            340                 345                 350

Val Ile Thr Leu Glu Gly Trp Val Glu Ile Met Tyr Tyr Val Met Asp
        355                 360                 365

Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val
    370                 375                 380

Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln
385                 390                 395                 400

Phe Ser Glu Thr Lys Gln Arg Glu His Arg Leu Met Leu Glu Gln Arg
                405                 410                 415

Gln Arg Tyr Leu Ser Ser Ser Thr Val Ala Ser Tyr Ala Glu Pro Gly
            420                 425                 430

Asp Cys Tyr Glu Glu Ile Phe Gln Tyr Val Cys His Ile Leu Arg Lys
        435                 440                 445

Ala Lys Arg Arg Ala Leu Gly Leu Tyr Gln Ala Leu Gln Ser Arg Arg
    450                 455                 460

Gln Ala Leu Gly Pro Glu Ala Pro Ala Pro Ala Lys Pro Gly Pro His
465                 470                 475                 480

Ala Lys Glu Pro Arg His Tyr Gln Leu Cys Pro Gln His Ser Pro Leu
                485                 490                 495

Asp Ala Thr Pro His Thr Leu Val Gln Pro Ile Pro Ala Thr Leu Ala
            500                 505                 510

Ser Asp Pro Ala Ser Cys Pro Cys Cys Gln His Glu Asp Gly Arg Arg
        515                 520                 525

Pro Ser Gly Leu Gly Ser Thr Asp Ser Gly Gln Glu Gly Ser Gly Ser
    530                 535                 540

Gly Ser Ser Ala Gly Gly Glu Asp Glu Ala Asp Gly Asp Gly Ala Arg
```

545 550 555 560

Ser Ser Glu Asp Gly Ala Ser Ser Glu Leu Gly Lys Glu Glu Glu Glu
565 570 575

Glu Glu Gln Ala Asp Gly Ala Val Trp Leu Cys Gly Asp Val Trp Arg
580 585 590

Glu Thr Arg Ala Lys Leu Arg Gly Ile Val Asp Ser Lys Tyr Phe Asn
595 600 605

Arg Gly Ile Met Met Ala Ile Leu Val Asn Thr Val Ser Met Gly Ile
610 615 620

Glu His His Glu Gln Pro Glu Glu Leu Thr Asn Ile Leu Glu Ile Cys
625 630 635 640

Asn Val Val Phe Thr Ser Met Phe Ala Leu Glu Met Ile Leu Lys Leu
645 650 655

Ala Ala Phe Gly Leu Phe Asp Tyr Leu Arg Asn Pro Tyr Asn Ile Phe
660 665 670

Asp Ser Ile Ile Val Ile Ile Ser Ile Trp Glu Ile Val Gly Gln Ala
675 680 685

Asp Gly Gly Leu Ser Val Leu Arg Thr Phe Arg Leu Leu Arg Val Leu
690 695 700

Lys Leu Val Arg Phe Met Pro Ala Leu Arg Arg Gln Leu Val Val Leu
705 710 715 720

Met Lys Thr Met Asp Asn Val Ala Thr Phe Cys Met Leu Leu Met Leu
725 730 735

Phe Ile Phe Ile Phe Ser Ile Leu Gly Met His Ile Phe Gly Cys Lys
740 745 750

Phe Ser Leu Arg Thr Asp Thr Gly Asp Thr Val Pro Asp Arg Lys Asn
755 760 765

Phe Asp Ser Leu Leu Trp Ala Ile Val Thr Val Phe Gln Ile Leu Thr
770 775 780

```
Gln Glu Asp Trp Asn Val Val Leu Tyr Asn Gly Met Ala Ser Thr Ser
785                 790                 795                 800

Pro Trp Ala Ser Leu Tyr Phe Val Ala Leu Met Thr Phe Gly Asn Tyr
                805                 810                 815

Val Leu Phe Asn Leu Leu Val Ala Ile Leu Val Glu Gly Phe Gln Ala
            820                 825                 830

Glu Gly Asp Ala Asn Arg Ser Tyr Ser Asp Glu Asp Gln Ser Ser Ser
        835                 840                 845

Asn Ile Glu Glu Phe Asp Lys Leu Gln Glu Gly Leu Asp Ser Ser Gly
    850                 855                 860

Asp Pro Lys Leu Cys Pro Ile Pro Met Thr Pro Asn Gly His Leu Asp
865                 870                 875                 880

Pro Ser Leu Pro Leu Gly Gly His Leu Gly Pro Ala Gly Ala Ala Gly
                885                 890                 895

Pro Ala Pro Arg Leu Ser Leu Gln Pro Asp Pro Met Leu Val Ala Leu
            900                 905                 910

Gly Ser Arg Lys Ser Ser Val Met Ser Leu Gly Arg Met Ser Tyr Asp
        915                 920                 925

Gln Arg Ser Leu Ser Ser Ser Arg Ser Ser Tyr Tyr Gly Pro Trp Gly
    930                 935                 940

Arg Ser Ala Ala Trp Ala Ser Arg Arg Ser Ser Trp Asn Ser Leu Lys
945                 950                 955                 960

His Lys Pro Pro Ser Ala Glu His Glu Ser Leu Leu Ser Ala Glu Arg
                965                 970                 975

Gly Gly Gly Ala Arg Val Cys Glu Val Ala Ala Asp Glu Gly Pro Pro
            980                 985                 990

Arg Ala Ala Pro Leu His Thr Pro  His Ala His His Ile  His His
Gly
        995                 1000                1005
```

```
Pro His  Leu Ala His Arg His  Arg His His Arg Arg  Thr Leu Ser
    1010                1015                1020

Leu Asp  Asn Arg Asp Ser Val  Asp Leu Ala Glu Leu  Val Pro Ala
    1025                1030                1035

Val Gly  Ala His Pro Arg Ala  Ala Trp Arg Ala Ala  Gly Pro Ala
    1040                1045                1050

Pro Gly  His Glu Asp Cys Asn  Gly Arg Met Pro Ser  Ile Ala Lys
    1055                1060                1065

Asp Val  Phe Thr Lys Met Gly  Asp Arg Gly Asp Arg  Gly Glu Asp
    1070                1075                1080

Glu Glu  Glu Ile Asp Tyr Thr  Leu Cys Phe Arg Val  Arg Lys Met
    1085                1090                1095

Ile Asp  Val Tyr Lys Pro Asp  Trp Cys Glu Val Arg  Glu Asp Trp
    1100                1105                1110

Ser Val  Tyr Leu Phe Ser Pro  Glu Asn Arg Phe Arg  Val Leu Cys
    1115                1120                1125

Gln Thr  Ile Ile Ala His Lys  Leu Phe Asp Tyr Val  Val Leu Ala
    1130                1135                1140

Phe Ile  Phe Leu Asn Cys Ile  Thr Ile Ala Leu Glu  Arg Pro Gln
    1145                1150                1155

Ile Glu  Ala Gly Ser Thr Glu  Arg Ile Phe Leu Thr  Val Ser Asn
    1160                1165                1170

Tyr Ile  Phe Thr Ala Ile Phe  Val Gly Glu Met Thr  Leu Lys Val
    1175                1180                1185

Val Ser  Leu Gly Leu Tyr Phe  Gly Glu Gln Ala Tyr  Leu Arg Ser
    1190                1195                1200

Ser Trp  Asn Val Leu Asp Gly  Phe Leu Val Phe Val  Ser Ile Ile
    1205                1210                1215
```

```
Asp Ile  Val Val Ser Leu Ala  Ser Ala Gly Gly Ala  Lys Ile Leu
    1220                 1225                 1230

Gly Val  Leu Arg Val Leu Arg  Leu Leu Arg Thr Leu  Arg Pro Leu
    1235                 1240                 1245

Arg Val  Ile Ser Arg Ala Pro  Gly Leu Lys Leu Val  Val Glu Thr
    1250                 1255                 1260

Leu Ile  Ser Ser Leu Lys Pro  Ile Gly Asn Ile Val  Leu Ile Cys
    1265                 1270                 1275

Cys Ala  Phe Phe Ile Ile Phe  Gly Ile Leu Gly Val  Gln Leu Phe
    1280                 1285                 1290

Lys Gly  Lys Phe Tyr His Cys  Leu Gly Val Asp Thr  Arg Asn Ile
    1295                 1300                 1305

Thr Asn  Arg Ser Asp Cys Met  Ala Ala Asn Tyr Arg  Trp Val His
    1310                 1315                 1320

His Lys  Tyr Asn Phe Asp Asn  Leu Gly Gln Ala Leu  Met Ser Leu
    1325                 1330                 1335

Phe Val  Leu Ala Ser Lys Asp  Gly Trp Val Asn Ile  Met Tyr Asn
    1340                 1345                 1350

Gly Leu  Asp Ala Val Ala Val  Asp Gln Gln Pro Val  Thr Asn His
    1355                 1360                 1365

Asn Pro  Trp Met Leu Leu Tyr  Phe Ile Ser Phe Leu  Leu Ile Val
    1370                 1375                 1380

Ser Phe  Phe Val Leu Asn Met  Phe Val Gly Val Val  Val Glu Asn
    1385                 1390                 1395

Phe His  Lys Cys Arg Gln His  Gln Glu Ala Glu Glu  Ala Arg Arg
    1400                 1405                 1410

Arg Glu  Glu Lys Arg Leu Arg  Arg Leu Glu Lys Lys  Arg Arg Lys
    1415                 1420                 1425
```

```
Ala Gln  Arg Leu Pro Tyr Tyr  Ala Thr Tyr Cys His  Thr Arg Leu
    1430                1435                1440

Leu Ile  His Ser Met Cys Thr  Ser His Tyr Leu Asp  Ile Phe Ile
    1445                1450                1455

Thr Phe  Ile Ile Cys Leu Asn  Val Val Thr Met Ser  Leu Glu His
    1460                1465                1470

Tyr Asn  Gln Pro Thr Ser Leu  Glu Thr Ala Leu Lys  Tyr Cys Asn
    1475                1480                1485

Tyr Met  Phe Thr Thr Val Phe  Val Leu Glu Ala Val  Leu Lys Leu
    1490                1495                1500

Val Ala  Phe Gly Leu Arg Arg  Phe Phe Lys Asp Arg  Trp Asn Gln
    1505                1510                1515

Leu Asp  Leu Ala Ile Val Leu  Leu Ser Val Met Gly  Ile Thr Leu
    1520                1525                1530

Glu Glu  Ile Glu Ile Asn Ala  Ala Leu Pro Ile Asn  Pro Thr Ile
    1535                1540                1545

Ile Arg  Ile Met Arg Val Leu  Arg Ile Ala Arg Val  Leu Lys Leu
    1550                1555                1560

Leu Lys  Met Ala Thr Gly Met  Arg Ala Leu Leu Asp  Thr Val Val
    1565                1570                1575

Gln Ala  Leu Pro Gln Val Gly  Asn Leu Gly Leu Leu  Phe Met Leu
    1580                1585                1590

Leu Phe  Phe Ile Tyr Ala Ala  Leu Gly Val Glu Leu  Phe Gly Lys
    1595                1600                1605

Leu Val  Cys Asn Asp Glu Asn  Pro Cys Glu Gly Met  Ser Arg His
    1610                1615                1620

Ala Thr  Phe Glu Asn Phe Gly  Met Ala Phe Leu Thr  Leu Phe Gln
    1625                1630                1635

Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile Met Lys  Asp Thr Leu
```

```
    1640                1645                1650

Arg Asp  Cys Thr His Asp Glu  Arg Ser Cys Leu Ser  Ser Leu Gln
    1655                1660                1665

Phe Val  Ser Pro Leu Tyr Phe  Val Ser Phe Val Leu  Thr Ala Gln
    1670                1675                1680

Phe Val  Leu Ile Asn Val Val  Val Ala Val Leu Met  Lys His Leu
    1685                1690                1695

Asp Asp  Ser Asn Lys Glu Ala  Gln Glu Asp Ala Glu  Met Asp Ala
    1700                1705                1710

Glu Leu  Glu Leu Glu Met Ala  His Gly Leu Gly Pro  Gly Pro Arg
    1715                1720                1725

Leu Pro  Thr Gly Ser Pro Gly  Ala Pro Gly Arg Gly  Pro Gly Gly
    1730                1735                1740

Ala Gly  Gly Gly Gly Asp Thr  Glu Gly Gly Leu Cys  Arg Arg Cys
    1745                1750                1755

Tyr Ser  Pro Ala Gln Glu Asn  Leu Trp Leu Asp Ser  Val Ser Leu
    1760                1765                1770

Ile Ile  Lys Asp Ser Leu Glu  Gly Glu Leu Thr Ile  Ile Asp Asn
    1775                1780                1785

Leu Ser  Gly Ser Ile Phe His  His Tyr Ser Ser Pro  Ala Gly Cys
    1790                1795                1800

Lys Lys  Cys His His Asp Lys  Gln Glu Val Gln Leu  Ala Glu Thr
    1805                1810                1815

Glu Ala  Phe Ser Leu Asn Ser  Asp Arg Ser Ser Ser  Ile Leu Leu
    1820                1825                1830

Gly Asp  Asp Leu Ser Leu Glu  Asp Pro Thr Ala Cys  Pro Pro Gly
    1835                1840                1845

Arg Lys  Asp Ser Lys Gly Glu  Leu Asp Pro Pro Glu  Pro Met Arg
    1850                1855                1860
```

```
Val Gly  Asp Leu Gly Glu Cys  Phe Phe Pro Leu Ser  Ser Thr Ala
    1865                1870                1875

Val Ser  Pro Asp Pro Glu Asn  Phe Leu Cys Glu Met  Glu Glu Ile
    1880                1885                1890

Pro Phe  Asn Pro Val Arg Ser  Trp Leu Lys His Asp  Ser Ser Gln
    1895                1900                1905

Ala Pro  Pro Ser Pro Phe Ser  Pro Asp Ala Ser Ser  Pro Leu Leu
    1910                1915                1920

Pro Met  Pro Ala Glu Phe Phe  His Pro Ala Val Ser  Ala Ser Gln
    1925                1930                1935

Lys Gly  Pro Glu Lys Gly Thr  Gly Thr Gly Thr Leu  Pro Lys Ile
    1940                1945                1950

Ala Leu  Gln Gly Ser Trp Ala  Ser Leu Arg Ser Pro  Arg Val Asn
    1955                1960                1965

Cys Thr  Leu Leu Arg Gln Ala  Thr Gly Ser Asp Thr  Ser Leu Asp
    1970                1975                1980

Ala Ser  Pro Ser Ser Ser Ala  Gly Ser Leu Gln Thr  Thr Leu Glu
    1985                1990                1995

Asp Ser  Leu Thr Leu Ser Asp  Ser Pro Arg Arg Ala  Leu Gly Pro
    2000                2005                2010

Pro Ala  Pro Ala Pro Gly Pro  Arg Ala Gly Leu Ser  Pro Ala Ala
    2015                2020                2025

Arg Arg  Arg Leu Ser Leu Arg  Gly Arg Gly Leu Phe  Ser Leu Arg
    2030                2035                2040

Gly Leu  Arg Ala His Gln Arg  Ser His Ser Ser Gly  Gly Ser Thr
    2045                2050                2055

Ser Pro  Gly Cys Thr His His  Asp Ser Met Asp Pro  Ser Asp Glu
    2060                2065                2070
```

```
Glu Gly  Arg Gly Gly Ala Gly  Gly Gly Gly Ala Gly  Ser Glu His
    2075                2080                2085

Ser Glu  Thr Leu Ser Ser Leu  Ser Leu Thr Ser Leu  Phe Cys Pro
    2090                2095                2100

Pro Pro  Pro Pro Pro Ala Pro  Gly Leu Thr Pro Ala  Arg Lys Phe
    2105                2110                2115

Ser Ser  Thr Ser Ser Leu Ala  Ala Pro Gly Arg Pro  His Ala Ala
    2120                2125                2130

Ala Leu  Ala His Gly Leu Ala  Arg Ser Pro Ser Trp  Ala Ala Asp
    2135                2140                2145

Arg Ser  Lys Asp Pro Pro Gly  Arg Ala Pro Leu Pro  Met Gly Leu
    2150                2155                2160

Gly Pro  Leu Ala Pro Pro Pro  Gln Pro Leu Pro Gly  Glu Leu Glu
    2165                2170                2175

Pro Gly  Asp Ala Ala Ser Lys  Arg Lys Arg
    2180                2185


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Ser Ser Pro Pro Gly Leu Glu Glu Pro Leu Asp Gly Ala Asp Pro His
35 40 45

Val Pro His Pro Asp Leu Ala Pro Ile Ala Phe Phe Cys Leu Arg Gln
50 55 60

Thr Thr Ser Pro Arg Asn Trp Cys Ile Lys Met Val Cys Asn Pro Trp
65 70 75 80

Phe Glu Cys Val Ser Met Leu Val Ile Leu Leu Asn Cys Val Thr Leu
85 90 95

Gly Met Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys
100 105 110

Lys Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met
115 120 125

Glu Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys
130 135 140

Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala
145 150 155 160

Gly Met Val Glu Tyr Ser Leu Asp Leu Gln Asn Ile Asn Leu Ser Ala
165 170 175

Ile Arg Thr Val Arg Val Leu Arg Pro Leu Lys Ala Ile Asn Arg Val
180 185 190

Pro Ser Met Arg Ile Leu Val Asn Leu Leu Leu Asp Thr Leu Pro Met
195 200 205

Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile Phe Gly

```
    210                 215                 220

Ile Ile Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe
225                 230                 235                 240

Leu Glu Glu Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr
                245                 250                 255

Tyr Gln Pro Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Ser
            260                 265                 270

Gly Asp Asn Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu
        275                 280                 285

Gln Gly Arg Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly
    290                 295                 300

Ala Gly Arg Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn
305                 310                 315                 320

Arg Tyr Tyr Asn Val Cys Arg Thr Gly Ser Ala Asn Pro His Lys Gly
                325                 330                 335

Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln
            340                 345                 350

Val Ile Thr Leu Glu Gly Trp Val Glu Ile Met Tyr Tyr Val Met Asp
        355                 360                 365

Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val
    370                 375                 380

Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln
385                 390                 395                 400

Phe Ser Glu Thr Lys Gln Arg Glu His Arg Leu Met Leu Glu Gln Arg
                405                 410                 415

Gln Arg Tyr Leu Ser Ser Ser Thr Val Ala Ser Tyr Ala Glu Pro Gly
            420                 425                 430

Asp Cys Tyr Glu Glu Ile Phe Gln Tyr Val Cys His Ile Leu Arg Lys
        435                 440                 445
```

```
Ala Lys Arg Arg Ala Leu Gly Leu Tyr Gln Ala Leu Gln Ser Arg Arg
    450                 455                 460

Gln Ala Leu Gly Pro Glu Ala Pro Ala Pro Ala Lys Pro Gly Pro His
465                 470                 475                 480

Ala Lys Glu Pro Arg His Tyr His Gly Lys Thr Lys Gly Gln Gly Asp
                485                 490                 495

Glu Gly Arg His Leu Gly Ser Arg His Cys Gln Thr Leu His Gly Pro
            500                 505                 510

Ala Ser Pro Gly Asn Asp His Ser Gly Arg Glu Leu Cys Pro Gln His
        515                 520                 525

Ser Pro Leu Asp Ala Thr Pro His Thr Leu Val Gln Pro Ile Pro Ala
    530                 535                 540

Thr Leu Ala Ser Asp Pro Ala Ser Cys Pro Cys Cys Gln His Glu Asp
545                 550                 555                 560

Gly Arg Arg Pro Ser Gly Leu Gly Ser Thr Asp Ser Gly Gln Glu Gly
                565                 570                 575

Ser Gly Ser Gly Ser Ser Ala Gly Gly Glu Asp Glu Ala Asp Gly Asp
            580                 585                 590

Gly Ala Arg Ser Ser Glu Asp Gly Ala Ser Ser Glu Leu Gly Lys Glu
        595                 600                 605

Glu Glu Glu Glu Glu Gln Ala Asp Gly Ala Val Trp Leu Cys Gly Asp
    610                 615                 620

Val Trp Arg Glu Thr Arg Ala Lys Leu Arg Gly Ile Val Asp Ser Lys
625                 630                 635                 640

Tyr Phe Asn Arg Gly Ile Met Met Ala Ile Leu Val Asn Thr Val Ser
                645                 650                 655

Met Gly Ile Glu His His Glu Gln Pro Glu Glu Leu Thr Asn Ile Leu
            660                 665                 670
```

```
Glu Ile Cys Asn Val Val Phe Thr Ser Met Phe Ala Leu Glu Met Ile
        675                 680                 685

Leu Lys Leu Ala Ala Phe Gly Leu Phe Asp Tyr Leu Arg Asn Pro Tyr
    690                 695                 700

Asn Ile Phe Asp Ser Ile Ile Val Ile Ile Ser Ile Trp Glu Ile Val
705                 710                 715                 720

Gly Gln Ala Asp Gly Gly Leu Ser Val Leu Arg Thr Phe Arg Leu Leu
                725                 730                 735

Arg Val Leu Lys Leu Val Arg Phe Met Pro Ala Leu Arg Arg Gln Leu
            740                 745                 750

Val Val Leu Met Lys Thr Met Asp Asn Val Ala Thr Phe Cys Met Leu
        755                 760                 765

Leu Met Leu Phe Ile Phe Ile Phe Ser Ile Leu Gly Met His Ile Phe
    770                 775                 780

Gly Cys Lys Phe Ser Leu Arg Thr Asp Thr Gly Asp Thr Val Pro Asp
785                 790                 795                 800

Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala Ile Val Thr Val Phe Gln
                805                 810                 815

Ile Leu Thr Gln Glu Asp Trp Asn Val Val Leu Tyr Asn Gly Met Ala
            820                 825                 830

Ser Thr Ser Pro Trp Ala Ser Leu Tyr Phe Val Ala Leu Met Thr Phe
        835                 840                 845

Gly Asn Tyr Val Leu Phe Asn Leu Leu Val Ala Ile Leu Val Glu Gly
    850                 855                 860

Phe Gln Ala Glu Gly Asp Ala Asn Arg Ser Tyr Ser Asp Glu Asp Gln
865                 870                 875                 880

Ser Ser Ser Asn Ile Glu Glu Phe Asp Lys Leu Gln Glu Gly Leu Asp
                885                 890                 895
```

```
Ser Ser Gly Asp Pro Lys Leu Cys Pro Ile Pro Met Thr Pro Asn Gly
            900                 905                 910

His Leu Asp Pro Ser Leu Pro Leu Gly Gly His Leu Gly Pro Ala Gly
        915                 920                 925

Ala Ala Gly Pro Ala Pro Arg Leu Ser Leu Gln Pro Asp Pro Met Leu
    930                 935                 940

Val Ala Leu Gly Ser Arg Lys Ser Ser Val Met Ser Leu Gly Arg Met
945                 950                 955                 960

Ser Tyr Asp Gln Arg Ser Leu Ser Ser Ser Arg Ser Ser Tyr Tyr Gly
                965                 970                 975

Pro Trp Gly Arg Ser Ala Ala Trp Ala Ser Arg Arg Ser Ser Trp Asn
            980                 985                 990

Ser Leu Lys His Lys Pro Pro Ser  Ala Glu His Glu Ser  Leu Leu
Ser
        995                 1000                1005

Ala Glu  Arg Gly Gly Gly Ala  Arg Val Cys Glu Val  Ala Ala Asp
    1010                1015                1020

Glu Gly  Pro Pro Arg Ala Ala  Pro Leu His Thr Pro  His Ala His
    1025                1030                1035

His Ile  His His Gly Pro His  Leu Ala His Arg His  Arg His His
    1040                1045                1050

Arg Arg  Thr Leu Ser Leu Asp  Asn Arg Asp Ser Val  Asp Leu Ala
    1055                1060                1065

Glu Leu  Val Pro Ala Val Gly  Ala His Pro Arg Ala  Ala Trp Arg
    1070                1075                1080

Ala Ala  Gly Pro Ala Pro Gly  His Glu Asp Cys Asn  Gly Arg Met
    1085                1090                1095

Pro Ser  Ile Ala Lys Asp Val  Phe Thr Lys Met Gly  Asp Arg Gly
    1100                1105                1110
```

Asp Arg Gly Glu Asp Glu Glu Glu Ile Asp Tyr Thr Leu Cys Phe
1115 1120 1125

Arg Val Arg Lys Met Ile Asp Val Tyr Lys Pro Asp Trp Cys Glu
1130 1135 1140

Val Arg Glu Asp Trp Ser Val Tyr Leu Phe Ser Pro Glu Asn Arg
1145 1150 1155

Phe Arg Val Leu Cys Gln Thr Ile Ile Ala His Lys Leu Phe Asp
1160 1165 1170

Tyr Val Val Leu Ala Phe Ile Phe Leu Asn Cys Ile Thr Ile Ala
1175 1180 1185

Leu Glu Arg Pro Gln Ile Glu Ala Gly Ser Thr Glu Arg Ile Phe
1190 1195 1200

Leu Thr Val Ser Asn Tyr Ile Phe Thr Ala Ile Phe Val Gly Glu
1205 1210 1215

Met Thr Leu Lys Val Val Ser Leu Gly Leu Tyr Phe Gly Glu Gln
1220 1225 1230

Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Phe Leu Val
1235 1240 1245

Phe Val Ser Ile Ile Asp Ile Val Val Ser Leu Ala Ser Ala Gly
1250 1255 1260

Gly Ala Lys Ile Leu Gly Val Leu Arg Val Leu Arg Leu Leu Arg
1265 1270 1275

Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Pro Gly Leu Lys
1280 1285 1290

Leu Val Val Glu Thr Leu Ile Ser Ser Leu Lys Pro Ile Gly Asn
1295 1300 1305

Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly Ile Leu
1310 1315 1320

Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr His Cys Leu Gly Val

1325 1330 1335

Asp Thr Arg Asn Ile Thr Asn Arg Ser Asp Cys Met Ala Ala Asn
1340 1345 1350

Tyr Arg Trp Val His His Lys Tyr Asn Phe Asp Asn Leu Gly Gln
1355 1360 1365

Ala Leu Met Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp Val
1370 1375 1380

Asn Ile Met Tyr Asn Gly Leu Asp Ala Val Ala Val Asp Gln Gln
1385 1390 1395

Pro Val Thr Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser
1400 1405 1410

Phe Leu Leu Ile Val Ser Phe Phe Val Leu Asn Met Phe Val Gly
1415 1420 1425

Val Val Val Glu Asn Phe His Lys Cys Arg Gln His Gln Glu Ala
1430 1435 1440

Glu Glu Ala Arg Arg Arg Glu Glu Lys Arg Leu Arg Arg Leu Glu
1445 1450 1455

Lys Lys Arg Arg Lys Ala Gln Arg Leu Pro Tyr Tyr Ala Thr Tyr
1460 1465 1470

Cys His Thr Arg Leu Leu Ile His Ser Met Cys Thr Ser His Tyr
1475 1480 1485

Leu Asp Ile Phe Ile Thr Phe Ile Ile Cys Leu Asn Val Val Thr
1490 1495 1500

Met Ser Leu Glu His Tyr Asn Gln Pro Thr Ser Leu Glu Thr Ala
1505 1510 1515

Leu Lys Tyr Cys Asn Tyr Met Phe Thr Thr Val Phe Val Leu Glu
1520 1525 1530

Ala Val Leu Lys Leu Val Ala Phe Gly Leu Arg Arg Phe Phe Lys
1535 1540 1545

```
Asp Arg  Trp Asn Gln Leu Asp  Leu Ala Ile Val Leu  Leu Ser Val
    1550                1555                1560

Met Gly  Ile Thr Leu Glu Glu  Ile Glu Ile Asn Ala  Ala Leu Pro
    1565                1570                1575

Ile Asn  Pro Thr Ile Ile Arg  Ile Met Arg Val Leu  Arg Ile Ala
    1580                1585                1590

Arg Val  Leu Lys Leu Leu Lys  Met Ala Thr Gly Met  Arg Ala Leu
    1595                1600                1605

Leu Asp  Thr Val Val Gln Ala  Leu Pro Gln Val Gly  Asn Leu Gly
    1610                1615                1620

Leu Leu  Phe Met Leu Leu Phe  Phe Ile Tyr Ala Ala  Leu Gly Val
    1625                1630                1635

Glu Leu  Phe Gly Lys Leu Val  Cys Asn Asp Glu Asn  Pro Cys Glu
    1640                1645                1650

Gly Met  Ser Arg His Ala Thr  Phe Glu Asn Phe Gly  Met Ala Phe
    1655                1660                1665

Leu Thr  Leu Phe Gln Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile
    1670                1675                1680

Met Lys  Asp Thr Leu Arg Asp  Cys Thr His Asp Glu  Arg Ser Cys
    1685                1690                1695

Leu Ser  Ser Leu Gln Phe Val  Ser Pro Leu Tyr Phe  Val Ser Phe
    1700                1705                1710

Val Leu  Thr Ala Gln Phe Val  Leu Ile Asn Val Val  Val Ala Val
    1715                1720                1725

Leu Met  Lys His Leu Asp Asp  Ser Asn Lys Glu Ala  Gln Glu Asp
    1730                1735                1740

Ala Glu  Met Asp Ala Glu Leu  Glu Leu Glu Met Ala  His Gly Leu
    1745                1750                1755
```

```
Gly Pro  Gly Pro Arg Leu Pro  Thr Gly Ser Pro Gly  Ala Pro Gly
    1760                1765                1770

Arg Gly  Pro Gly Gly Ala Gly  Gly Gly Gly Asp Thr  Glu Gly Gly
    1775                1780                1785

Leu Cys  Arg Arg Cys Tyr Ser  Pro Ala Gln Glu Asn  Leu Trp Leu
    1790                1795                1800

Asp Ser  Val Ser Leu Ile Ile  Lys Asp Ser Leu Glu  Gly Glu Leu
    1805                1810                1815

Thr Ile  Ile Asp Asn Leu Ser  Gly Ser Ile Phe His  His Tyr Ser
    1820                1825                1830

Ser Pro  Ala Gly Cys Lys Lys  Cys His His Asp Lys  Gln Glu Val
    1835                1840                1845

Gln Leu  Ala Glu Thr Glu Ala  Phe Ser Leu Asn Ser  Asp Arg Ser
    1850                1855                1860

Ser Ser  Ile Leu Leu Gly Asp  Asp Leu Ser Leu Glu  Asp Pro Thr
    1865                1870                1875

Ala Cys  Pro Pro Gly Arg Lys  Asp Ser Lys Gly Glu  Leu Asp Pro
    1880                1885                1890

Pro Glu  Pro Met Arg Val Gly  Asp Leu Gly Glu Cys  Phe Phe Pro
    1895                1900                1905

Leu Ser  Ser Thr Ala Val Ser  Pro Asp Pro Glu Asn  Phe Leu Cys
    1910                1915                1920

Glu Met  Glu Glu Ile Pro Phe  Asn Pro Val Arg Ser  Trp Leu Lys
    1925                1930                1935

His Asp  Ser Ser Gln Ala Pro  Pro Ser Pro Phe Ser  Pro Asp Ala
    1940                1945                1950

Ser Ser  Pro Leu Leu Pro Met  Pro Ala Glu Phe Phe  His Pro Ala
    1955                1960                1965
```

Val Ser Ala Ser Gln Lys Gly Pro Glu Lys Gly Thr Gly Thr Gly
1970 1975 1980

Thr Leu Pro Lys Ile Ala Leu Gln Gly Ser Trp Ala Ser Leu Arg
1985 1990 1995

Ser Pro Arg Val Asn Cys Thr Leu Leu Arg Gln Ala Thr Gly Ser
2000 2005 2010

Asp Thr Ser Leu Asp Ala Ser Pro Ser Ser Ser Ala Gly Ser Leu
2015 2020 2025

Gln Thr Thr Leu Glu Asp Ser Leu Thr Leu Ser Asp Ser Pro Arg
2030 2035 2040

Arg Ala Leu Gly Pro Pro Ala Pro Ala Pro Gly Pro Arg Ala Gly
2045 2050 2055

Leu Ser Pro Ala Ala Arg Arg Arg Leu Ser Leu Arg Gly Arg Gly
2060 2065 2070

Leu Phe Ser Leu Arg Gly Leu Arg Ala His Gln Arg Ser His Ser
2075 2080 2085

Ser Gly Gly Ser Thr Ser Pro Gly Cys Thr His His Asp Ser Met
2090 2095 2100

Asp Pro Ser Asp Glu Glu Gly Arg Gly Gly Ala Gly Gly Gly Gly
2105 2110 2115

Ala Gly Ser Glu His Ser Glu Thr Leu Ser Ser Leu Ser Leu Thr
2120 2125 2130

Ser Leu Phe Cys Pro Pro Pro Pro Pro Pro Ala Pro Gly Leu Thr
2135 2140 2145

Pro Ala Arg Lys Phe Ser Ser Thr Ser Ser Leu Ala Ala Pro Gly
2150 2155 2160

Arg Pro His Ala Ala Ala Leu Ala His Gly Leu Ala Arg Ser Pro
2165 2170 2175

Ser Trp Ala Ala Asp Arg Ser Lys Asp Pro Pro Gly Arg Ala Pro

2180 2185 2190

Leu Pro Met Gly Leu Gly Pro Leu Ala Pro Pro Pro Gln Pro Leu
2195 2200 2205

Pro Gly Glu Leu Glu Pro Gly Asp Ala Ala Ser Lys Arg Lys Arg
2210 2215 2220

<210> 10828
<211> 1981
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Ala Glu Pro Gly Val Thr Thr Glu Gln Pro Gly Pro Arg Ser Pro Pro
20 25 30

Ser Ser Pro Pro Gly Leu Glu Glu Pro Leu Asp Gly Ala Asp Pro His
35 40 45

Val Pro His Pro Asp Leu Ala Pro Ile Ala Phe Phe Cys Leu Arg Gln
50 55 60

Thr Thr Ser Pro Arg Asn Trp Cys Ile Lys Met Val Cys Asn Pro Trp
65 70 75 80

```
Phe Glu Cys Val Ser Met Leu Val Ile Leu Leu Asn Cys Val Thr Leu
                85                  90                  95

Gly Met Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys
            100                 105                 110

Lys Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met
        115                 120                 125

Glu Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys
    130                 135                 140

Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala
145                 150                 155                 160

Gly Met Val Glu Tyr Ser Leu Asp Leu Gln Asn Ile Asn Leu Ser Ala
                165                 170                 175

Ile Arg Thr Val Arg Val Leu Arg Pro Leu Lys Ala Ile Asn Arg Val
            180                 185                 190

Pro Ser Met Arg Ile Leu Val Asn Leu Leu Leu Asp Thr Leu Pro Met
        195                 200                 205

Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile Phe Gly
    210                 215                 220

Ile Ile Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg Cys Phe
225                 230                 235                 240

Leu Glu Glu Asn Phe Thr Ile Gln Gly Asp Val Ala Leu Pro Pro Tyr
                245                 250                 255

Tyr Gln Pro Glu Glu Asp Asp Glu Met Pro Phe Ile Cys Ser Leu Ser
            260                 265                 270

Gly Asp Asn Gly Ile Met Gly Cys His Glu Ile Pro Pro Leu Lys Glu
        275                 280                 285

Gln Gly Arg Glu Cys Cys Leu Ser Lys Asp Asp Val Tyr Asp Phe Gly
    290                 295                 300
```

```
Ala Gly Arg Gln Asp Leu Asn Ala Ser Gly Leu Cys Val Asn Trp Asn
305                 310                 315                 320

Arg Tyr Tyr Asn Val Cys Arg Thr Gly Ser Ala Asn Pro His Lys Gly
                325                 330                 335

Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp Ile Val Ile Phe Gln
            340                 345                 350

Val Ile Thr Leu Glu Gly Trp Val Glu Ile Met Tyr Tyr Val Met Asp
        355                 360                 365

Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile Leu Leu Ile Ile Val
    370                 375                 380

Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln
385                 390                 395                 400

Phe Ser Glu Thr Lys Gln Arg Glu His Arg Leu Met Leu Glu Gln Arg
                405                 410                 415

Gln Arg Tyr Leu Ser Ser Ser Thr Val Ala Ser Tyr Ala Glu Pro Gly
            420                 425                 430

Asp Cys Tyr Glu Glu Ile Phe Gln Tyr Val Cys His Ile Leu Arg Lys
        435                 440                 445

Ala Lys Arg Arg Ala Leu Gly Leu Tyr Gln Ala Leu Gln Ser Arg Arg
    450                 455                 460

Gln Ala Leu Gly Pro Glu Ala Pro Ala Pro Ala Lys Pro Gly Pro His
465                 470                 475                 480

Ala Lys Glu Pro Arg His Tyr Gln Leu Cys Pro Gln His Ser Pro Leu
                485                 490                 495

Asp Ala Thr Pro His Thr Leu Val Gln Pro Ile Pro Ala Thr Leu Ala
            500                 505                 510

Ser Asp Pro Ala Ser Cys Pro Cys Cys Gln His Glu Asp Gly Arg Arg
        515                 520                 525
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Pro Ser Gly Leu Gly Ser Thr Asp Ser Gly Gln Glu Gly Ser Gly Ser
    530                 535                 540

Gly Ser Ser Ala Gly Gly Glu Asp Glu Ala Asp Gly Asp Gly Ala Arg
545                 550                 555                 560

Ser Ser Glu Asp Gly Ala Ser Ser Glu Leu Gly Lys Glu Glu Glu Glu
                565                 570                 575

Glu Glu Gln Ala Asp Gly Ala Val Trp Leu Cys Gly Asp Val Trp Arg
            580                 585                 590

Glu Thr Arg Ala Lys Leu Arg Gly Ile Val Asp Ser Lys Tyr Phe Asn
        595                 600                 605

Arg Gly Ile Met Met Ala Ile Leu Val Asn Thr Val Ser Met Gly Ile
    610                 615                 620

Glu His His Glu Gln Pro Glu Glu Leu Thr Asn Ile Leu Glu Ile Cys
625                 630                 635                 640

Asn Val Val Phe Thr Ser Met Phe Ala Leu Glu Met Ile Leu Lys Leu
                645                 650                 655

Ala Ala Phe Gly Leu Phe Asp Tyr Leu Arg Asn Pro Tyr Asn Ile Phe
            660                 665                 670

Asp Ser Ile Ile Val Ile Ile Ser Ile Trp Glu Ile Val Gly Gln Ala
        675                 680                 685

Asp Gly Gly Leu Ser Val Leu Arg Thr Phe Arg Leu Leu Arg Val Leu
    690                 695                 700

Lys Leu Val Arg Phe Met Pro Ala Leu Arg Arg Gln Leu Val Val Leu
705                 710                 715                 720

Met Lys Thr Met Asp Asn Val Ala Thr Phe Cys Met Leu Leu Met Leu
                725                 730                 735

Phe Ile Phe Ile Phe Ser Ile Leu Gly Met His Ile Phe Gly Cys Lys
            740                 745                 750

Phe Ser Leu Arg Thr Asp Thr Gly Asp Thr Val Pro Asp Arg Lys Asn
```

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        755                 760                 765

Phe Asp Ser Leu Leu Trp Ala Ile Val Thr Val Phe Gln Ile Leu Thr
    770                 775                 780

Gln Glu Asp Trp Asn Val Val Leu Tyr Asn Gly Met Ala Ser Thr Ser
785                 790                 795                 800

Pro Trp Ala Ser Leu Tyr Phe Val Ala Leu Met Thr Phe Gly Asn Tyr
                805                 810                 815

Val Leu Phe Asn Leu Leu Val Ala Ile Leu Val Glu Gly Phe Gln Ala
            820                 825                 830

Glu Gly Asp Ala Asn Arg Ser Tyr Ser Asp Glu Asp Gln Ser Ser Ser
        835                 840                 845

Asn Ile Glu Glu Phe Asp Lys Leu Gln Glu Gly Leu Asp Ser Ser Gly
    850                 855                 860

Asp Pro Lys Leu Cys Pro Ile Pro Met Thr Pro Asn Gly His Leu Asp
865                 870                 875                 880

Pro Ser Leu Pro Leu Gly Gly His Leu Gly Pro Ala Gly Ala Ala Gly
                885                 890                 895

Pro Ala Pro Arg Leu Ser Leu Gln Pro Asp Pro Met Leu Val Ala Leu
            900                 905                 910

Gly Ser Arg Lys Ser Ser Val Met Ser Leu Gly Arg Met Ser Tyr Asp
        915                 920                 925

Gln Arg Ser Leu Ser Ser Ser Arg Ser Ser Tyr Tyr Gly Pro Trp Gly
    930                 935                 940

Arg Ser Ala Ala Trp Ala Ser Arg Arg Ser Ser Trp Asn Ser Leu Lys
945                 950                 955                 960

His Lys Pro Pro Ser Ala Glu His Glu Ser Leu Leu Ser Ala Glu Arg
                965                 970                 975

Gly Gly Gly Ala Arg Val Cys Glu Val Ala Ala Asp Glu Gly Pro Pro
            980                 985                 990
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Arg Ala Ala Pro Leu His Thr Pro His Ala His His Ile His His Gly
995 1000 1005

Pro His Leu Ala His Arg His Arg His His Arg Arg Thr Leu Ser
1010 1015 1020

Leu Asp Asn Arg Asp Ser Val Asp Leu Ala Glu Leu Val Pro Ala
1025 1030 1035

Val Gly Ala His Pro Arg Ala Ala Trp Arg Ala Ala Gly Pro Ala
1040 1045 1050

Pro Gly His Glu Asp Cys Asn Gly Arg Met Pro Ser Ile Ala Lys
1055 1060 1065

Asp Val Phe Thr Lys Met Gly Asp Arg Gly Asp Arg Gly Glu Asp
1070 1075 1080

Glu Glu Glu Ile Asp Tyr Thr Leu Cys Phe Arg Val Arg Lys Met
1085 1090 1095

Ile Asp Val Tyr Lys Pro Asp Trp Cys Glu Val Arg Glu Asp Trp
1100 1105 1110

Ser Val Tyr Leu Phe Ser Pro Glu Asn Arg Phe Arg Val Leu Cys
1115 1120 1125

Gln Thr Ile Ile Ala His Lys Leu Phe Asp Tyr Val Val Leu Ala
1130 1135 1140

Phe Ile Phe Leu Asn Cys Ile Thr Ile Ala Leu Glu Arg Pro Gln
1145 1150 1155

Ile Glu Ala Gly Ser Thr Glu Arg Ile Phe Leu Thr Val Ser Asn
1160 1165 1170

Tyr Ile Phe Thr Ala Ile Phe Val Gly Glu Met Thr Leu Lys Val
1175 1180 1185

Val Ser Leu Gly Leu Tyr Phe Gly Glu Gln Ala Tyr Leu Arg Ser
1190 1195 1200

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Ser Trp  Asn Val Leu Asp Gly  Phe Leu Val Phe Val  Ser Ile Ile
    1205                 1210                 1215

Asp Ile  Val Val Ser Leu Ala  Ser Ala Gly Gly Ala  Lys Ile Leu
    1220                 1225                 1230

Gly Val  Leu Arg Val Leu Arg  Leu Leu Arg Thr Leu  Arg Pro Leu
    1235                 1240                 1245

Arg Val  Ile Ser Arg Ala Pro  Gly Leu Lys Leu Val  Val Glu Thr
    1250                 1255                 1260

Leu Ile  Ser Ser Leu Lys Pro  Ile Gly Asn Ile Val  Leu Ile Cys
    1265                 1270                 1275

Cys Ala  Phe Phe Ile Ile Phe  Gly Ile Leu Gly Val  Gln Leu Phe
    1280                 1285                 1290

Lys Gly  Lys Phe Tyr His Cys  Leu Gly Val Asp Thr  Arg Asn Ile
    1295                 1300                 1305

Thr Asn  Arg Ser Asp Cys Met  Ala Ala Asn Tyr Arg  Trp Val His
    1310                 1315                 1320

His Lys  Tyr Asn Phe Asp Asn  Leu Gly Gln Ala Leu  Met Ser Leu
    1325                 1330                 1335

Phe Val  Leu Ala Ser Lys Asp  Gly Trp Val Asn Ile  Met Tyr Asn
    1340                 1345                 1350

Gly Leu  Asp Ala Val Ala Val  Asp Gln Gln Pro Val  Thr Asn His
    1355                 1360                 1365

Asn Pro  Trp Met Leu Leu Tyr  Phe Ile Ser Phe Leu  Leu Ile Val
    1370                 1375                 1380

Ser Phe  Phe Val Leu Asn Met  Phe Val Gly Val Val  Val Glu Asn
    1385                 1390                 1395

Phe His  Lys Cys Arg Gln His  Gln Glu Ala Glu Glu  Ala Arg Arg
    1400                 1405                 1410
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```
Arg Glu  Glu Lys Arg Leu Arg  Arg Leu Glu Lys Lys  Arg Arg Lys
    1415                1420                1425

Ala Gln  Arg Leu Pro Tyr Tyr  Ala Thr Tyr Cys His  Thr Arg Leu
    1430                1435                1440

Leu Ile  His Ser Met Cys Thr  Ser His Tyr Leu Asp  Ile Phe Ile
    1445                1450                1455

Thr Phe  Ile Ile Cys Leu Asn  Val Val Thr Met Ser  Leu Glu His
    1460                1465                1470

Tyr Asn  Gln Pro Thr Ser Leu  Glu Thr Ala Leu Lys  Tyr Cys Asn
    1475                1480                1485

Tyr Met  Phe Thr Thr Val Phe  Val Leu Glu Ala Val  Leu Lys Leu
    1490                1495                1500

Val Ala  Phe Gly Leu Arg Arg  Phe Phe Lys Asp Arg  Trp Asn Gln
    1505                1510                1515

Leu Asp  Leu Ala Ile Val Leu  Leu Ser Val Met Gly  Ile Thr Leu
    1520                1525                1530

Glu Glu  Ile Glu Ile Asn Ala  Ala Leu Pro Ile Asn  Pro Thr Ile
    1535                1540                1545

Ile Arg  Ile Met Arg Val Leu  Arg Ile Ala Arg Val  Leu Lys Leu
    1550                1555                1560

Leu Lys  Met Ala Thr Gly Met  Arg Ala Leu Leu Asp  Thr Val Val
    1565                1570                1575

Gln Ala  Leu Pro Gln Val Gly  Asn Leu Gly Leu Leu  Phe Met Leu
    1580                1585                1590

Leu Phe  Phe Ile Tyr Ala Ala  Leu Gly Val Glu Leu  Phe Gly Lys
    1595                1600                1605

Leu Val  Cys Asn Asp Glu Asn  Pro Cys Glu Gly Met  Ser Arg His
    1610                1615                1620
```

```
Ala Thr  Phe Glu Asn Phe Gly  Met Ala Phe Leu Thr  Leu Phe Gln
    1625                1630                1635

Val Ser  Thr Gly Asp Asn Trp  Asn Gly Ile Met Lys  Asp Thr Leu
    1640                1645                1650

Arg Asp  Cys Thr His Asp Glu  Arg Ser Cys Leu Ser  Ser Leu Gln
    1655                1660                1665

Phe Val  Ser Pro Leu Tyr Phe  Val Ser Phe Val Leu  Thr Ala Gln
    1670                1675                1680

Phe Val  Leu Ile Asn Val Val  Val Ala Val Leu Met  Lys His Leu
    1685                1690                1695

Asp Asp  Ser Asn Lys Glu Ala  Gln Glu Asp Ala Glu  Met Asp Ala
    1700                1705                1710

Glu Leu  Glu Leu Glu Met Ala  His Gly Leu Gly Pro  Gly Pro Arg
    1715                1720                1725

Leu Pro  Thr Gly Ser Pro Gly  Ala Pro Gly Arg Gly  Pro Gly Gly
    1730                1735                1740

Ala Gly  Gly Gly Gly Asp Thr  Glu Gly Gly Leu Cys  Arg Arg Cys
    1745                1750                1755

Tyr Ser  Pro Ala Gln Glu Asn  Leu Trp Leu Asp Ser  Val Ser Leu
    1760                1765                1770

Ile Ile  Lys Asp Ser Leu Glu  Gly Glu Leu Thr Ile  Ile Asp Asn
    1775                1780                1785

Leu Ser  Gly Ser Ile Phe His  His Tyr Ser Ser Pro  Ala Gly Cys
    1790                1795                1800

Lys Lys  Cys His His Asp Lys  Gln Glu Val Gln Leu  Ala Glu Thr
    1805                1810                1815

Glu Ala  Phe Ser Leu Asn Ser  Asp Arg Ser Ser Ser  Ile Leu Leu
    1820                1825                1830

Gly Asp  Asp Leu Ser Leu Glu  Asp Pro Thr Ala Cys  Pro Pro Gly
```

```
    1835                1840                1845

Arg Lys  Asp Ser Lys Gly Glu  Leu Asp Pro Pro Glu  Pro Met Arg
    1850                1855                1860

Val Gly  Asp Leu Gly Glu Cys  Phe Phe Pro Leu Ser  Ser Thr Ala
    1865                1870                1875

Val Ser  Pro Asp Pro Glu Asn  Phe Leu Cys Glu Met  Glu Glu Ile
    1880                1885                1890

Pro Phe  Asn Pro Val Arg Ser  Trp Leu Lys His Asp  Ser Ser Gln
    1895                1900                1905

Ala Pro  Pro Ser Pro Phe Ser  Pro Asp Ala Ser Ser  Pro Leu Leu
    1910                1915                1920

Pro Met  Pro Ala Glu Phe Phe  His Pro Ala Val Ser  Ala Ser Gln
    1925                1930                1935

Lys Gly  Pro Glu Lys Gly Thr  Gly Thr Gly Thr Leu  Pro Lys Ile
    1940                1945                1950

Ala Leu  Gln Gly Ser Trp Ala  Ser Leu Arg Ser Pro  Arg Val Asn
    1955                1960                1965

Cys Thr  Leu Leu Arg Gln Val  Pro Thr Pro Pro Arg  Pro
    1970                1975                1980


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<223> /note="Gene Name: calcium homeostasis endoplasmic
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Asp Lys Leu Ala Gln Phe Val Ala Arg Asn Gly Pro Glu Phe Glu Lys
20 25 30

Met Thr Met Glu Lys Gln Lys Asp Asn Pro Lys Phe Ser Phe Leu Phe
35 40 45

Gly Gly Glu Phe Tyr Ser Tyr Tyr Lys Cys Lys Leu Ala Leu Glu Gln
50 55 60

Gln Gln Leu Ile Cys Lys Gln Gln Thr Pro Glu Leu Glu Pro Ala Ala
65 70 75 80

Thr Met Pro Pro Leu Pro Gln Pro Pro Leu Ala Pro Ala Ala Pro Ile
85 90 95

Pro Pro Ala Gln Gly Ala Pro Ser Met Asp Glu Leu Ile Gln Gln Ser
100 105 110

Gln Trp Asn Leu Gln Gln Gln Glu Gln His Leu Leu Ala Leu Arg Gln
115 120 125

Glu Gln Val Thr Ala Ala Val Ala His Ala Val Glu Gln Gln Met Gln
130 135 140

Lys Leu Leu Glu Glu Thr Gln Leu Asp Met Asn Glu Phe Asp Asn Leu
145 150 155 160

Leu Gln Pro Ile Ile Asp Thr Cys Thr Lys Asp Ala Ile Ser Ala Gly
165 170 175

Lys Asn Trp Met Phe Ser Asn Ala Lys Ser Pro Pro His Cys Glu Leu
180 185 190

Met Ala Gly His Leu Arg Asn Arg Ile Thr Ala Asp Gly Ala His Phe
195 200 205

```
Glu Leu Arg Leu His Leu Ile Tyr Leu Ile Asn Asp Val Leu His His
    210                 215                 220

Trp Ala Leu Thr Arg Gly Lys Ser Leu Pro His Ser Gln Arg Lys Gln
225                 230                 235                 240

Ala Arg Glu Leu Leu Ala Ala Leu Gln Lys Val Val Val Pro Ile Tyr
                245                 250                 255

Cys Thr Ser Phe Leu Ala Val Glu Glu Asp Lys Gln Gln Lys Ile Ala
            260                 265                 270

Arg Leu Leu Gln Leu Trp Glu Lys Asn Gly Tyr Phe Asp Asp Ser Ile
        275                 280                 285

Ile Gln Gln Leu Gln Ser Pro Ala Leu Gly Leu Gly Gln Tyr Gln Ala
    290                 295                 300

Thr Leu Ile Asn Glu Tyr Ser Ser Val Val Gln Pro Val Gln Leu Ala
305                 310                 315                 320

Phe Gln Gln Gln Ile Gln Thr Leu Lys Thr Gln His Glu Glu Phe Val
                325                 330                 335

Thr Ser Leu Ala Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
            340                 345                 350

Leu Gln Met Pro Gln Met Glu Ala Glu Val Lys Ala Thr Pro Pro Pro
        355                 360                 365

Pro Ala Pro Pro Pro Ala Pro Ala Pro Ala Pro Ala Ile Pro Pro Thr
    370                 375                 380

Thr Gln Pro Asp Asp Ser Lys Pro Pro Ile Gln Met Pro Gly Ser Ser
385                 390                 395                 400

Glu Tyr Glu Ala Pro Gly Gly Val Gln Asp Pro Ala Ala Ala Gly Pro
                405                 410                 415

Arg Gly Pro Gly Pro His Asp Gln Ile Pro Pro Asn Lys Pro Pro Trp
            420                 425                 430

Phe Asp Gln Pro His Pro Val Ala Pro Trp Gly Gln Gln Gln Pro Pro
```

```
        435                 440                 445

Glu Gln Pro Pro Tyr Pro His His Gln Gly Gly Pro Pro His Cys Pro
    450                 455                 460

Pro Trp Asn Asn Ser His Glu Gly Met Trp Gly Glu Gln Arg Gly Asp
465                 470                 475                 480

Pro Gly Trp Asn Gly Gln Arg Asp Ala Pro Trp Asn Asn Gln Pro Asp
                485                 490                 495

Ala Ala Trp Asn Ser Gln Phe Glu Gly Pro Trp Asn Ser Gln His Glu
            500                 505                 510

Gln Pro Pro Trp Gly Gly Gly Gln Arg Glu Pro Pro Phe Arg Met Gln
        515                 520                 525

Arg Pro Pro His Phe Arg Gly Pro Phe Pro Pro His Gln Gln His Pro
    530                 535                 540

Gln Phe Asn Gln Pro Pro His Pro His Asn Phe Asn Arg Phe Pro Pro
545                 550                 555                 560

Arg Phe Met Gln Asp Asp Phe Pro Pro Arg His Pro Phe Glu Arg Pro
                565                 570                 575

Pro Tyr Pro His Arg Phe Asp Tyr Pro Gln Gly Asp Phe Pro Ala Glu
            580                 585                 590

Met Gly Pro Pro His His His Pro Gly His Arg Met Pro His Pro Gly
        595                 600                 605

Ile Asn Glu His Pro Pro Trp Ala Gly Pro Gln His Pro Asp Phe Gly
    610                 615                 620

Pro Pro Pro His Gly Phe Asn Gly Gln Pro Pro His Met Arg Arg Gln
625                 630                 635                 640

Gly Pro Pro His Ile Asn His Asp Asp Pro Ser Leu Val Pro Asn Val
                645                 650                 655

Pro Tyr Phe Asp Leu Pro Ala Gly Leu Met Ala Pro Leu Val Lys Leu
            660                 665                 670
```

```
Glu Asp His Glu Tyr Lys Pro Leu Asp Pro Lys Asp Ile Arg Leu Pro
        675                 680                 685

Pro Pro Met Pro Pro Ser Glu Arg Leu Leu Ala Ala Val Glu Ala Phe
    690                 695                 700

Tyr Ser Pro Pro Ser His Asp Arg Pro Arg Asn Ser Glu Gly Trp Glu
705                 710                 715                 720

Gln Asn Gly Leu Tyr Glu Phe Phe Arg Ala Lys Met Arg Ala Arg Arg
                725                 730                 735

Arg Lys Gly Gln Glu Lys Arg Asn Ser Gly Pro Ser Arg Ser Arg Ser
            740                 745                 750

Arg Ser Lys Ser Arg Gly Arg Ser Ser Ser Arg Ser Asn Ser Arg Ser
        755                 760                 765

Ser Lys Ser Ser Gly Ser Tyr Ser Arg Ser Arg Ser Arg Ser Cys Ser
    770                 775                 780

Arg Ser Tyr Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser
785                 790                 795                 800

Ser Arg Ser Arg Ser Arg Ser Gln Ser Arg Ser Arg Ser Lys Ser Tyr
                805                 810                 815

Ser Pro Gly Arg Arg Arg Arg Ser Arg Ser Arg Ser Pro Thr Pro Pro
            820                 825                 830

Ser Ser Ala Gly Leu Gly Ser Asn Ser Ala Pro Pro Ile Pro Asp Ser
        835                 840                 845

Arg Leu Gly Glu Glu Asn Lys Gly His Gln Met Leu Val Lys Met Gly
    850                 855                 860

Trp Ser Gly Ser Gly Gly Leu Gly Ala Lys Glu Gln Gly Ile Gln Asp
865                 870                 875                 880

Pro Ile Lys Gly Gly Asp Val Arg Asp Lys Trp Asp Gln Tyr Lys Gly
                885                 890                 895
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Val Gly Val Ala Leu Asp Asp Pro Tyr Glu Asn Tyr Arg Arg Asn Lys
            900                 905                 910

Ser Tyr Ser Phe Ile Ala Arg Met Lys Ala Arg Asp Glu Cys Lys
        915                 920                 925


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Met Glu Met Pro Leu Pro Pro Asp Asp Gln Glu Leu Arg Asn Val Ile
1               5                  10                  15

Asp Lys Leu Ala Gln Phe Val Ala Arg Asn Gly Pro Glu Phe Glu Lys
            20                  25                  30

Met Thr Met Glu Lys Gln Lys Asp Asn Pro Lys Phe Ser Phe Leu Phe
        35                  40                  45

Gly Gly Glu Phe Tyr Ser Tyr Tyr Lys Cys Lys Leu Ala Leu Glu Gln
    50                  55                  60

Gln Gln Leu Ile Cys Lys Gln Gln Thr Pro Glu Leu Glu Pro Ala Ala
65                  70                  75                  80

Thr Met Pro Pro Leu Pro Gln Pro Pro Leu Ala Pro Ala Ala Pro Ile
```

```
                85                  90                  95

Pro Pro Ala Gln Gly Ala Pro Ser Met Asp Glu Leu Ile Gln Gln Ser
            100                 105                 110

Gln Trp Asn Leu Gln Gln Gln Glu Gln His Leu Leu Ala Leu Arg Gln
        115                 120                 125

Glu Gln Val Thr Ala Ala Val Ala His Ala Val Glu Gln Gln Met Gln
    130                 135                 140

Lys Leu Leu Glu Glu Thr Gln Leu Asp Met Asn Glu Phe Asp Asn Leu
145                 150                 155                 160

Leu Gln Pro Ile Ile Asp Thr Cys Thr Lys Asp Ala Ile Ser Ala Gly
                165                 170                 175

Lys Asn Trp Met Phe Ser Asn Ala Lys Ser Pro Pro His Cys Glu Leu
            180                 185                 190

Met Ala Gly His Leu Arg Asn Arg Ile Thr Ala Asp Gly Ala His Phe
        195                 200                 205

Glu Leu Arg Leu His Leu Ile Tyr Leu Ile Asn Asp Val Leu His His
    210                 215                 220

Cys Gln Arg Lys Gln Ala Arg Glu Leu Leu Ala Ala Leu Gln Lys Val
225                 230                 235                 240

Val Val Pro Ile Tyr Cys Thr Ser Phe Leu Ala Val Glu Glu Asp Lys
                245                 250                 255

Gln Gln Lys Ile Ala Arg Leu Leu Gln Leu Trp Glu Lys Asn Gly Tyr
            260                 265                 270

Phe Asp Asp Ser Ile Ile Gln Gln Leu Gln Ser Pro Ala Leu Gly Leu
        275                 280                 285

Gly Gln Tyr Gln Ala Thr Leu Ile Asn Glu Tyr Ser Ser Val Val Gln
    290                 295                 300

Pro Val Gln Leu Ala Phe Gln Gln Gln Ile Gln Thr Leu Lys Thr Gln
305                 310                 315                 320
```

```
His Glu Glu Phe Val Thr Ser Leu Ala Gln Gln Gln Gln Gln Gln Gln
                325                 330                 335

Gln Gln Gln Gln Gln Leu Gln Met Pro Gln Met Glu Ala Glu Val Lys
            340                 345                 350

Ala Thr Pro Pro Pro Pro Ala Pro Pro Pro Ala Pro Ala Pro Ala Pro
        355                 360                 365

Ala Ile Pro Pro Thr Thr Gln Pro Asp Asp Ser Lys Pro Pro Ile Gln
    370                 375                 380

Met Pro Gly Ser Ser Glu Tyr Glu Ala Pro Gly Gly Val Gln Asp Pro
385                 390                 395                 400

Ala Ala Ala Gly Pro Arg Gly Pro Gly Pro His Asp Gln Ile Pro Pro
                405                 410                 415

Asn Lys Pro Pro Trp Phe Asp Gln Pro His Pro Val Ala Pro Trp Gly
            420                 425                 430

Gln Gln Gln Pro Pro Glu Gln Pro Pro Tyr Pro His His Gln Gly Gly
        435                 440                 445

Pro Pro His Cys Pro Pro Trp Asn Asn Ser His Glu Gly Met Trp Gly
    450                 455                 460

Glu Gln Arg Gly Asp Pro Gly Trp Asn Gly Gln Arg Asp Ala Pro Trp
465                 470                 475                 480

Asn Asn Gln Pro Asp Ala Ala Trp Asn Ser Gln Phe Glu Gly Pro Trp
                485                 490                 495

Asn Ser Gln His Glu Gln Pro Pro Trp Gly Gly Gly Gln Arg Glu Pro
            500                 505                 510

Pro Phe Arg Met Gln Arg Pro Pro His Phe Arg Gly Pro Phe Pro Pro
        515                 520                 525

His Gln Gln His Pro Gln Phe Asn Gln Pro Pro His Pro His Asn Phe
    530                 535                 540
```

```
Asn Arg Phe Pro Pro Arg Phe Met Gln Asp Asp Phe Pro Pro Arg His
545                 550                 555                 560

Pro Phe Glu Arg Pro Pro Tyr Pro His Arg Phe Asp Tyr Pro Gln Gly
                565                 570                 575

Asp Phe Pro Ala Glu Met Gly Pro Pro His His His Pro Gly His Arg
            580                 585                 590

Met Pro His Pro Gly Ile Asn Glu His Pro Pro Trp Ala Gly Pro Gln
        595                 600                 605

His Pro Asp Phe Gly Pro Pro Pro His Gly Phe Asn Gly Gln Pro Pro
    610                 615                 620

His Met Arg Arg Gln Gly Pro Pro His Ile Asn His Asp Asp Pro Ser
625                 630                 635                 640

Leu Val Pro Asn Val Pro Tyr Phe Asp Leu Pro Ala Gly Leu Met Ala
                645                 650                 655

Pro Leu Val Lys Leu Glu Asp His Glu Tyr Lys Pro Leu Asp Pro Lys
            660                 665                 670

Asp Ile Arg Leu Pro Pro Pro Met Pro Pro Ser Glu Arg Leu Leu Ala
        675                 680                 685

Ala Val Glu Ala Phe Tyr Ser Pro Pro Ser His Asp Arg Pro Arg Asn
    690                 695                 700

Ser Glu Gly Trp Glu Gln Asn Gly Leu Tyr Glu Phe Phe Arg Ala Lys
705                 710                 715                 720

Met Arg Ala Arg Arg Arg Lys Gly Gln Glu Lys Arg Asn Ser Gly Pro
                725                 730                 735

Ser Arg Ser Arg Ser Arg Ser Lys Ser Arg Gly Arg Ser Ser Ser Arg
            740                 745                 750

Ser Asn Ser Arg Ser Ser Lys Ser Ser Gly Ser Tyr Ser Arg Ser Arg
        755                 760                 765
```

```
Ser Arg Ser Cys Ser Arg Ser Tyr Ser Arg Ser Arg Ser Arg Ser Arg
    770                 775                 780

Ser Arg Ser Arg Ser Ser Arg Ser Arg Ser Arg Ser Gln Ser Arg Ser
785                 790                 795                 800

Arg Ser Lys Ser Tyr Ser Pro Gly Arg Arg Arg Arg Ser Arg Ser Arg
                805                 810                 815

Ser Pro Thr Pro Pro Ser Ser Ala Gly Leu Gly Ser Asn Ser Ala Pro
            820                 825                 830

Pro Ile Pro Asp Ser Arg Leu Gly Glu Glu Asn Lys Gly His Gln Met
        835                 840                 845

Leu Val Lys Met Gly Trp Ser Gly Ser Gly Gly Leu Gly Ala Lys Glu
    850                 855                 860

Gln Gly Ile Gln Asp Pro Ile Lys Gly Gly Asp Val Arg Asp Lys Trp
865                 870                 875                 880

Asp Gln Tyr Lys Gly Val Gly Val Ala Leu Asp Asp Pro Tyr Glu Asn
                885                 890                 895

Tyr Arg Arg Asn Lys Ser Tyr Ser Phe Ile Ala Arg Met Lys Ala Arg
            900                 905                 910

Asp Glu Cys Lys
        915


<210> 10831
<211> 346
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2149; "

<220>
<221> source
<223> /note="Gene Symbol: CALHM1; "

<220>
<221> source
<223> /note="Gene Name: calcium homeostasis modulator 1; "
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<220>
<221> source
<223> /note="Uniprot ID: Q8IU99; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000329926"

<400> 10831
Met Met Asp Lys Phe Arg Met Ile Phe Gln Phe Leu Gln Ser Asn Gln
1   5   10   15

Glu Ser Phe Met Asn Gly Ile Cys Gly Ile Met Ala Leu Ala Ser Ala
            20   25   30

Gln Met Tyr Ser Ala Phe Asp Phe Asn Cys Pro Cys Leu Pro Gly Tyr
        35   40   45

Asn Ala Ala Tyr Ser Ala Gly Ile Leu Leu Ala Pro Pro Leu Val Leu
    50   55   60

Phe Leu Leu Gly Leu Val Met Asn Asn Asn Val Ser Met Leu Ala Glu
65   70   75   80

Glu Trp Lys Arg Pro Leu Gly Arg Arg Ala Lys Asp Pro Ala Val Leu
                85   90   95

Arg Tyr Met Phe Cys Ser Met Ala Gln Arg Ala Leu Ile Ala Pro Val
            100   105   110

Val Trp Val Ala Val Thr Leu Leu Asp Gly Lys Cys Phe Leu Cys Ala
        115   120   125

Phe Cys Thr Ala Val Pro Val Ser Ala Leu Gly Asn Gly Ser Leu Ala
    130   135   140

Pro Gly Leu Pro Ala Pro Glu Leu Ala Arg Leu Leu Ala Arg Val Pro
145   150   155   160

Cys Pro Glu Ile Tyr Asp Gly Asp Trp Leu Leu Ala Arg Glu Val Ala
                165   170   175

Val Arg Tyr Leu Arg Cys Ile Ser Gln Ala Leu Gly Trp Ser Phe Val
            180   185   190

```
Leu Leu Thr Thr Leu Leu Ala Phe Val Val Arg Ser Val Arg Pro Cys
        195                 200                 205

Phe Thr Gln Ala Ala Phe Leu Lys Ser Lys Tyr Trp Ser His Tyr Ile
    210                 215                 220

Asp Ile Glu Arg Lys Leu Phe Asp Glu Thr Cys Thr Glu His Ala Lys
225                 230                 235                 240

Ala Phe Ala Lys Val Cys Ile Gln Gln Phe Phe Glu Ala Met Asn His
                245                 250                 255

Asp Leu Glu Leu Gly His Thr His Gly Thr Leu Ala Thr Ala Pro Ala
            260                 265                 270

Ser Ala Ala Ala Pro Thr Thr Pro Asp Gly Ala Glu Glu Glu Arg Glu
        275                 280                 285

Lys Leu Arg Gly Ile Thr Asp Gln Gly Thr Met Asn Arg Leu Leu Thr
    290                 295                 300

Ser Trp His Lys Cys Lys Pro Pro Leu Arg Leu Gly Gln Glu Glu Pro
305                 310                 315                 320

Pro Leu Met Gly Asn Gly Trp Ala Gly Gly Gly Pro Arg Pro Pro Arg
                325                 330                 335

Lys Glu Val Ala Thr Tyr Phe Ser Lys Val
            340                 345


<210> 10832
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2150; "

<220>
<221> source
<223> /note="Gene Symbol: CALHM2; "

<220>
<221> source
<223> /note="Gene Name: calcium homeostasis modulator 2; "
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<220>
<221> source
<223> /note="Uniprot ID: Q9HA72; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000260743"

<400> 10832
Met Ala Ala Leu Ile Ala Glu Asn Phe Arg Phe Leu Ser Leu Phe Phe
1   5   10   15

Lys Ser Lys Asp Val Met Ile Phe Asn Gly Leu Val Ala Leu Gly Thr
            20   25   30

Val Gly Ser Gln Glu Leu Phe Ser Val Val Ala Phe His Cys Pro Cys
        35   40   45

Ser Pro Ala Arg Asn Tyr Leu Tyr Gly Leu Ala Ala Ile Gly Val Pro
    50   55   60

Ala Leu Val Leu Phe Ile Ile Gly Ile Ile Leu Asn Asn His Thr Trp
65   70   75   80

Asn Leu Val Ala Glu Cys Gln His Arg Arg Thr Lys Asn Cys Ser Ala
                85   90   95

Ala Pro Thr Phe Leu Leu Leu Ser Ser Ile Leu Gly Arg Ala Ala Val
            100   105   110

Ala Pro Val Thr Trp Ser Val Ile Ser Leu Leu Arg Gly Glu Ala Tyr
        115   120   125

Val Cys Ala Leu Ser Glu Phe Val Asp Pro Ser Ser Leu Thr Ala Arg
    130   135   140

Glu Glu His Phe Pro Ser Ala His Ala Thr Glu Ile Leu Ala Arg Phe
145   150   155   160

Pro Cys Lys Glu Asn Pro Asp Asn Leu Ser Asp Phe Arg Glu Glu Val
                165   170   175

Ser Arg Arg Leu Arg Tyr Glu Ser Gln Leu Phe Gly Trp Leu Leu Ile
            180   185   190

```
Gly Val Val Ala Ile Leu Val Phe Leu Thr Lys Cys Leu Lys His Tyr
        195                 200                 205

Cys Ser Pro Leu Ser Tyr Arg Gln Glu Ala Tyr Trp Ala Gln Tyr Arg
    210                 215                 220

Ala Asn Glu Asp Gln Leu Phe Gln Arg Thr Ala Glu Val His Ser Arg
225                 230                 235                 240

Val Leu Ala Ala Asn Asn Val Arg Arg Phe Phe Gly Phe Val Ala Leu
                245                 250                 255

Asn Lys Asp Asp Glu Glu Leu Ile Ala Asn Phe Pro Val Glu Gly Thr
            260                 265                 270

Gln Pro Arg Pro Gln Trp Asn Ala Ile Thr Gly Val Tyr Leu Tyr Arg
        275                 280                 285

Glu Asn Gln Gly Leu Pro Leu Tyr Ser Arg Leu His Lys Trp Ala Gln
    290                 295                 300

Gly Leu Ala Gly Asn Gly Ala Ala Pro Asp Asn Val Glu Met Ala Leu
305                 310                 315                 320

Leu Pro Ser
```

<210> 10833
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2150; "

<220>
<221> source
<223> /note="Gene Symbol: CALHM2; "

<220>
<221> source
<223> /note="Gene Name: calcium homeostasis modulator 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HA72; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358803"

<400> 10833
Met Ala Ala Leu Ile Ala Glu Asn Phe Arg Phe Leu Ser Leu Phe Phe
1   5   10   15

Lys Ser Lys Asp Val Met Ile Phe Asn Gly Leu Val Ala Leu Gly Thr
            20   25   30

Val Gly Ser Gln Glu Leu Phe Ser Val Val Ala Phe His Cys Pro Cys
        35   40   45

Ser Pro Ala Arg Asn Tyr Leu Tyr Gly Leu Ala Ala Ile Gly Val Pro
    50   55   60

Ala Leu Val Leu Phe Ile Ile Gly Ile Ile Leu Asn Asn His Thr Trp
65   70   75   80

Asn Leu Val Ala Glu Cys Gln His Arg Arg Thr Lys Asn Cys Ser Ala
                85   90   95

Ala Pro Thr Phe Leu Leu Leu Ser Ser Ile Leu Gly Arg Ala Ala Val
            100   105   110

Ala Pro Val Thr Trp Ser Val Ile Ser Leu Leu Arg Gly Glu Ala Tyr
        115   120   125

Val Cys Ala Leu Ser Glu Phe Val Asp Pro Ser Ser Leu Thr Ala Arg
    130   135   140

Glu Glu His Phe Pro Ser Ala His Ala Thr Glu Ile Leu Ala Arg Phe
145   150   155   160

Pro Cys Lys Glu Asn Pro Asp Asn Leu Ser Asp Phe Arg Glu Glu Val
                165   170   175

Ser Arg Arg Leu Arg Tyr Glu Ser Gln Leu Phe Gly Trp Leu Leu Ile
            180   185   190

Gly Val Val Ala Ile Leu Val Phe Leu Thr Lys Cys Leu Lys His Tyr
        195   200   205

```
Cys Ser Pro Leu Ser Tyr Arg Gln Glu Ala Tyr Trp Ala Gln Tyr Arg
    210                 215                 220

Ala Asn Glu Asp Gln Leu Phe Gln Arg Thr Ala Glu Val His Ser Arg
225                 230                 235                 240

Val Leu Ala Ala Asn Asn Val Arg Arg Phe Phe Gly Phe Val Ala Leu
                245                 250                 255

Asn Lys Asp Asp Glu Glu Leu Ile Ala Asn Phe Pro Val Glu Gly Thr
            260                 265                 270

Gln Pro Arg Pro Gln Trp Asn Ala Ile Thr Gly Val Tyr Leu Tyr Arg
        275                 280                 285

Glu Asn Gln Gly Leu Pro Leu Tyr Ser Arg Leu His Lys Trp Ala Gln
    290                 295                 300

Gly Leu Ala Gly Asn Gly Ala Ala Pro Asp Asn Val Glu Met Ala Leu
305                 310                 315                 320

Leu Pro Ser
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<210> 10834
<211> 344
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2151; "

<220>
<221> source
<223> /note="Gene Symbol: CALHM3; "

<220>
<221> source
<223> /note="Gene Name: calcium homeostasis modulator 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q86XJ0; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000358798"

<400> 10834
Met Asp Lys Phe Arg Met Leu Phe Gln His Phe Gln Ser Ser Ser Glu
1 5 10 15

Ser Val Met Asn Gly Ile Cys Leu Leu Leu Ala Ala Val Thr Val Lys
20 25 30

Leu Tyr Ser Ser Phe Asp Phe Asn Cys Pro Cys Leu Val His Tyr Asn
35 40 45

Ala Leu Tyr Gly Leu Gly Leu Leu Leu Thr Pro Pro Leu Ala Leu Phe
50 55 60

Leu Cys Gly Leu Leu Ala Asn Arg Gln Ser Val Val Met Val Glu Glu
65 70 75 80

Trp Arg Arg Pro Ala Gly His Arg Arg Lys Asp Pro Gly Ile Ile Arg
85 90 95

Tyr Met Cys Ser Ser Val Leu Gln Arg Ala Leu Ala Ala Pro Leu Val
100 105 110

Trp Ile Leu Leu Ala Leu Leu Asp Gly Lys Cys Phe Val Cys Ala Phe
115 120 125

Ser Ser Ser Val Asp Pro Glu Lys Phe Leu Asp Phe Ala Asn Met Thr
130 135 140

Pro Ser Gln Val Gln Leu Phe Leu Ala Lys Val Pro Cys Lys Glu Asp
145 150 155 160

Glu Leu Val Arg Asp Ser Pro Ala Arg Lys Ala Val Ser Arg Tyr Leu
165 170 175

Arg Cys Leu Ser Gln Ala Ile Gly Trp Ser Val Thr Leu Leu Leu Ile
180 185 190

Ile Ala Ala Phe Leu Ala Arg Cys Leu Arg Pro Cys Phe Asp Gln Thr
195 200 205

Val Phe Leu Gln Arg Arg Tyr Trp Ser Asn Tyr Val Asp Leu Glu Gln
210 215 220

```
Lys Leu Phe Asp Glu Thr Cys Cys Glu His Ala Arg Asp Phe Ala His
225                 230                 235                 240

Arg Cys Val Leu His Phe Phe Ala Ser Met Arg Ser Glu Leu Gln Ala
                245                 250                 255

Arg Gly Leu Arg Arg Gly Asn Ala Gly Arg Arg Leu Glu Leu Pro Ala
            260                 265                 270

Val Pro Glu Pro Pro Glu Gly Leu Asp Ser Gly Ser Gly Lys Ala His
        275                 280                 285

Leu Arg Ala Ile Ser Ser Arg Glu Gln Val Asp Arg Leu Leu Ser Thr
    290                 295                 300

Trp Tyr Ser Ser Lys Pro Pro Leu Asp Leu Ala Ala Ser Pro Gly Leu
305                 310                 315                 320

Cys Gly Gly Gly Leu Ser His Arg Ala Pro Thr Leu Ala Leu Gly Thr
                325                 330                 335

Arg Leu Ser Gln His Thr Asp Val
            340


<210> 10835
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2152; "

<220>
<221> source
<223> /note="Gene Symbol: CAMLG; "

<220>
<221> source
<223> /note="Gene Name: calcium modulating ligand; "

<220>
<221> source
<223> /note="Uniprot ID:  P49069; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000297156"
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<400> 10835
Met Glu Ser Met Ala Val Ala Thr Asp Gly Gly Glu Arg Pro Gly Val
1 5 10 15

Pro Ala Gly Ser Gly Leu Ser Ala Ser Gln Arg Arg Ala Glu Leu Arg
20 25 30

Arg Arg Lys Leu Leu Met Asn Ser Glu Gln Arg Ile Asn Arg Ile Met
35 40 45

Gly Phe His Arg Pro Gly Ser Gly Ala Glu Glu Glu Ser Gln Thr Lys
50 55 60

Ser Lys Gln Gln Asp Ser Asp Lys Leu Asn Ser Leu Ser Val Pro Ser
65 70 75 80

Val Ser Lys Arg Val Val Leu Gly Asp Ser Val Ser Thr Gly Thr Thr
85 90 95

Asp Gln Gln Gly Gly Val Ala Glu Val Lys Gly Thr Gln Leu Gly Asp
100 105 110

Lys Leu Asp Ser Phe Ile Lys Pro Pro Glu Cys Ser Ser Asp Val Asn
115 120 125

Leu Glu Leu Arg Gln Arg Asn Arg Gly Asp Leu Thr Ala Asp Ser Val
130 135 140

Gln Arg Gly Ser Arg His Gly Leu Glu Gln Tyr Leu Ser Arg Phe Glu
145 150 155 160

Glu Ala Met Lys Leu Arg Lys Gln Leu Ile Ser Glu Lys Pro Ser Gln
165 170 175

Glu Asp Gly Asn Thr Thr Glu Glu Phe Asp Ser Phe Arg Ile Phe Arg
180 185 190

Leu Val Gly Cys Ala Leu Leu Ala Leu Gly Val Arg Ala Phe Val Cys
195 200 205

Lys Tyr Leu Ser Ile Phe Ala Pro Phe Leu Thr Leu Gln Leu Ala Tyr
210 215 220

```
Met Gly Leu Tyr Lys Tyr Phe Pro Lys Ser Glu Lys Lys Ile Lys Thr
225                 230                 235                 240

Thr Val Leu Thr Ala Ala Leu Leu Leu Ser Gly Ile Pro Ala Glu Val
                245                 250                 255

Ile Asn Arg Ser Met Asp Thr Tyr Ser Lys Met Gly Glu Val Phe Thr
            260                 265                 270

Asp Leu Cys Val Tyr Phe Phe Thr Phe Ile Phe Cys His Glu Leu Leu
        275                 280                 285

Asp Tyr Trp Gly Ser Glu Val Pro
    290                 295


<210> 10836
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2152; "

<220>
<221> source
<223> /note="Gene Symbol: CAMLG; "

<220>
<221> source
<223> /note="Gene Name: calcium modulating ligand; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427331"

<400> 10836
Met Glu Ser Met Ala Val Ala Thr Asp Gly Gly Glu Arg Pro Gly Val
1               5                   10                  15

Pro Ala Gly Ser Gly Leu Ser Ala Ser Gln Arg Arg Ala Glu Leu Arg
            20                  25                  30

Arg Arg Lys Leu Leu Met Asn Ser Glu Gln Arg Ile Asn Arg Ile Met
        35                  40                  45

Gly Phe His Arg Pro Gly Ser Gly Ala Val His Ile Cys Ser Ile Ser
    50                  55                  60
```

```
Tyr Phe Thr Thr Cys Val His Gly Ile Ile Gln Ile Phe Ser Gln Glu
65                  70                  75                  80


<210> 10837
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
      1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000311847"

<400> 10837
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1               5                  10                  15


Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20                  25                  30


Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35                  40                  45


Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50                  55                  60


Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80


Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95


Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
```

100 105 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
115 120 125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
130 135 140

Ile Ser Ser
145

<210> 10838
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000379838"

<400> 10838
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1 5 10 15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
20 25 30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
35 40 45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
50 55 60

```
Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100                 105                 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115                 120                 125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
    130                 135                 140

Ile Ser Ser
145
```

<210> 10839
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455016"

<400> 10839

```
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1               5                   10                  15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20                  25                  30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
```

```
        35                  40                  45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50                  55                  60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100                 105                 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115                 120                 125

Thr His Leu
    130


<210> 10840
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
      1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455284"

<400> 10840
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1               5                   10                  15
```

```
Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20                  25                  30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35                  40                  45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50                  55                  60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100                 105                 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115                 120                 125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
    130                 135                 140

Ile Ser Ser
145


<210> 10841
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
      1, 24kDa; "

<220>
<221> source
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<223> /note="ENSP ID: ENSP00000455522"

<400> 10841
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1   5   10   15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20   25   30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35   40   45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50   55   60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65   70   75   80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85   90   95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100   105   110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu
        115   120   125

<210> 10842
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
      1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455855"

<400> 10842
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1   5   10   15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20   25   30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35   40   45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50   55   60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65   70   75   80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85   90   95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100   105   110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115   120   125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
    130   135   140

Ile Ser Ser
145

<210> 10843
<211> 114
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000455988"

<400> 10843
Met Pro Pro Pro Pro Glu Gly Gln Pro Cys His Leu Ser Leu Pro His
1 5 10 15

His His Ser Pro Pro Pro Ile Lys Leu Gln Ser Gly Cys Trp Thr Pro
20 25 30

Leu Gly Ala Val Ser Ala His His Pro Leu Cys Gly Ala Thr Trp Ser
35 40 45

Gln Ala His Cys Pro Leu Ala Gly Arg Gly Pro Ser Arg Arg Arg Cys
50 55 60

Gly Leu His Arg Ala Pro Ser Thr Lys Glu Ser Ala Asn Ala Ser Ala
65 70 75 80

Gly Pro Arg Ala Met Ala Ser Leu Leu Gln Leu Met Ala Ala Pro Thr
85 90 95

Ser Ser Cys Thr Ser Leu Met Trp Lys Gly Ser Met Ser Gln Trp Lys
100 105 110

Ala Thr

<210> 10844
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>

<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456909"

<400> 10844
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1 5 10 15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
20 25 30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
35 40 45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
50 55 60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65 70 75 80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
85 90 95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
100 105 110

<210> 10845
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000457213"

<400> 10845
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1 5 10 15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
20 25 30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
35 40 45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
50 55 60

Gly Val Cys Lys Cys Phe Cys
65 70

<210> 10846
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000457864"

<400> 10846
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1 5 10 15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
20 25 30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
35 40 45

```
Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50                  55                  60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100                 105                 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val
        115                 120


<210> 10847
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
      1, 24kDa; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460812"

<400> 10847
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1               5                   10                  15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20                  25                  30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35                  40                  45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
```

```
    50                  55                  60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Glu
                85                  90


<210> 10848
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
      1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478055"

<400> 10848
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1               5                   10                  15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20                  25                  30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35                  40                  45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50                  55                  60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80
```

```
Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95


Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100                 105                 110


Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115                 120                 125


Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
    130                 135                 140


Ile Ser Ser
145


<210> 10849
<211> 147
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
      1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480144"

<400> 10849
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1               5                   10                  15


Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20                  25                  30


Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
```

```
        35                  40                  45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50                  55                  60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100                 105                 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115                 120                 125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
    130                 135                 140

Ile Ser Ser
145
```

<210> 10850
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000480542"

<400> 10850
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1 5 10 15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
20 25 30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
35 40 45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
50 55 60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65 70 75 80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
85 90 95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
100 105 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
115 120 125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
130 135 140

Ile Ser Ser
145

<210> 10851
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt

1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000481550"

<400> 10851
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1   5   10   15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20   25   30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35   40   45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50   55   60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65   70   75   80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85   90   95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100   105   110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115   120   125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
    130   135   140

Ile Ser Ser
145

<210> 10852
<211> 147
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2153; "

<220>
<221> source
<223> /note="Gene Symbol: CARHSP1; "

<220>
<221> source
<223> /note="Gene Name: calcium regulated heat stable prt
1, 24kDa; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y2V2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000483591"

<400> 10852

```
Met Ser Ser Glu Pro Pro Pro Pro Pro Gln Pro Pro Thr His Gln Ala
1               5                  10                  15

Ser Val Gly Leu Leu Asp Thr Pro Arg Ser Arg Glu Arg Ser Pro Ser
            20                  25                  30

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Arg Thr
        35                  40                  45

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Gln Gly Pro Val Tyr Lys
    50                  55                  60

Gly Val Cys Lys Cys Phe Cys Arg Ser Lys Gly His Gly Phe Ile Thr
65                  70                  75                  80

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Ser Asp Val Glu
                85                  90                  95

Gly Glu Tyr Val Pro Val Glu Gly Asp Glu Val Thr Tyr Lys Met Cys
            100                 105                 110

Ser Ile Pro Pro Lys Asn Glu Lys Leu Gln Ala Val Glu Val Val Ile
        115                 120                 125

Thr His Leu Ala Pro Gly Thr Lys His Glu Thr Trp Ser Gly His Val
    130                 135                 140
```

Ile Ser Ser
145

<210> 10853
<211> 395
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2154; "

<220>
<221> source
<223> /note="Gene Symbol: CRACR2A; "

<220>
<221> source
<223> /note="Gene Name: calcium release activated channel
regulator 2A; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BSW2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000252322"

<400> 10853
Met Ala Ala Pro Asp Gly Arg Val Val Ser Arg Pro Gln Arg Leu Gly
1   5   10   15

Gln Gly Ser Gly Gln Gly Pro Lys Gly Ser Gly Ala Cys Leu His Pro
            20   25   30

Leu Asp Ser Leu Glu Gln Lys Glu Thr Gln Glu Gln Thr Ser Gly Gln
        35   40   45

Leu Val Met Leu Arg Lys Ala Gln Glu Phe Phe Gln Thr Cys Asp Ala
    50   55   60

Glu Gly Lys Gly Phe Ile Ala Arg Lys Asp Met Gln Arg Leu His Lys
65   70   75   80

Glu Leu Pro Leu Ser Leu Glu Glu Leu Glu Asp Val Phe Asp Ala Leu
                85   90   95

Asp Ala Asp Gly Asn Gly Tyr Leu Thr Pro Gln Glu Phe Thr Thr Gly
            100   105   110

```
Phe Ser His Phe Phe Phe Ser Gln Asn Asn Pro Ser Gln Glu Asp Ala
        115                 120                 125

Gly Glu Gln Val Ala Gln Arg His Glu Glu Lys Val Tyr Leu Ser Arg
    130                 135                 140

Gly Asp Glu Asp Leu Gly Asp Met Gly Glu Asp Glu Glu Ala Gln Phe
145                 150                 155                 160

Arg Met Leu Met Asp Arg Leu Gly Ala Gln Lys Val Leu Glu Asp Glu
                165                 170                 175

Ser Asp Val Lys Gln Leu Trp Leu Gln Leu Lys Lys Glu Glu Pro His
            180                 185                 190

Leu Leu Ser Asn Phe Glu Asp Phe Leu Thr Arg Ile Ile Ser Gln Leu
        195                 200                 205

Gln Glu Ala His Glu Glu Lys Asn Glu Leu Glu Cys Ala Leu Lys Arg
    210                 215                 220

Lys Ile Ala Ala Tyr Asp Glu Glu Ile Gln His Leu Tyr Glu Glu Met
225                 230                 235                 240

Glu Gln Gln Ile Lys Ser Glu Lys Glu Gln Phe Leu Leu Lys Asp Thr
                245                 250                 255

Glu Arg Phe Gln Ala Arg Ser Gln Glu Leu Glu Gln Lys Leu Leu Cys
            260                 265                 270

Lys Glu Gln Glu Leu Glu Gln Leu Thr Gln Lys Gln Lys Arg Leu Glu
        275                 280                 285

Gly Gln Cys Thr Ala Leu His His Asp Lys His Glu Thr Lys Ala Glu
    290                 295                 300

Asn Thr Lys Leu Lys Leu Thr Asn Gln Glu Leu Ala Arg Glu Leu Glu
305                 310                 315                 320

Arg Thr Ser Trp Glu Leu Gln Asp Ala Gln Gln Gln Leu Glu Ser Leu
                325                 330                 335
```

```
Gln Gln Glu Ala Cys Lys Leu His Gln Glu Lys Glu Met Glu Val Tyr
            340                 345                 350

Arg Val Thr Glu Ser Leu Gln Arg Glu Lys Ala Gly Leu Leu Lys Gln
        355                 360                 365

Leu Asp Phe Leu Arg Cys Val Gly Gly His Trp Pro Val Leu Arg Ala
    370                 375                 380

Pro Pro Arg Ser Leu Gly Ser Glu Gly Pro Val
385                 390                 395


<210> 10854
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2154; "

<220>
<221> source
<223> /note="Gene Symbol: CRACR2A; "

<220>
<221> source
<223> /note="Gene Name: calcium release activated channel
      regulator 2A; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000331047"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10854
Xaa Asp Phe Leu Thr Arg Ile Ile Ser Gln Leu Gln Glu Ala His Glu
1               5                   10                  15

Glu Lys Asn Glu Leu Glu Cys Ala Leu Lys Arg Lys Ile Ala Ala Tyr
            20                  25                  30

Asp Glu Glu Ile Gln His Leu Tyr Glu Glu Met Glu Gln Gln Ile Lys
        35                  40                  45
```

```
Ser Glu Lys Glu Gln Phe Leu Leu Lys Asp Thr Glu Arg Phe Gln Ala
    50                  55                  60

Arg Ser Gln Glu Leu Glu Gln Lys Leu Leu Cys Lys Glu Gln Glu Leu
65                  70                  75                  80

Glu Gln Leu Thr Gln Lys Gln Lys Arg Leu Glu Gly Gln Cys Thr Ala
                85                  90                  95

Leu His His Asp Lys His Glu Thr Lys Ala Glu Asn Thr Lys Leu Lys
            100                 105                 110

Leu Thr Asn Gln Glu Leu Ala Arg Glu Leu Glu Arg Thr Ser Trp Glu
        115                 120                 125

Leu Gln Asp Ala Gln Gln Gln Leu Glu Ser Leu Gln Gln Glu Ala Cys
    130                 135                 140

Lys Leu His Gln Glu Lys Glu Met Glu Val Tyr Arg Val Thr Glu Ser
145                 150                 155                 160

Leu Gln Arg Glu Lys Ala Gly Leu Leu Lys Gln Leu Asp Phe Leu Arg
                165                 170                 175

Cys Val Gly Gly His Trp Pro Val Leu Arg Ala Pro Pro Arg Ser Leu
            180                 185                 190

Gly Ser Glu Gly Pro Val
        195


<210> 10855
<211> 731
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2154; "

<220>
<221> source
<223> /note="Gene Symbol: CRACR2A; "

<220>
<221> source
<223> /note="Gene Name: calcium release activated channel
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regulator 2A; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BSW2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409382"

<400> 10855

```
Met Ala Ala Pro Asp Gly Arg Val Val Ser Arg Pro Gln Arg Leu Gly
1               5                  10                  15

Gln Gly Ser Gly Gln Gly Pro Lys Gly Ser Gly Ala Cys Leu His Pro
            20                  25                  30

Leu Asp Ser Leu Glu Gln Lys Glu Thr Gln Glu Gln Thr Ser Gly Gln
        35                  40                  45

Leu Val Met Leu Arg Lys Ala Gln Glu Phe Phe Gln Thr Cys Asp Ala
    50                  55                  60

Glu Gly Lys Gly Phe Ile Ala Arg Lys Asp Met Gln Arg Leu His Lys
65                  70                  75                  80

Glu Leu Pro Leu Ser Leu Glu Glu Leu Glu Asp Val Phe Asp Ala Leu
                85                  90                  95

Asp Ala Asp Gly Asn Gly Tyr Leu Thr Pro Gln Glu Phe Thr Thr Gly
            100                 105                 110

Phe Ser His Phe Phe Phe Ser Gln Asn Asn Pro Ser Gln Glu Asp Ala
        115                 120                 125

Gly Glu Gln Val Ala Gln Arg His Glu Glu Lys Val Tyr Leu Ser Arg
    130                 135                 140

Gly Asp Glu Asp Leu Gly Asp Met Gly Glu Asp Glu Glu Ala Gln Phe
145                 150                 155                 160

Arg Met Leu Met Asp Arg Leu Gly Ala Gln Lys Val Leu Glu Asp Glu
                165                 170                 175

Ser Asp Val Lys Gln Leu Trp Leu Gln Leu Lys Lys Glu Glu Pro His
            180                 185                 190
```

```
Leu Leu Ser Asn Phe Glu Asp Phe Leu Thr Arg Ile Ile Ser Gln Leu
        195                 200                 205

Gln Glu Ala His Glu Glu Lys Asn Glu Leu Glu Cys Ala Leu Lys Arg
    210                 215                 220

Lys Ile Ala Ala Tyr Asp Glu Glu Ile Gln His Leu Tyr Glu Glu Met
225                 230                 235                 240

Glu Gln Gln Ile Lys Ser Glu Lys Glu Gln Phe Leu Leu Lys Asp Thr
                245                 250                 255

Glu Arg Phe Gln Ala Arg Ser Gln Glu Leu Glu Gln Lys Leu Leu Cys
            260                 265                 270

Lys Glu Gln Glu Leu Glu Gln Leu Thr Gln Lys Gln Lys Arg Leu Glu
        275                 280                 285

Gly Gln Cys Thr Ala Leu His His Asp Lys His Glu Thr Lys Ala Glu
    290                 295                 300

Asn Thr Lys Leu Lys Leu Thr Asn Gln Glu Leu Ala Arg Glu Leu Glu
305                 310                 315                 320

Arg Thr Ser Trp Glu Leu Gln Asp Ala Gln Gln Gln Leu Glu Ser Leu
                325                 330                 335

Gln Gln Glu Ala Cys Lys Leu His Gln Glu Lys Glu Met Glu Val Tyr
            340                 345                 350

Arg Val Thr Glu Ser Leu Gln Arg Glu Lys Ala Gly Leu Leu Lys Gln
        355                 360                 365

Leu Asp Phe Leu Arg Glu Arg Asn Lys His Leu Arg Asp Glu Arg Asp
    370                 375                 380

Ile Cys Phe Gln Lys Asn Lys Ala Ala Lys Ala Asn Thr Ala Ala Ser
385                 390                 395                 400

Arg Ala Ser Trp Lys Lys Arg Ser Gly Ser Val Ile Gly Lys Tyr Val
                405                 410                 415
```

```
Asp Ser Arg Gly Ile Leu Arg Ser Gln Ser Glu Glu Glu Glu Glu Val
            420                 425                 430

Phe Gly Ile Pro Arg Arg Ser Ser Leu Gly Leu Ser Gly Tyr Pro Leu
        435                 440                 445

Thr Glu Glu Glu Pro Gly Thr Gly Glu Pro Gly Pro Gly Gly Pro Tyr
    450                 455                 460

Pro Arg Pro Leu Arg Arg Ile Ile Ser Val Glu Glu Asp Pro Leu Pro
465                 470                 475                 480

Gln Leu Leu Asp Gly Gly Phe Glu Gln Pro Leu Ser Lys Cys Ser Glu
                485                 490                 495

Glu Glu Glu Val Ser Asp Gln Gly Val Gln Gly Gln Ile Pro Glu Ala
            500                 505                 510

Pro Pro Leu Lys Leu Thr Pro Thr Ser Pro Arg Gly Gln Pro Val Gly
        515                 520                 525

Lys Glu Ala Leu Cys Lys Glu Glu Ser Ser Pro Ser Ala Pro Asp Arg
    530                 535                 540

Leu Phe Lys Ile Val Phe Val Gly Asn Ser Ala Val Gly Lys Thr Ser
545                 550                 555                 560

Phe Leu Arg Arg Phe Cys Glu Asp Arg Phe Ser Pro Gly Met Ala Ala
                565                 570                 575

Thr Val Gly Ile Asp Tyr Arg Val Lys Thr Leu Asn Val Asp Asn Ser
            580                 585                 590

Gln Val Ala Leu Gln Leu Trp Asp Thr Ala Gly Gln Glu Arg Tyr Arg
        595                 600                 605

Cys Ile Thr Gln Gln Phe Phe Arg Lys Ala Asp Gly Val Ile Val Met
    610                 615                 620

Tyr Asp Leu Thr Asp Lys Gln Ser Phe Leu Ser Val Arg Arg Trp Leu
625                 630                 635                 640
```

```
Ser Ser Val Glu Glu Ala Val Gly Asp Arg Val Pro Val Leu Leu Leu
                645                 650                 655

Gly Asn Lys Leu Asp Asn Glu Lys Glu Arg Glu Val Pro Arg Gly Leu
            660                 665                 670

Gly Glu Gln Leu Ala Thr Glu Asn Asn Leu Ile Phe Tyr Glu Cys Ser
        675                 680                 685

Ala Tyr Ser Gly His Asn Thr Lys Glu Ser Leu Leu His Leu Ala Arg
    690                 695                 700

Phe Leu Lys Glu Gln Glu Asp Thr Val Arg Glu Asp Thr Ile Gln Val
705                 710                 715                 720

Gly His Pro Ala Lys Lys Lys Ser Cys Cys Gly
                725                 730


<210> 10856
<211> 118
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2154; "

<220>
<221> source
<223> /note="Gene Symbol: CRACR2A; "

<220>
<221> source
<223> /note="Gene Name: calcium release activated channel
      regulator 2A; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438777"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10856
Xaa Glu Lys Glu Met Glu Val Tyr Arg Val Thr Glu Ser Leu Gln Arg
1               5                   10                  15
```

```
Glu Lys Ala Gly Leu Leu Lys Gln Leu Asp Phe Leu Arg Glu Arg Asn
            20                  25                  30

Lys His Leu Arg Asp Glu Arg Asp Ile Cys Phe Gln Lys Asn Lys Ala
        35                  40                  45

Ala Lys Ala Asn Thr Ala Ala Ser Arg Ala Ser Trp Lys Lys Arg Ser
    50                  55                  60

Gly Ser Val Ile Gly Lys Tyr Val Asp Ser Arg Gly Ile Leu Arg Arg
65                  70                  75                  80

Trp Pro Gln Arg Asp Arg Gly Ile Pro Thr Leu Gln Tyr Gln Thr Gln
                85                  90                  95

Arg Asp Leu Glu Asp Cys Lys His Glu Met Lys Lys Ile Cys Lys Ala
            100                 105                 110

Glu Val Thr Leu Glu Met
        115


<210> 10857
<211> 294
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2155; "

<220>
<221> source
<223> /note="Gene Symbol: CRACR2B; "

<220>
<221> source
<223> /note="Gene Name: calcium release activated channel
      regulator 2B; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N4Y2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000409256"

<400> 10857
Met Ala Ser Pro Gly Lys Pro Gly Ala Asp Glu Ala Gln Glu Glu Glu
1               5                   10                  15
```

```
Gly Glu Leu Glu Gly Gly Ser Ala Gly Pro Arg Ala Ala Ile Leu Glu
            20                  25                  30

Gln Ala Glu Glu Leu Phe Leu Leu Cys Asp Lys Glu Ala Lys Gly Phe
        35                  40                  45

Ile Thr Lys His Asp Leu Gln Gly Leu Gln Ser Asp Leu Pro Leu Thr
    50                  55                  60

Pro Glu Gln Leu Glu Ala Val Phe Glu Ser Leu Asp Arg Ala His Thr
65                  70                  75                  80

Gly Phe Leu Thr Ala Arg Glu Phe Cys Leu Gly Leu Gly Met Phe Val
                85                  90                  95

Gly Val Ala Ser Ala Gln Gly Ala Asn Pro Cys Arg Thr Pro Glu Glu
            100                 105                 110

Thr Phe Glu Ser Gly Gly Leu Asp Val Gln Gly Thr Ala Gly Ser Leu
        115                 120                 125

Asp Glu Glu Glu Glu Glu Glu Glu Arg Phe His Thr Val Leu Glu Gln
    130                 135                 140

Leu Gly Val Ala Pro Val Leu Gly Lys Gln Arg Ala Val Arg Thr Leu
145                 150                 155                 160

Trp Ala Arg Leu Gln Arg Glu Arg Pro Glu Leu Leu Gly Ser Phe Glu
                165                 170                 175

Asp Val Leu Ile Arg Ala Ser Ala Cys Leu Glu Glu Ala Ala Arg Glu
            180                 185                 190

Arg Asp Gly Leu Glu Gln Ala Leu Arg Arg Arg Glu Ser Glu His Glu
        195                 200                 205

Arg Glu Val Arg Ala Leu Tyr Glu Glu Thr Glu Gln Leu Arg Glu Gln
    210                 215                 220

Ser Arg Arg Pro Pro Ser Gln Asn Phe Ala Arg Gly Glu Arg Arg Ser
225                 230                 235                 240
```

```
Arg Leu Glu Leu Glu Leu Gln Ser Arg Glu Gln Asp Leu Glu Arg Ala
                245                 250                 255

Gly Leu Arg Gln Arg Glu Arg Arg Gly Arg Arg Leu Gln Glu His Ala
            260                 265                 270

Glu Arg Glu Ser Gln Pro Ala Thr Ala Thr Gly Ala Ala Gln Gly Ala
        275                 280                 285

Glu Tyr Thr Ala Ala Gly
    290


<210> 10858
<211> 294
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2155; "

<220>
<221> source
<223> /note="Gene Symbol: CRACR2B; "

<220>
<221> source
<223> /note="Gene Name: calcium release activated channel
      regulator 2B; "

<220>
<221> source
<223> /note="Uniprot ID:  Q8N4Y2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432334"

<400> 10858
Met Ala Ser Pro Gly Lys Pro Gly Ala Asp Glu Ala Gln Glu Glu Glu
1               5                   10                  15

Gly Glu Leu Glu Gly Gly Ser Ala Gly Pro Arg Ala Ala Ile Leu Glu
            20                  25                  30

Gln Ala Glu Glu Leu Phe Leu Leu Cys Asp Lys Glu Ala Lys Gly Phe
        35                  40                  45

Ile Thr Lys His Asp Leu Gln Gly Leu Gln Ser Asp Leu Pro Leu Thr
```

```
    50                  55                  60

Pro Glu Gln Leu Glu Ala Val Phe Glu Ser Leu Asp Arg Ala His Thr
65                  70                  75                  80

Gly Phe Leu Thr Ala Arg Glu Phe Cys Leu Gly Leu Gly Met Phe Val
                85                  90                  95

Gly Val Ala Ser Ala Gln Gly Ala Asn Pro Cys Arg Thr Pro Glu Glu
            100                 105                 110

Thr Phe Glu Ser Gly Gly Leu Asp Val Gln Gly Thr Ala Gly Ser Leu
        115                 120                 125

Asp Glu Glu Glu Glu Glu Glu Glu Arg Phe His Thr Val Leu Glu Gln
    130                 135                 140

Leu Gly Val Ala Pro Val Leu Gly Lys Gln Arg Ala Val Arg Thr Leu
145                 150                 155                 160

Trp Ala Arg Leu Gln Arg Glu Arg Pro Glu Leu Leu Gly Ser Phe Glu
                165                 170                 175

Asp Val Leu Ile Arg Ala Ser Ala Cys Leu Glu Glu Ala Ala Arg Glu
            180                 185                 190

Arg Asp Gly Leu Glu Gln Ala Leu Arg Arg Arg Glu Ser Glu His Glu
        195                 200                 205

Arg Glu Val Arg Ala Leu Tyr Glu Glu Thr Glu Gln Leu Arg Glu Gln
    210                 215                 220

Ser Arg Arg Pro Pro Ser Gln Asn Phe Ala Arg Gly Glu Arg Arg Ser
225                 230                 235                 240

Arg Leu Glu Leu Glu Leu Gln Ser Arg Glu Gln Asp Leu Glu Arg Ala
                245                 250                 255

Gly Leu Arg Gln Arg Glu Arg Arg Gly Arg Arg Leu Gln Glu His Ala
            260                 265                 270

Glu Arg Glu Ser Gln Pro Ala Thr Ala Thr Gly Ala Ala Gln Gly Ala
        275                 280                 285
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Glu Tyr Thr Ala Ala Gly
290

<210> 10859
<211> 88
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2155; "

<220>
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<223> /note="Gene Symbol: CRACR2B; "

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<223> /note="Gene Name: calcium release activated channel regulator 2B; "

<220>
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<223> /note="ENSP ID: ENSP00000432726"

<400> 10859
Met Ala Ser Pro Gly Lys Pro Gly Ala Asp Glu Ala Gln Glu Glu Glu
1 5 10 15

Gly Glu Leu Glu Gly Gly Ser Ala Gly Pro Arg Ala Ala Ile Leu Glu
20 25 30

Gln Ala Glu Glu Leu Phe Leu Leu Cys Asp Lys Glu Ala Lys Gly Phe
35 40 45

Ile Thr Lys His Asp Leu Gln Gly Leu Gln Ser Asp Leu Pro Leu Thr
50 55 60

Pro Glu Gln Leu Glu Ala Val Phe Glu Ser Leu Asp Arg Ala His Thr
65 70 75 80

Gly Phe Leu Thr Ala Arg Glu Phe
85

<210> 10860
<211> 81
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CRACR2B; "

<220>
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<223> /note="Gene Name: calcium release activated channel
regulator 2B; "

<220>
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<223> /note="ENSP ID: ENSP00000433602"

<400> 10860
Met Ala Ser Pro Gly Lys Pro Gly Ala Asp Glu Ala Gln Glu Glu Glu
1 5 10 15

Gly Glu Leu Glu Gly Gly Ser Ala Gly Pro Arg Ala Ala Ile Leu Glu
20 25 30

Gln Ala Glu Glu Leu Phe Leu Leu Cys Asp Lys Glu Ala Lys Gly Phe
35 40 45

Ile Thr Lys His Asp Leu Gln Gly Leu Gln Ser Asp Leu Pro Leu Thr
50 55 60

Pro Glu Gln Leu Glu Ala Val Phe Glu Ser Leu Asp Arg Ala His Thr
65 70 75 80

Gly

<210> 10861
<211> 34
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>

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regulator 2B; "

<220>
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<223> /note="ENSP ID: ENSP00000434198"

<400> 10861
Met Ala Ser Pro Gly Lys Pro Gly Ala Asp Glu Ala Gln Glu Glu Glu
1 5 10 15

Gly Glu Leu Glu Gly Gly Ser Ala Gly Pro Arg Ala Ala Ile Leu Glu
20 25 30

Gln Ala

<210> 10862
<211> 399
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CRACR2B; "

<220>
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regulator 2B; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N4Y2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435299"

<400> 10862
Met Ala Ser Pro Gly Lys Pro Gly Ala Asp Glu Ala Gln Glu Glu Glu
1 5 10 15

Gly Glu Leu Glu Gly Gly Ser Ala Gly Pro Arg Ala Ala Ile Leu Glu
20 25 30

Gln Ala Glu Glu Leu Phe Leu Leu Cys Asp Lys Glu Ala Lys Gly Phe

```
        35                  40                  45

Ile Thr Lys His Asp Leu Gln Gly Leu Gln Ser Asp Leu Pro Leu Thr
    50                  55                  60

Pro Glu Gln Leu Glu Ala Val Phe Glu Ser Leu Asp Arg Ala His Thr
65                  70                  75                  80

Gly Phe Leu Thr Ala Arg Glu Phe Cys Leu Gly Leu Gly Met Phe Val
                85                  90                  95

Gly Val Ala Ser Ala Gln Gly Ala Asn Pro Cys Arg Thr Pro Glu Glu
            100                 105                 110

Thr Phe Glu Ser Gly Gly Leu Asp Val Gln Gly Thr Ala Gly Ser Leu
        115                 120                 125

Asp Glu Glu Glu Glu Glu Glu Glu Arg Phe His Thr Val Leu Glu Gln
    130                 135                 140

Leu Gly Val Ala Pro Val Leu Gly Lys Gln Arg Ala Val Arg Thr Leu
145                 150                 155                 160

Trp Ala Arg Leu Gln Arg Glu Arg Pro Glu Leu Leu Gly Ser Phe Glu
                165                 170                 175

Asp Val Leu Ile Arg Ala Ser Ala Cys Leu Glu Glu Ala Ala Arg Glu
            180                 185                 190

Arg Asp Gly Leu Glu Gln Ala Leu Arg Arg Arg Glu Ser Glu His Glu
        195                 200                 205

Arg Glu Val Arg Ala Leu Tyr Glu Glu Thr Glu Gln Leu Arg Glu Gln
    210                 215                 220

Ser Arg Arg Pro Pro Ser Gln Asn Phe Ala Arg Gly Glu Arg Arg Ser
225                 230                 235                 240

Arg Leu Glu Leu Glu Leu Gln Ser Arg Glu Gln Asp Leu Glu Arg Ala
                245                 250                 255

Gly Leu Arg Gln Arg Glu Leu Glu Gln Gln Leu His Ala Gln Ala Ala
            260                 265                 270
```

```
Glu His Leu Glu Ala Gln Ala Gln Asn Ser Gln Leu Trp Arg Ala His
        275                 280                 285

Glu Ala Leu Arg Thr Gln Leu Glu Gly Ala Gln Glu Gln Ile Arg Arg
    290                 295                 300

Leu Glu Ser Glu Ala Arg Gly Arg Gln Glu Gln Thr Gln Arg Asp Val
305                 310                 315                 320

Val Ala Val Ser Arg Asn Met Gln Lys Glu Lys Val Ser Leu Leu Arg
                325                 330                 335

Gln Leu Glu Leu Leu Arg Glu Leu Asn Thr Arg Leu Arg Asp Asp Arg
            340                 345                 350

Asp Ala Cys Glu Ala Arg Arg Ala Gly Ser Ser Cys Arg Lys Ala Leu
        355                 360                 365

Thr Thr Ala Arg Leu Pro Gly Pro Thr Cys Cys Cys Cys Cys Cys Trp
    370                 375                 380

Ala Arg Pro Pro Arg Arg Gly Ser Gly His Leu Pro Ser Ala Arg
385                 390                 395


<210> 10863
<211> 53
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2155; "

<220>
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<223> /note="Gene Symbol: CRACR2B; "

<220>
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<223> /note="Gene Name: calcium release activated channel
      regulator 2B; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436624"

<400> 10863
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```
Met Ala Ser Pro Gly Lys Pro Gly Ala Asp Glu Ala Gln Glu Glu Glu
1               5                   10                  15

Gly Glu Leu Glu Gly Gly Ser Ala Gly Pro Arg Ala Ala Ile Leu Glu
            20                  25                  30

Gln Ala Glu Glu Leu Phe Leu Leu Cys Asp Lys Glu Ala Lys Gly Phe
        35                  40                  45

Ile Thr Lys His Asp
    50
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<210> 10864
<211> 649
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2156; "

<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
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<223> /note="Uniprot ID: Q8N187; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000316224"

<400> 10864

```
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1               5                   10                  15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu Met Ile Val Ala Ser Pro
            20                  25                  30

Thr Glu Asn Gly Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly
        35                  40                  45

Met Ala Gln Val Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser
    50                  55                  60
```

```
Pro Arg Asp Val Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr
65                  70                  75                  80

Val Arg Val Asp Thr Leu Ala Asp Asn Thr Ser Asn Tyr Ile Leu His
                85                  90                  95

Pro Gln Thr Ser Phe Pro Leu Pro Lys Lys Ser Val Thr Gly Met Leu
            100                 105                 110

Glu Glu Pro Leu Leu Gly Pro Leu Gln Pro Leu Ser Ser Asn Thr Pro
        115                 120                 125

Ile Trp Ala Cys Arg Leu Arg Ser Cys Glu Lys Ile Gly Asp Ser Tyr
    130                 135                 140

Arg Gly Tyr Cys Val Ser Glu Thr Glu Leu Glu Ser Val Leu Thr Phe
145                 150                 155                 160

His Lys Gln Gln Thr Gln Ser Val Trp Gly Thr Arg Gln Ser Pro Ser
                165                 170                 175

Pro Ala Lys Pro Ala Thr Arg Leu Met Trp Lys Ser Gln Tyr Val Pro
            180                 185                 190

Tyr Asp Gly Ile Pro Phe Val Asn Ala Gly Ser Arg Ala Val Val Met
        195                 200                 205

Glu Cys Gln Tyr Gly Pro Arg Arg Lys Gly Phe Gln Leu Lys Lys Val
    210                 215                 220

Ser Glu Gln Glu Ser Arg Ser Cys Gln Leu Tyr Lys Ala Thr Cys Pro
225                 230                 235                 240

Ala Arg Ile Tyr Ile Lys Lys Val Gln Lys Phe Pro Glu Tyr Arg Val
                245                 250                 255

Pro Thr Asp Pro Lys Ile Asp Lys Lys Ile Ile Arg Met Glu Gln Glu
            260                 265                 270

Lys Ala Phe Asn Met Leu Lys Lys Asn Leu Val Asp Ala Gly Gly Val
        275                 280                 285
```

```
Leu Arg Trp Tyr Val Gln Leu Pro Thr Gln Gln Ala His Gln Tyr His
    290                 295                 300

Glu Leu Glu Thr Pro Cys Leu Thr Leu Ser Pro Ser Pro Phe Pro Val
305                 310                 315                 320

Ser Ser Leu Glu Glu Glu Glu Thr Ala Val Arg Asp Glu Asn Cys Ala
                325                 330                 335

Leu Pro Ser Arg Leu His Pro Gln Val Ala His Lys Ile Gln Glu Leu
            340                 345                 350

Val Ser Gln Gly Ile Glu Gln Val Tyr Ala Val Arg Lys Gln Leu Arg
        355                 360                 365

Lys Phe Val Glu Arg Glu Leu Phe Lys Pro Asp Glu Val Pro Glu Arg
    370                 375                 380

His Asn Leu Ser Phe Phe Pro Thr Val Asn Asp Ile Lys Asn His Ile
385                 390                 395                 400

His Glu Val Gln Lys Ser Leu Arg Asn Gly Asp Thr Val Tyr Asn Ser
                405                 410                 415

Glu Ile Ile Pro Ala Thr Leu Gln Trp Thr Thr Asp Ser Gly Asn Ile
            420                 425                 430

Leu Lys Glu Thr Met Thr Val Thr Phe Ala Glu Gly Asn Ser Pro Gly
        435                 440                 445

Glu Ser Ile Thr Thr Lys Val Glu Thr Asn Gln Thr Arg Gly Ser Leu
    450                 455                 460

Ser Pro Glu Pro Thr His Leu Leu Ser Ser Leu Ser Ser Phe Gln Pro
465                 470                 475                 480

Lys Ile Phe Thr Gln Leu Gln Gly Leu Gln Leu Gln Pro Arg Tyr Thr
                485                 490                 495

Ser Pro Asp Glu Ser Pro Ala Val Val Ser Val Asn Asn Gln Pro Ser
            500                 505                 510
```

```
Ser Ser Pro Ser Gly Leu Leu Asp Thr Ile Gly Ser Ala Val Met Asn
        515                 520                 525

Asn Asn Ser Leu Leu Leu Gly Gln Ser His Ser Leu Gln Arg Asp Thr
    530                 535                 540

Cys Leu Thr Gln Asn Asn Ser Thr Ala Ser Thr Met Gly Asn Leu Pro
545                 550                 555                 560

Glu Pro Asp Gln Asn Leu Val Ala Met Asp Glu Leu Val Glu Val Gly
                565                 570                 575

Asp Val Glu Asp Thr Gly Asn Leu Glu Gly Thr Val His Arg Ile Leu
            580                 585                 590

Leu Gly Asp Val Gln Thr Ile Pro Ile Gln Ile Ile Asp Asn His Ser
        595                 600                 605

Ala Leu Ile Glu Glu Asn Pro Glu Ser Thr Ile Ser Val Ser Gln Val
    610                 615                 620

Lys Gln Glu Pro Lys Glu Pro Ala Leu Ser Met Glu Ala Lys Lys Thr
625                 630                 635                 640

Val Asp Tyr Lys Lys Leu Ser Ala Thr
                645
```

<210> 10865
<211> 725
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2156; "

<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N187; "

<220>
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<400> 10865
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1   5   10   15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
            20   25   30

Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
        35   40   45

Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn Ile Pro
    50   55   60

Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe His Leu
65   70   75   80

Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser Leu Gly
                85   90   95

Glu Ser Asn Ala Gln Met Met Ile Val Ala Ser Pro Thr Glu Asn Gly
            100   105   110

Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly Met Ala Gln Val
        115   120   125

Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser Pro Arg Asp Val
    130   135   140

Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr Val Arg Val Asp
145   150   155   160

Thr Leu Ala Asp Asn Thr Ser Asn Tyr Ile Leu His Pro Gln Thr Ser
                165   170   175

Phe Pro Leu Pro Lys Lys Ser Val Thr Gly Met Leu Glu Glu Pro Leu
            180   185   190

Leu Gly Pro Leu Gln Pro Leu Ser Ser Asn Thr Pro Ile Trp Ala Cys
        195   200   205

```
Arg Leu Arg Ser Cys Glu Lys Ile Gly Asp Ser Tyr Arg Gly Tyr Cys
    210                 215                 220

Val Ser Glu Thr Glu Leu Glu Ser Val Leu Thr Phe His Lys Gln Gln
225                 230                 235                 240

Thr Gln Ser Val Trp Gly Thr Arg Gln Ser Pro Ser Pro Ala Lys Pro
                245                 250                 255

Ala Thr Arg Leu Met Trp Lys Ser Gln Tyr Val Pro Tyr Asp Gly Ile
            260                 265                 270

Pro Phe Val Asn Ala Gly Ser Arg Ala Val Val Met Glu Cys Gln Tyr
        275                 280                 285

Gly Pro Arg Arg Lys Gly Phe Gln Leu Lys Lys Val Ser Glu Gln Glu
    290                 295                 300

Ser Arg Ser Cys Gln Leu Tyr Lys Ala Thr Cys Pro Ala Arg Ile Tyr
305                 310                 315                 320

Ile Lys Lys Val Gln Lys Phe Pro Glu Tyr Arg Val Pro Thr Asp Pro
                325                 330                 335

Lys Ile Asp Lys Lys Ile Ile Arg Met Glu Gln Glu Lys Ala Phe Asn
            340                 345                 350

Met Leu Lys Lys Asn Leu Val Asp Ala Gly Gly Val Leu Arg Trp Tyr
        355                 360                 365

Val Gln Leu Pro Thr Gln Gln Ala His Gln Tyr His Glu Leu Glu Thr
    370                 375                 380

Pro Cys Leu Thr Leu Ser Pro Ser Pro Phe Pro Val Ser Ser Leu Glu
385                 390                 395                 400

Glu Glu Glu Thr Ala Val Arg Asp Glu Asn Cys Ala Leu Pro Ser Arg
                405                 410                 415

Leu His Pro Gln Val Ala His Lys Ile Gln Glu Leu Val Ser Gln Gly
            420                 425                 430
```

```
Ile Glu Gln Val Tyr Ala Val Arg Lys Gln Leu Arg Lys Phe Val Glu
        435                 440                 445

Arg Glu Leu Phe Lys Pro Asp Glu Val Pro Glu Arg His Asn Leu Ser
    450                 455                 460

Phe Phe Pro Thr Val Asn Asp Ile Lys Asn His Ile His Glu Val Gln
465                 470                 475                 480

Lys Ser Leu Arg Asn Gly Asp Thr Val Tyr Asn Ser Glu Ile Ile Pro
                485                 490                 495

Ala Thr Leu Gln Trp Thr Thr Asp Ser Gly Asn Ile Leu Lys Glu Thr
            500                 505                 510

Met Thr Val Thr Phe Ala Glu Gly Asn Ser Pro Gly Glu Ser Ile Thr
        515                 520                 525

Thr Lys Val Glu Thr Asn Gln Thr Arg Gly Ser Leu Ser Pro Glu Pro
    530                 535                 540

Thr His Leu Leu Ser Ser Leu Ser Ser Phe Gln Pro Lys Ile Phe Thr
545                 550                 555                 560

Gln Leu Gln Gly Leu Gln Leu Gln Pro Arg Tyr Thr Ser Pro Asp Glu
                565                 570                 575

Ser Pro Ala Val Val Ser Val Asn Asn Gln Pro Ser Ser Ser Pro Ser
            580                 585                 590

Gly Leu Leu Asp Thr Ile Gly Ser Ala Val Met Asn Asn Asn Ser Leu
        595                 600                 605

Leu Leu Gly Gln Ser His Ser Leu Gln Arg Asp Thr Cys Leu Thr Gln
    610                 615                 620

Asn Asn Ser Thr Ala Ser Thr Met Gly Asn Leu Pro Glu Pro Asp Gln
625                 630                 635                 640

Asn Leu Val Ala Met Asp Glu Leu Val Glu Val Gly Asp Val Glu Asp
                645                 650                 655

Thr Gly Asn Leu Glu Gly Thr Val His Arg Ile Leu Leu Gly Asp Val
```

660 665 670

Gln Thr Ile Pro Ile Gln Ile Ile Asp Asn His Ser Ala Leu Ile Glu
675 680 685

Glu Asn Pro Glu Ser Thr Ile Ser Val Ser Gln Val Lys Gln Glu Pro
690 695 700

Lys Glu Pro Ala Leu Ser Met Glu Ala Lys Lys Thr Val Asp Tyr Lys
705 710 715 720

Lys Leu Ser Ala Thr
725

<210> 10866
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2156; "

<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
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<223> /note="ENSP ID: ENSP00000387785"

<400> 10866
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1 5 10 15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
20 25 30

Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
35 40 45

Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn Ile Pro
50 55 60

```
Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe His Leu
65                  70                  75                  80


Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser Leu
                85                  90                  95


<210> 10867
<211> 131
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcium responsive transcription
      factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000391617"

<400> 10867
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1               5                   10                  15


Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
            20                  25                  30


Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
        35                  40                  45


Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn Ile Pro
    50                  55                  60


Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe His Leu
65                  70                  75                  80


Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser Leu Gly
                85                  90                  95


Glu Ser Asn Ala Gln Met Met Ile Val Ala Ser Pro Thr Glu Asn Gly
```

100 105 110

Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly Met Ala Gln Val
115 120 125

Ile Ile Pro
130

<210> 10868
<211> 419
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2156; "

<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392274"

<400> 10868
Met Asp Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val
1 5 10 15

Leu Pro Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn
20 25 30

Ile Pro Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe
35 40 45

His Leu Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser
50 55 60

Leu Gly Glu Ser Asn Ala Gln Met Met Ile Val Ala Ser Pro Thr Glu
65 70 75 80

Asn Gly Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly Met Ala
85 90 95

```
Gln Val Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser Pro Arg
            100                 105                 110

Asp Val Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr Val Arg
        115                 120                 125

Val Asp Thr Leu Ala Asp Asn Thr Ser Asn Tyr Ile Leu His Pro Gln
    130                 135                 140

Thr Ser Phe Pro Leu Pro Lys Lys Ser Val Thr Gly Met Leu Glu Glu
145                 150                 155                 160

Pro Leu Leu Gly Pro Leu Gln Pro Leu Ser Ser Asn Thr Pro Ile Trp
                165                 170                 175

Ala Cys Arg Leu Arg Ser Cys Glu Lys Ile Gly Asp Ser Tyr Arg Gly
            180                 185                 190

Tyr Cys Val Ser Glu Thr Glu Leu Glu Ser Val Leu Thr Phe His Lys
        195                 200                 205

Gln Gln Thr Gln Ser Val Trp Gly Thr Arg Gln Ser Pro Ser Pro Ala
    210                 215                 220

Lys Pro Ala Thr Arg Leu Met Trp Lys Ser Gln Tyr Val Pro Tyr Asp
225                 230                 235                 240

Gly Ile Pro Phe Val Asn Ala Gly Ser Arg Ala Val Val Met Glu Cys
                245                 250                 255

Gln Tyr Gly Pro Arg Arg Lys Gly Phe Gln Leu Lys Lys Val Ser Glu
            260                 265                 270

Gln Glu Ser Arg Ser Cys Gln Leu Tyr Lys Ala Thr Cys Pro Ala Arg
        275                 280                 285

Ile Tyr Ile Lys Lys Val Gln Lys Phe Pro Glu Tyr Arg Val Pro Thr
    290                 295                 300

Asp Pro Lys Ile Asp Lys Lys Ile Ile Arg Met Glu Gln Glu Lys Ala
305                 310                 315                 320
```

```
Phe Asn Met Leu Lys Lys Asn Leu Val Asp Ala Gly Gly Val Leu Arg
                325                 330                 335

Trp Tyr Val Gln Leu Pro Thr Gln Gln Ala His Gln Tyr His Glu Leu
            340                 345                 350

Glu Thr Pro Cys Leu Thr Leu Ser Pro Ser Pro Phe Pro Val Ser Ser
        355                 360                 365

Leu Glu Glu Glu Glu Thr Ala Val Arg Asp Glu Asn Cys Ala Leu Pro
    370                 375                 380

Ser Arg Leu His Pro Gln Val Ala His Lys Ile Gln Glu Leu Val Ser
385                 390                 395                 400

Gln Gly Ile Glu Gln Val Tyr Ala Val Arg Lys Gln Leu Ser Pro Ser
                405                 410                 415

Tyr Phe Ile
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<210> 10869
<211> 21
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394298"

<400> 10869

```
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1               5                   10                  15

Glu Ser Lys Thr Ser
            20
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<210> 10870
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2156; "

<220>
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<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000394990"

<400> 10870
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1 5 10 15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu Met Ile Val Ala Ser Pro
20 25 30

Thr Glu Asn Gly Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly
35 40 45

Met Ala Gln Val Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser
50 55 60

Pro Arg Asp Val Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr
65 70 75 80

<210> 10871
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2156; "

<220>
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<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000395276"

<400> 10871
Met Asp Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val
1 5 10 15

Leu Pro Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn
20 25 30

Ile Pro Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe
35 40 45

His Leu Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser
50 55 60

Leu Gly Glu Ser Asn Ala Gln Met Met Ile Val Ala Ser Pro Thr Glu
65 70 75 80

Asn Gly Gln Val Leu Arg Val Ile Pro Pro Thr Gln
85 90

<210> 10872
<211> 649
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2156; "

<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N187; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000396221"

<400> 10872
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1 5 10 15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu Met Ile Val Ala Ser Pro
20 25 30

Thr Glu Asn Gly Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly
35 40 45

Met Ala Gln Val Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser
50 55 60

Pro Arg Asp Val Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr
65 70 75 80

Val Arg Val Asp Thr Leu Ala Asp Asn Thr Ser Asn Tyr Ile Leu His
85 90 95

Pro Gln Thr Ser Phe Pro Leu Pro Lys Lys Ser Val Thr Gly Met Leu
100 105 110

Glu Glu Pro Leu Leu Gly Pro Leu Gln Pro Leu Ser Ser Asn Thr Pro
115 120 125

Ile Trp Ala Cys Arg Leu Arg Ser Cys Glu Lys Ile Gly Asp Ser Tyr
130 135 140

Arg Gly Tyr Cys Val Ser Glu Thr Glu Leu Glu Ser Val Leu Thr Phe
145 150 155 160

His Lys Gln Gln Thr Gln Ser Val Trp Gly Thr Arg Gln Ser Pro Ser
165 170 175

Pro Ala Lys Pro Ala Thr Arg Leu Met Trp Lys Ser Gln Tyr Val Pro
180 185 190

Tyr Asp Gly Ile Pro Phe Val Asn Ala Gly Ser Arg Ala Val Val Met
195 200 205

```
Glu Cys Gln Tyr Gly Pro Arg Arg Lys Gly Phe Gln Leu Lys Lys Val
    210                 215                 220

Ser Glu Gln Glu Ser Arg Ser Cys Gln Leu Tyr Lys Ala Thr Cys Pro
225                 230                 235                 240

Ala Arg Ile Tyr Ile Lys Lys Val Gln Lys Phe Pro Glu Tyr Arg Val
                245                 250                 255

Pro Thr Asp Pro Lys Ile Asp Lys Lys Ile Ile Arg Met Glu Gln Glu
            260                 265                 270

Lys Ala Phe Asn Met Leu Lys Lys Asn Leu Val Asp Ala Gly Gly Val
        275                 280                 285

Leu Arg Trp Tyr Val Gln Leu Pro Thr Gln Gln Ala His Gln Tyr His
    290                 295                 300

Glu Leu Glu Thr Pro Cys Leu Thr Leu Ser Pro Ser Pro Phe Pro Val
305                 310                 315                 320

Ser Ser Leu Glu Glu Glu Glu Thr Ala Val Arg Asp Glu Asn Cys Ala
                325                 330                 335

Leu Pro Ser Arg Leu His Pro Gln Val Ala His Lys Ile Gln Glu Leu
            340                 345                 350

Val Ser Gln Gly Ile Glu Gln Val Tyr Ala Val Arg Lys Gln Leu Arg
        355                 360                 365

Lys Phe Val Glu Arg Glu Leu Phe Lys Pro Asp Glu Val Pro Glu Arg
    370                 375                 380

His Asn Leu Ser Phe Phe Pro Thr Val Asn Asp Ile Lys Asn His Ile
385                 390                 395                 400

His Glu Val Gln Lys Ser Leu Arg Asn Gly Asp Thr Val Tyr Asn Ser
                405                 410                 415

Glu Ile Ile Pro Ala Thr Leu Gln Trp Thr Thr Asp Ser Gly Asn Ile
            420                 425                 430

Leu Lys Glu Thr Met Thr Val Thr Phe Ala Glu Gly Asn Ser Pro Gly
```

```
        435                 440                 445

Glu Ser Ile Thr Thr Lys Val Glu Thr Asn Gln Thr Arg Gly Ser Leu
    450                 455                 460

Ser Pro Glu Pro Thr His Leu Leu Ser Ser Leu Ser Ser Phe Gln Pro
465                 470                 475                 480

Lys Ile Phe Thr Gln Leu Gln Gly Leu Gln Leu Gln Pro Arg Tyr Thr
                485                 490                 495

Ser Pro Asp Glu Ser Pro Ala Val Val Ser Val Asn Asn Gln Pro Ser
            500                 505                 510

Ser Ser Pro Ser Gly Leu Leu Asp Thr Ile Gly Ser Ala Val Met Asn
        515                 520                 525

Asn Asn Ser Leu Leu Leu Gly Gln Ser His Ser Leu Gln Arg Asp Thr
    530                 535                 540

Cys Leu Thr Gln Asn Asn Ser Thr Ala Ser Thr Met Gly Asn Leu Pro
545                 550                 555                 560

Glu Pro Asp Gln Asn Leu Val Ala Met Asp Glu Leu Val Glu Val Gly
                565                 570                 575

Asp Val Glu Asp Thr Gly Asn Leu Glu Gly Thr Val His Arg Ile Leu
            580                 585                 590

Leu Gly Asp Val Gln Thr Ile Pro Ile Gln Ile Ile Asp Asn His Ser
        595                 600                 605

Ala Leu Ile Glu Glu Asn Pro Glu Ser Thr Ile Ser Val Ser Gln Val
    610                 615                 620

Lys Gln Glu Pro Lys Glu Pro Ala Leu Ser Met Glu Ala Lys Lys Thr
625                 630                 635                 640

Val Asp Tyr Lys Lys Leu Ser Ala Thr
                645
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<210> 10873
<211> 72

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: calcium responsive transcription
factor; "

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<400> 10873
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1 5 10 15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
20 25 30

Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
35 40 45

Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn Ile Pro
50 55 60

Gly Pro Leu Thr Gln Thr Gln Thr
65 70

<210> 10874
<211> 38
<212> PRT
<213> Homo sapiens

<220>
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factor; "

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<400> 10874
Met Asp Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val
1   5   10   15

Leu Pro Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn
            20   25   30

Ile Pro Gly Pro Leu Thr
        35

<210> 10875
<211> 33
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcium responsive transcription
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<220>
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<400> 10875
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1   5   10   15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu Gly Phe Phe Leu Trp Thr
            20   25   30

Lys

<210> 10876
<211> 73
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CARF; "

<220>
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<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
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<400> 10876
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1 5 10 15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
20 25 30

Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
35 40 45

Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn Ile Pro
50 55 60

Gly Pro Leu Thr Gln Thr Gln Thr Leu
65 70

<210> 10877
<211> 54
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
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<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
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<400> 10877
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1   5   10   15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
            20   25   30

Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
        35   40   45

Ile Thr Thr Arg Glu Ala
    50

<210> 10878
<211> 725
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Uniprot ID: Q8N187; "

<220>
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<223> /note="ENSP ID: ENSP00000414644"

<400> 10878
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1   5   10   15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
            20   25   30

```
Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
        35                  40                  45

Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn Ile Pro
    50                  55                  60

Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe His Leu
65                  70                  75                  80

Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser Leu Gly
                85                  90                  95

Glu Ser Asn Ala Gln Met Met Ile Val Ala Ser Pro Thr Glu Asn Gly
            100                 105                 110

Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly Met Ala Gln Val
        115                 120                 125

Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser Pro Arg Asp Val
    130                 135                 140

Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr Val Arg Val Asp
145                 150                 155                 160

Thr Leu Ala Asp Asn Thr Ser Asn Tyr Ile Leu His Pro Gln Thr Ser
                165                 170                 175

Phe Pro Leu Pro Lys Lys Ser Val Thr Gly Met Leu Glu Glu Pro Leu
            180                 185                 190

Leu Gly Pro Leu Gln Pro Leu Ser Ser Asn Thr Pro Ile Trp Ala Cys
        195                 200                 205

Arg Leu Arg Ser Cys Glu Lys Ile Gly Asp Ser Tyr Arg Gly Tyr Cys
    210                 215                 220

Val Ser Glu Thr Glu Leu Glu Ser Val Leu Thr Phe His Lys Gln Gln
225                 230                 235                 240

Thr Gln Ser Val Trp Gly Thr Arg Gln Ser Pro Ser Pro Ala Lys Pro
                245                 250                 255

Ala Thr Arg Leu Met Trp Lys Ser Gln Tyr Val Pro Tyr Asp Gly Ile
```

260 265 270

Pro Phe Val Asn Ala Gly Ser Arg Ala Val Val Met Glu Cys Gln Tyr
275 280 285

Gly Pro Arg Arg Lys Gly Phe Gln Leu Lys Lys Val Ser Glu Gln Glu
290 295 300

Ser Arg Ser Cys Gln Leu Tyr Lys Ala Thr Cys Pro Ala Arg Ile Tyr
305 310 315 320

Ile Lys Lys Val Gln Lys Phe Pro Glu Tyr Arg Val Pro Thr Asp Pro
325 330 335

Lys Ile Asp Lys Lys Ile Ile Arg Met Glu Gln Glu Lys Ala Phe Asn
340 345 350

Met Leu Lys Lys Asn Leu Val Asp Ala Gly Gly Val Leu Arg Trp Tyr
355 360 365

Val Gln Leu Pro Thr Gln Gln Ala His Gln Tyr His Glu Leu Glu Thr
370 375 380

Pro Cys Leu Thr Leu Ser Pro Ser Pro Phe Pro Val Ser Ser Leu Glu
385 390 395 400

Glu Glu Glu Thr Ala Val Arg Asp Glu Asn Cys Ala Leu Pro Ser Arg
405 410 415

Leu His Pro Gln Val Ala His Lys Ile Gln Glu Leu Val Ser Gln Gly
420 425 430

Ile Glu Gln Val Tyr Ala Val Arg Lys Gln Leu Arg Lys Phe Val Glu
435 440 445

Arg Glu Leu Phe Lys Pro Asp Glu Val Pro Glu Arg His Asn Leu Ser
450 455 460

Phe Phe Pro Thr Val Asn Asp Ile Lys Asn His Ile His Glu Val Gln
465 470 475 480

Lys Ser Leu Arg Asn Gly Asp Thr Val Tyr Asn Ser Glu Ile Ile Pro
485 490 495

```
Ala Thr Leu Gln Trp Thr Thr Asp Ser Gly Asn Ile Leu Lys Glu Thr
            500                 505                 510

Met Thr Val Thr Phe Ala Glu Gly Asn Ser Pro Gly Glu Ser Ile Thr
        515                 520                 525

Thr Lys Val Glu Thr Asn Gln Thr Arg Gly Ser Leu Ser Pro Glu Pro
    530                 535                 540

Thr His Leu Leu Ser Ser Leu Ser Ser Phe Gln Pro Lys Ile Phe Thr
545                 550                 555                 560

Gln Leu Gln Gly Leu Gln Leu Gln Pro Arg Tyr Thr Ser Pro Asp Glu
                565                 570                 575

Ser Pro Ala Val Val Ser Val Asn Asn Gln Pro Ser Ser Ser Pro Ser
            580                 585                 590

Gly Leu Leu Asp Thr Ile Gly Ser Ala Val Met Asn Asn Asn Ser Leu
        595                 600                 605

Leu Leu Gly Gln Ser His Ser Leu Gln Arg Asp Thr Cys Leu Thr Gln
    610                 615                 620

Asn Asn Ser Thr Ala Ser Thr Met Gly Asn Leu Pro Glu Pro Asp Gln
625                 630                 635                 640

Asn Leu Val Ala Met Asp Glu Leu Val Glu Val Gly Asp Val Glu Asp
                645                 650                 655

Thr Gly Asn Leu Glu Gly Thr Val His Arg Ile Leu Leu Gly Asp Val
            660                 665                 670

Gln Thr Ile Pro Ile Gln Ile Ile Asp Asn His Ser Ala Leu Ile Glu
        675                 680                 685

Glu Asn Pro Glu Ser Thr Ile Ser Val Ser Gln Val Lys Gln Glu Pro
    690                 695                 700

Lys Glu Pro Ala Leu Ser Met Glu Ala Lys Lys Thr Val Asp Tyr Lys
705                 710                 715                 720
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Lys Leu Ser Ala Thr
725

<210> 10879
<211> 189
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription factor; "

<220>
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<223> /note="ENSP ID: ENSP00000414789"

<400> 10879
Met Asp Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val
1 5 10 15

Leu Pro Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn
20 25 30

Ile Pro Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe
35 40 45

His Leu Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser
50 55 60

Leu Gly Glu Ser Asn Ala Gln Met Met Ile Val Ala Ser Pro Thr Glu
65 70 75 80

Asn Gly Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly Met Ala
85 90 95

Gln Val Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser Pro Arg
100 105 110

Asp Val Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr Val Arg

115 120 125

Val Asp Thr Leu Ala Asp Asn Thr Ser Asn Tyr Ile Leu His Pro Gln
130 135 140

Thr Ser Phe Pro Leu Pro Lys Lys Ser Val Thr Gly Met Leu Glu Glu
145 150 155 160

Pro Leu Leu Gly Pro Leu Gln Pro Leu Ser Ser Asn Thr Pro Ile Trp
165 170 175

Ala Cys Arg Leu Arg Ser Cys Glu Gly Val Glu Leu Trp
180 185

<210> 10880
<211> 207
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2156; "

<220>
<221> source
<223> /note="Gene Symbol: CARF; "

<220>
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<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N187; "

<220>
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<223> /note="ENSP ID: ENSP00000415948"

<400> 10880
Met Ile Val Ala Ser Pro Thr Glu Asn Gly Gln Val Leu Arg Val Ile
1 5 10 15

Pro Pro Thr Gln Thr Gly Met Ala Gln Val Ile Ile Pro Gln Gly Gln
20 25 30

Leu Val Asp Val Asn Ser Pro Arg Asp Val Pro Glu Glu Lys Pro Ser
35 40 45

```
Asn Arg Asn Leu Pro Thr Val Arg Val Asp Thr Leu Ala Asp Asn Thr
    50                  55                  60

Ser Asn Tyr Ile Leu His Pro Gln Thr Ser Phe Pro Leu Pro Lys Lys
65                  70                  75                  80

Ser Val Thr Gly Met Leu Glu Glu Pro Leu Leu Gly Pro Leu Gln Pro
                85                  90                  95

Leu Ser Ser Asn Thr Pro Ile Trp Ala Cys Arg Leu Arg Ser Cys Glu
            100                 105                 110

Lys Ile Gly Asp Ser Tyr Arg Gly Tyr Cys Val Ser Glu Thr Glu Leu
        115                 120                 125

Glu Ser Val Leu Thr Phe His Lys Gln Gln Thr Gln Ser Val Trp Gly
    130                 135                 140

Thr Arg Gln Ser Pro Ser Pro Ala Lys Pro Ala Thr Arg Leu Met Trp
145                 150                 155                 160

Lys Ser Gln Tyr Val Pro Tyr Asp Gly Ile Pro Phe Val Asn Ala Gly
                165                 170                 175

Thr Phe Leu Lys Asn Tyr Phe Lys Arg Phe Ser Ser Ser His Ser Pro
            180                 185                 190

Leu Ser Lys Cys Asp Phe Pro Lys Val Ile Thr Phe Leu Phe Trp
        195                 200                 205


<210> 10881
<211> 623
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2156; "

<220>
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<223> /note="Gene Symbol: CARF; "

<220>
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<223> /note="Gene Name: calcium responsive transcription
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factor; "

<220>
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<223> /note="ENSP ID: ENSP00000416160"

<400> 10881

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Met Ile Val Ala Ser Pro Thr Glu Asn Gly Gln Val Leu Arg Val Ile
1               5                  10                  15

Pro Pro Thr Gln Thr Gly Met Ala Gln Val Ile Ile Pro Gln Gly Gln
            20                  25                  30

Leu Val Asp Val Asn Ser Pro Arg Asp Val Pro Glu Glu Lys Pro Ser
        35                  40                  45

Asn Arg Asn Leu Pro Thr Val Arg Val Asp Thr Leu Ala Asp Asn Thr
    50                  55                  60

Ser Asn Tyr Ile Leu His Pro Gln Thr Ser Phe Pro Leu Pro Lys Lys
65                  70                  75                  80

Ser Val Thr Gly Met Leu Glu Glu Pro Leu Leu Gly Pro Leu Gln Pro
                85                  90                  95

Leu Ser Ser Asn Thr Pro Ile Trp Ala Cys Arg Leu Arg Ser Cys Glu
            100                 105                 110

Lys Ile Gly Asp Ser Tyr Arg Gly Tyr Cys Val Ser Glu Thr Glu Leu
        115                 120                 125

Glu Ser Val Leu Thr Phe His Lys Gln Gln Thr Gln Ser Val Trp Gly
    130                 135                 140

Thr Arg Gln Ser Pro Ser Pro Ala Lys Pro Ala Thr Arg Leu Met Trp
145                 150                 155                 160

Lys Ser Gln Tyr Val Pro Tyr Asp Gly Ile Pro Phe Val Asn Ala Gly
                165                 170                 175

Ser Arg Ala Val Val Met Glu Cys Gln Tyr Gly Pro Arg Arg Lys Gly
            180                 185                 190

Phe Gln Leu Lys Lys Val Ser Glu Gln Glu Ser Arg Ser Cys Gln Leu
        195                 200                 205
```

```
Tyr Lys Ala Thr Cys Pro Ala Arg Ile Tyr Ile Lys Lys Val Gln Lys
    210                 215                 220

Phe Pro Glu Tyr Arg Val Pro Thr Asp Pro Lys Ile Asp Lys Lys Ile
225                 230                 235                 240

Ile Arg Met Glu Gln Glu Lys Ala Phe Asn Met Leu Lys Lys Asn Leu
                245                 250                 255

Val Asp Ala Gly Gly Val Leu Arg Trp Tyr Val Gln Leu Pro Thr Gln
            260                 265                 270

Gln Ala His Gln Tyr His Glu Leu Glu Thr Pro Cys Leu Thr Leu Ser
        275                 280                 285

Pro Ser Pro Phe Pro Val Ser Ser Leu Glu Glu Glu Glu Thr Ala Val
    290                 295                 300

Arg Asp Glu Asn Cys Ala Leu Pro Ser Arg Leu His Pro Gln Val Ala
305                 310                 315                 320

His Lys Ile Gln Glu Leu Val Ser Gln Gly Ile Glu Gln Val Tyr Ala
                325                 330                 335

Val Arg Lys Gln Leu Arg Lys Phe Val Glu Arg Glu Leu Phe Lys Pro
            340                 345                 350

Asp Glu Val Pro Glu Arg His Asn Leu Ser Phe Phe Pro Thr Val Asn
        355                 360                 365

Asp Ile Lys Asn His Ile His Glu Val Gln Lys Ser Leu Arg Asn Gly
    370                 375                 380

Asp Thr Val Tyr Asn Ser Glu Ile Ile Pro Ala Thr Leu Gln Trp Thr
385                 390                 395                 400

Thr Asp Ser Gly Asn Ile Leu Lys Glu Thr Met Thr Val Thr Phe Ala
                405                 410                 415

Glu Gly Asn Ser Pro Gly Glu Ser Ile Thr Thr Lys Val Glu Thr Asn
            420                 425                 430
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```
Gln Thr Arg Gly Ser Leu Ser Pro Glu Pro Thr His Leu Leu Ser Ser
        435                 440                 445

Leu Ser Ser Phe Gln Pro Lys Ile Phe Thr Gln Leu Gln Gly Leu Gln
    450                 455                 460

Leu Gln Pro Arg Tyr Thr Ser Pro Asp Glu Ser Pro Ala Val Val Ser
465                 470                 475                 480

Val Asn Asn Gln Pro Ser Ser Ser Pro Ser Gly Leu Leu Asp Thr Ile
                485                 490                 495

Gly Ser Ala Val Met Asn Asn Asn Ser Leu Leu Leu Gly Gln Ser His
            500                 505                 510

Ser Leu Gln Arg Asp Thr Cys Leu Thr Gln Asn Asn Ser Thr Ala Ser
        515                 520                 525

Thr Met Gly Asn Leu Pro Glu Pro Asp Gln Asn Leu Val Ala Met Asp
    530                 535                 540

Glu Leu Val Glu Val Gly Asp Val Glu Asp Thr Gly Asn Leu Glu Gly
545                 550                 555                 560

Thr Val His Arg Ile Leu Leu Gly Asp Val Gln Thr Ile Pro Ile Gln
                565                 570                 575

Ile Ile Asp Asn His Ser Ala Leu Ile Glu Glu Asn Pro Glu Ser Thr
            580                 585                 590

Ile Ser Val Ser Gln Val Lys Gln Glu Pro Lys Glu Pro Ala Leu Ser
        595                 600                 605

Met Glu Ala Lys Lys Thr Val Asp Tyr Lys Lys Leu Ser Ala Thr
    610                 615                 620


<210> 10882
<211> 309
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2156; "
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<220>
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<223> /note="Gene Symbol: CARF; "

<220>
<221> source
<223> /note="Gene Name: calcium responsive transcription
factor; "

<220>
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<400> 10882
Met Glu Gln Ser Asn Asp Ser Leu Arg Val Asn His Asn Asp Gly Glu
1 5 10 15

Glu Ser Lys Thr Ser Ala Gln Val Phe Glu His Leu Ile Cys Met Asp
20 25 30

Ser Arg Asp Ser Ser Phe Gly Gln Asn Asp Ser Pro Thr Val Leu Pro
35 40 45

Ile Thr Thr Arg Glu Ala Asn Asn Ser Leu Ile Ser Gln Asn Ile Pro
50 55 60

Gly Pro Leu Thr Gln Thr Gln Thr Leu Ser Ala Glu Gln Phe His Leu
65 70 75 80

Val Asp Gln Asn Gly Gln Ala Ile Gln Tyr Glu Leu Gln Ser Leu Gly
85 90 95

Glu Ser Asn Ala Gln Met Met Ile Val Ala Ser Pro Thr Glu Asn Gly
100 105 110

Gln Val Leu Arg Val Ile Pro Pro Thr Gln Thr Gly Met Ala Gln Val
115 120 125

Ile Ile Pro Gln Gly Gln Leu Val Asp Val Asn Ser Pro Arg Asp Val
130 135 140

Pro Glu Glu Lys Pro Ser Asn Arg Asn Leu Pro Thr Val Arg Val Asp
145 150 155 160

Thr Leu Ala Asp Asn Thr Ser Asn Tyr Ile Leu His Pro Gln Thr Ser
165 170 175

```
Phe Pro Leu Pro Lys Lys Ser Val Thr Gly Met Leu Glu Glu Pro Leu
            180                 185                 190

Leu Gly Pro Leu Gln Pro Leu Ser Ser Asn Thr Pro Ile Trp Ala Cys
        195                 200                 205

Arg Leu Arg Ser Cys Glu Lys Ile Gly Asp Ser Tyr Arg Gly Tyr Cys
    210                 215                 220

Val Ser Glu Thr Glu Leu Glu Ser Val Leu Thr Phe His Lys Gln Gln
225                 230                 235                 240

Thr Gln Ser Val Trp Gly Thr Arg Gln Ser Pro Ser Pro Ala Lys Pro
                245                 250                 255

Ala Thr Arg Leu Met Trp Lys Ser Gln Tyr Val Pro Tyr Asp Gly Ile
            260                 265                 270

Pro Phe Val Asn Ala Gly Thr Phe Leu Lys Asn Tyr Phe Lys Arg Phe
        275                 280                 285

Ser Ser Ser His Ser Pro Leu Ser Lys Cys Asp Phe Pro Lys Val Ile
    290                 295                 300

Thr Phe Leu Phe Trp
305
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<210> 10883
<211> 370
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CAMK1; "

<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase I; "

<220>

<221> source
<223> /note="Uniprot ID: Q14012; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000256460"

<400> 10883
Met Leu Gly Ala Val Glu Gly Pro Arg Trp Lys Gln Ala Glu Asp Ile
1   5   10   15

Arg Asp Ile Tyr Asp Phe Arg Asp Val Leu Gly Thr Gly Ala Phe Ser
            20   25   30

Glu Val Ile Leu Ala Glu Asp Lys Arg Thr Gln Lys Leu Val Ala Ile
        35   40   45

Lys Cys Ile Ala Lys Glu Ala Leu Glu Gly Lys Glu Gly Ser Met Glu
    50   55   60

Asn Glu Ile Ala Val Leu His Lys Ile Lys His Pro Asn Ile Val Ala
65   70   75   80

Leu Asp Asp Ile Tyr Glu Ser Gly Gly His Leu Tyr Leu Ile Met Gln
                85   90   95

Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Val Glu Lys Gly Phe
            100   105   110

Tyr Thr Glu Arg Asp Ala Ser Arg Leu Ile Phe Gln Val Leu Asp Ala
        115   120   125

Val Lys Tyr Leu His Asp Leu Gly Ile Val His Arg Asp Leu Lys Pro
    130   135   140

Glu Asn Leu Leu Tyr Tyr Ser Leu Asp Glu Asp Ser Lys Ile Met Ile
145   150   155   160

Ser Asp Phe Gly Leu Ser Lys Met Glu Asp Pro Gly Ser Val Leu Ser
                165   170   175

Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro Glu Val Leu Ala Gln
            180   185   190

Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser Ile Gly Val Ile Ala

```
        195                 200                 205

Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Asp Glu Asn Asp Ala
    210                 215                 220

Lys Leu Phe Glu Gln Ile Leu Lys Ala Glu Tyr Glu Phe Asp Ser Pro
225                 230                 235                 240

Tyr Trp Asp Asp Ile Ser Asp Ser Ala Lys Asp Phe Ile Arg His Leu
                245                 250                 255

Met Glu Lys Asp Pro Glu Lys Arg Phe Thr Cys Glu Gln Ala Leu Gln
            260                 265                 270

His Pro Trp Ile Ala Gly Asp Thr Ala Leu Asp Lys Asn Ile His Gln
        275                 280                 285

Ser Val Ser Glu Gln Ile Lys Lys Asn Phe Ala Lys Ser Lys Trp Lys
    290                 295                 300

Gln Ala Phe Asn Ala Thr Ala Val Val Arg His Met Arg Lys Leu Gln
305                 310                 315                 320

Leu Gly Thr Ser Gln Glu Gly Gln Gly Gln Thr Ala Ser His Gly Glu
                325                 330                 335

Leu Leu Thr Pro Val Ala Gly Gly Pro Ala Ala Gly Cys Cys Cys Arg
            340                 345                 350

Asp Cys Cys Val Glu Pro Gly Thr Glu Leu Ser Pro Thr Leu Pro His
        355                 360                 365

Gln Leu
    370
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<210> 10884
<211> 39
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CAMK1; "

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<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase I; "

<220>
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<223> /note="ENSP ID: ENSP00000380447"

<400> 10884
Met Leu Gly Ala Val Glu Gly Pro Arg Trp Lys Gln Ala Glu Asp Ile
1 5 10 15

Arg Asp Ile Tyr Asp Phe Arg Asp Val Leu Gly Thr Leu Ser Pro Gly
20 25 30

Gly Gly Lys Asp Asp Arg His
35

<210> 10885
<211> 260
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2157; "

<220>
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<223> /note="Gene Symbol: CAMK1; "

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<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase I; "

<220>
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<223> /note="ENSP ID: ENSP00000393238"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10885
Xaa Asp Ser Lys Ile Met Ile Ser Asp Phe Gly Leu Ser Lys Met Glu
1 5 10 15

```
Asp Pro Gly Ser Val Leu Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val
            20                  25                  30

Ala Pro Glu Val Leu Ala Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys
        35                  40                  45

Trp Ser Ile Gly Val Ile Ala Tyr Ile Leu Leu Cys Gly Tyr Pro Pro
    50                  55                  60

Phe Tyr Asp Glu Asn Asp Ala Lys Leu Phe Glu Gln Ile Leu Lys Ala
65                  70                  75                  80

Glu Tyr Glu Phe Asp Ser Pro Tyr Trp Asp Asp Ile Ser Asp Ser Ala
                85                  90                  95

Lys Asp Phe Ile Arg His Leu Met Glu Lys Asp Pro Glu Lys Arg Phe
            100                 105                 110

Thr Cys Glu Gln Ala Leu Gln His Pro Trp Ile Ala Gly Asp Thr Ala
        115                 120                 125

Leu Asp Lys Asn Ile His Gln Ser Val Ser Glu Gln Ile Lys Lys Asn
    130                 135                 140

Phe Ala Lys Ser Lys Trp Lys Gln Ala Phe Asn Ala Thr Ala Val Val
145                 150                 155                 160

Arg His Met Arg Lys Leu Gln Leu Gly Thr Ser Gln Glu Gly Gln Gly
                165                 170                 175

Gln Thr Ala Ser His Gly Glu Leu Leu Thr Pro Val Ala Gly Gly Glu
            180                 185                 190

Glu Arg Ala Leu Gln Lys Gly Met Gly Gly Pro Gln Arg Cys Thr Arg
        195                 200                 205

Ala Gly Val Glu Gly Leu Pro Leu Arg Pro Pro Leu Phe Cys Leu Pro
    210                 215                 220

Met Gln Gly Arg Gln Leu Ala Val Ala Val Glu Thr Ala Ala Trp Ser
225                 230                 235                 240
```

```
Arg Ala Gln Asn Cys Pro Pro His Cys Pro Thr Ser Ser Arg Ala Leu
                245                 250                 255


Asp Leu Gly Ser
            260


<210> 10886
<211> 122
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt
      kinase I; "

<220>
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<223> /note="ENSP ID: ENSP00000404587"

<400> 10886
Met Leu Gly Ala Val Glu Gly Pro Arg Trp Lys Gln Ala Glu Asp Ile
1               5                   10                  15


Arg Asp Ile Tyr Asp Phe Arg Asp Val Leu Gly Thr Ile Lys His Pro
            20                  25                  30


Asn Ile Val Ala Leu Asp Asp Ile Tyr Glu Ser Gly Gly His Leu Tyr
        35                  40                  45


Leu Ile Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Val
    50                  55                  60


Glu Lys Gly Phe Tyr Thr Glu Arg Asp Ala Ser Arg Leu Ile Phe Gln
65                  70                  75                  80


Val Leu Asp Ala Val Lys Tyr Leu His Asp Leu Gly Ile Val His Arg
                85                  90                  95


Asp Leu Lys Pro Glu Asn Leu Leu Tyr Tyr Ser Leu Asp Glu Asp Ser
            100                 105                 110
```

Lys Ile Met Ile Ser Asp Phe Gly Leu Ser
115 120

<210> 10887
<211> 357
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2158; "

<220>
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<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase ID; "

<220>
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<223> /note="Uniprot ID: Q8IU85; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000368122"

<400> 10887
Met Ala Arg Glu Asn Gly Glu Ser Ser Ser Ser Trp Lys Lys Gln Ala
1 5 10 15

Glu Asp Ile Lys Lys Ile Phe Glu Phe Lys Glu Thr Leu Gly Thr Gly
20 25 30

Ala Phe Ser Glu Val Val Leu Ala Glu Glu Lys Ala Thr Gly Lys Leu
35 40 45

Phe Ala Val Lys Cys Ile Pro Lys Lys Ala Leu Lys Gly Lys Glu Ser
50 55 60

Ser Ile Glu Asn Glu Ile Ala Val Leu Arg Lys Ile Lys His Glu Asn
65 70 75 80

Ile Val Ala Leu Glu Asp Ile Tyr Glu Ser Pro Asn His Leu Tyr Leu
85 90 95

```
Val Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Val Glu
            100                 105                 110

Lys Gly Phe Tyr Thr Glu Lys Asp Ala Ser Thr Leu Ile Arg Gln Val
        115                 120                 125

Leu Asp Ala Val Tyr Tyr Leu His Arg Met Gly Ile Val His Arg Asp
    130                 135                 140

Leu Lys Pro Glu Asn Leu Leu Tyr Tyr Ser Gln Asp Glu Glu Ser Lys
145                 150                 155                 160

Ile Met Ile Ser Asp Phe Gly Leu Ser Lys Met Glu Gly Lys Gly Asp
                165                 170                 175

Val Met Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro Glu Val
            180                 185                 190

Leu Ala Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser Ile Gly
        195                 200                 205

Val Ile Ala Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Asp Glu
    210                 215                 220

Asn Asp Ser Lys Leu Phe Glu Gln Ile Leu Lys Ala Glu Tyr Glu Phe
225                 230                 235                 240

Asp Ser Pro Tyr Trp Asp Asp Ile Ser Asp Ser Ala Lys Asp Phe Ile
                245                 250                 255

Arg Asn Leu Met Glu Lys Asp Pro Asn Lys Arg Tyr Thr Cys Glu Gln
            260                 265                 270

Ala Ala Arg His Pro Trp Ile Ala Gly Asp Thr Ala Leu Asn Lys Asn
        275                 280                 285

Ile His Glu Ser Val Ser Ala Gln Ile Arg Lys Asn Phe Ala Lys Ser
    290                 295                 300

Lys Trp Arg Gln Ala Phe Asn Ala Thr Ala Val Val Arg His Met Arg
305                 310                 315                 320

Lys Leu His Leu Gly Ser Ser Leu Asp Ser Ser Asn Ala Ser Val Ser
```

325 330 335

Ser Ser Leu Ser Leu Ala Ser Gln Lys Asp Cys Ala Tyr Val Ala Lys
340 345 350

Pro Glu Ser Leu Ser
355

<210> 10888
<211> 291
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CAMK1D; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase ID; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478861"

<400> 10888
Tyr Cys Leu Met Gln Arg Val Ser Gly Gly Glu Leu Phe Asp Arg Ile
1 5 10 15

Val Glu Lys Gly Phe Tyr Thr Glu Lys Asp Ala Ser Thr Leu Ile Arg
20 25 30

Gln Val Leu Asp Ala Val Tyr Tyr Leu His Arg Met Gly Ile Val His
35 40 45

Arg Asp Leu Lys Pro Glu Asn Leu Leu Tyr Tyr Ser Gln Asp Glu Glu
50 55 60

Ser Lys Ile Met Ile Ser Asp Phe Gly Leu Ser Lys Met Glu Gly Lys
65 70 75 80

Gly Asp Val Met Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro
85 90 95

```
Glu Val Leu Ala Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser
            100                 105                 110

Ile Gly Val Ile Ala Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr
        115                 120                 125

Asp Glu Asn Asp Ser Lys Leu Phe Glu Gln Ile Leu Lys Ala Glu Tyr
    130                 135                 140

Glu Phe Asp Ser Pro Tyr Trp Asp Asp Ile Ser Asp Ser Ala Lys Asp
145                 150                 155                 160

Phe Ile Arg Asn Leu Met Glu Lys Asp Pro Asn Lys Arg Tyr Thr Cys
                165                 170                 175

Glu Gln Ala Ala Arg His Pro Trp Ile Ala Gly Asp Thr Ala Leu Asn
            180                 185                 190

Lys Asn Ile His Glu Ser Val Ser Ala Gln Ile Arg Lys Asn Phe Ala
        195                 200                 205

Lys Ser Lys Trp Arg Gln Ala Phe Asn Ala Thr Ala Val Val Arg His
    210                 215                 220

Met Arg Lys Leu His Leu Gly Ser Ser Leu Asp Ser Ser Asn Ala Ser
225                 230                 235                 240

Val Ser Ser Ser Leu Ser Leu Ala Ser Gln Lys Asp Cys Leu Ala Pro
                245                 250                 255

Ser Thr Leu Cys Ser Phe Ile Ser Ser Ser Ser Gly Val Ser Gly Val
            260                 265                 270

Gly Ala Glu Arg Arg Pro Arg Pro Thr Thr Val Thr Ala Val His Ser
        275                 280                 285

Gly Ser Lys
    290
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<210> 10889
<211> 385
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2158; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK1D; "

<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase ID; "

<220>
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<223> /note="Uniprot ID: Q8IU85; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000478874"

<400> 10889
Met Ala Arg Glu Asn Gly Glu Ser Ser Ser Ser Trp Lys Lys Gln Ala
1   5   10   15

Glu Asp Ile Lys Lys Ile Phe Glu Phe Lys Glu Thr Leu Gly Thr Gly
            20   25   30

Ala Phe Ser Glu Val Val Leu Ala Glu Glu Lys Ala Thr Gly Lys Leu
        35   40   45

Phe Ala Val Lys Cys Ile Pro Lys Lys Ala Leu Lys Gly Lys Glu Ser
    50   55   60

Ser Ile Glu Asn Glu Ile Ala Val Leu Arg Lys Ile Lys His Glu Asn
65   70   75   80

Ile Val Ala Leu Glu Asp Ile Tyr Glu Ser Pro Asn His Leu Tyr Leu
                85   90   95

Val Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Val Glu
            100   105   110

Lys Gly Phe Tyr Thr Glu Lys Asp Ala Ser Thr Leu Ile Arg Gln Val
        115   120   125

Leu Asp Ala Val Tyr Tyr Leu His Arg Met Gly Ile Val His Arg Asp
    130   135   140

```
Leu Lys Pro Glu Asn Leu Leu Tyr Tyr Ser Gln Asp Glu Glu Ser Lys
145                 150                 155                 160

Ile Met Ile Ser Asp Phe Gly Leu Ser Lys Met Glu Gly Lys Gly Asp
                165                 170                 175

Val Met Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro Glu Val
            180                 185                 190

Leu Ala Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser Ile Gly
        195                 200                 205

Val Ile Ala Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Asp Glu
    210                 215                 220

Asn Asp Ser Lys Leu Phe Glu Gln Ile Leu Lys Ala Glu Tyr Glu Phe
225                 230                 235                 240

Asp Ser Pro Tyr Trp Asp Asp Ile Ser Asp Ser Ala Lys Asp Phe Ile
                245                 250                 255

Arg Asn Leu Met Glu Lys Asp Pro Asn Lys Arg Tyr Thr Cys Glu Gln
            260                 265                 270

Ala Ala Arg His Pro Trp Ile Ala Gly Asp Thr Ala Leu Asn Lys Asn
        275                 280                 285

Ile His Glu Ser Val Ser Ala Gln Ile Arg Lys Asn Phe Ala Lys Ser
    290                 295                 300

Lys Trp Arg Gln Ala Phe Asn Ala Thr Ala Val Val Arg His Met Arg
305                 310                 315                 320

Lys Leu His Leu Gly Ser Ser Leu Asp Ser Ser Asn Ala Ser Val Ser
                325                 330                 335

Ser Ser Leu Ser Leu Ala Ser Gln Lys Asp Cys Leu Ala Pro Ser Thr
            340                 345                 350

Leu Cys Ser Phe Ile Ser Ser Ser Ser Gly Val Ser Gly Val Gly Ala
        355                 360                 365
```

Glu Arg Arg Pro Arg Pro Thr Thr Val Thr Ala Val His Ser Gly Ser
370 375 380

Lys
385

<210> 10890
<211> 476
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2159; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK1G; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase IG; "

<220>
<221> source
<223> /note="Uniprot ID: Q96NX5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000009105"

<400> 10890
Met Gly Arg Lys Glu Glu Asp Asp Cys Ser Ser Trp Lys Lys Gln Thr
1 5 10 15

Thr Asn Ile Arg Lys Thr Phe Ile Phe Met Glu Val Leu Gly Ser Gly
20 25 30

Ala Phe Ser Glu Val Phe Leu Val Lys Gln Arg Leu Thr Gly Lys Leu
35 40 45

Phe Ala Leu Lys Cys Ile Lys Lys Ser Pro Ala Phe Arg Asp Ser Ser
50 55 60

Leu Glu Asn Glu Ile Ala Val Leu Lys Lys Ile Lys His Glu Asn Ile
65 70 75 80

Val Thr Leu Glu Asp Ile Tyr Glu Ser Thr Thr His Tyr Tyr Leu Val

```
                85                  90                  95

Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Leu Glu Arg
            100                 105                 110

Gly Val Tyr Thr Glu Lys Asp Ala Ser Leu Val Ile Gln Gln Val Leu
        115                 120                 125

Ser Ala Val Lys Tyr Leu His Glu Asn Gly Ile Val His Arg Asp Leu
    130                 135                 140

Lys Pro Glu Asn Leu Leu Tyr Leu Thr Pro Glu Glu Asn Ser Lys Ile
145                 150                 155                 160

Met Ile Thr Asp Phe Gly Leu Ser Lys Met Glu Gln Asn Gly Ile Met
                165                 170                 175

Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro Glu Val Leu Ala
            180                 185                 190

Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser Ile Gly Val Ile
        195                 200                 205

Thr Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Glu Glu Thr Glu
    210                 215                 220

Ser Lys Leu Phe Glu Lys Ile Lys Glu Gly Tyr Tyr Glu Phe Glu Ser
225                 230                 235                 240

Pro Phe Trp Asp Asp Ile Ser Glu Ser Ala Lys Asp Phe Ile Cys His
                245                 250                 255

Leu Leu Glu Lys Asp Pro Asn Glu Arg Tyr Thr Cys Glu Lys Ala Leu
            260                 265                 270

Ser His Pro Trp Ile Asp Gly Asn Thr Ala Leu His Arg Asp Ile Tyr
        275                 280                 285

Pro Ser Val Ser Leu Gln Ile Gln Lys Asn Phe Ala Lys Ser Lys Trp
    290                 295                 300

Arg Gln Ala Phe Asn Ala Ala Ala Val Val His His Met Arg Lys Leu
305                 310                 315                 320
```

```
His Met Asn Leu His Ser Pro Gly Val Arg Pro Glu Val Glu Asn Arg
                325                 330                 335

Pro Pro Glu Thr Gln Ala Ser Glu Thr Ser Arg Pro Ser Ser Pro Glu
            340                 345                 350

Ile Thr Ile Thr Glu Ala Pro Val Leu Asp His Ser Val Ala Leu Pro
        355                 360                 365

Ala Leu Thr Gln Leu Pro Cys Gln His Gly Arg Arg Pro Thr Ala Pro
    370                 375                 380

Gly Gly Arg Ser Leu Asn Cys Leu Val Asn Gly Ser Leu His Ile Ser
385                 390                 395                 400

Ser Ser Leu Val Pro Met His Gln Gly Ser Leu Ala Ala Gly Pro Cys
                405                 410                 415

Gly Cys Cys Ser Ser Cys Leu Asn Ile Gly Ser Lys Gly Lys Ser Ser
            420                 425                 430

Tyr Cys Ser Glu Pro Thr Leu Leu Lys Lys Ala Asn Lys Lys Gln Asn
        435                 440                 445

Phe Lys Ser Glu Val Met Val Pro Val Lys Ala Ser Gly Ser Ser His
    450                 455                 460

Cys Arg Ala Gly Gln Thr Gly Val Cys Leu Ile Met
465                 470                 475


<210> 10891
<211> 476
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2159; "

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<223> /note="Gene Symbol: CAMK1G; "

<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase IG; "

<220>
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<223> /note="Uniprot ID: Q96NX5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354861"

<400> 10891

```
Met Gly Arg Lys Glu Glu Asp Asp Cys Ser Ser Trp Lys Lys Gln Thr
1               5                  10                  15

Thr Asn Ile Arg Lys Thr Phe Ile Phe Met Glu Val Leu Gly Ser Gly
            20                  25                  30

Ala Phe Ser Glu Val Phe Leu Val Lys Gln Arg Leu Thr Gly Lys Leu
        35                  40                  45

Phe Ala Leu Lys Cys Ile Lys Lys Ser Pro Ala Phe Arg Asp Ser Ser
    50                  55                  60

Leu Glu Asn Glu Ile Ala Val Leu Lys Lys Ile Lys His Glu Asn Ile
65                  70                  75                  80

Val Thr Leu Glu Asp Ile Tyr Glu Ser Thr Thr His Tyr Tyr Leu Val
                85                  90                  95

Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Leu Glu Arg
            100                 105                 110

Gly Val Tyr Thr Glu Lys Asp Ala Ser Leu Val Ile Gln Gln Val Leu
        115                 120                 125

Ser Ala Val Lys Tyr Leu His Glu Asn Gly Ile Val His Arg Asp Leu
    130                 135                 140

Lys Pro Glu Asn Leu Leu Tyr Leu Thr Pro Glu Glu Asn Ser Lys Ile
145                 150                 155                 160

Met Ile Thr Asp Phe Gly Leu Ser Lys Met Glu Gln Asn Gly Ile Met
                165                 170                 175

Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro Glu Val Leu Ala
```

```
            180                 185                 190

Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser Ile Gly Val Ile
        195                 200                 205

Thr Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Glu Glu Thr Glu
    210                 215                 220

Ser Lys Leu Phe Glu Lys Ile Lys Glu Gly Tyr Tyr Glu Phe Glu Ser
225                 230                 235                 240

Pro Phe Trp Asp Asp Ile Ser Glu Ser Ala Lys Asp Phe Ile Cys His
                245                 250                 255

Leu Leu Glu Lys Asp Pro Asn Glu Arg Tyr Thr Cys Glu Lys Ala Leu
            260                 265                 270

Ser His Pro Trp Ile Asp Gly Asn Thr Ala Leu His Arg Asp Ile Tyr
        275                 280                 285

Pro Ser Val Ser Leu Gln Ile Gln Lys Asn Phe Ala Lys Ser Lys Trp
    290                 295                 300

Arg Gln Ala Phe Asn Ala Ala Ala Val Val His His Met Arg Lys Leu
305                 310                 315                 320

His Met Asn Leu His Ser Pro Gly Val Arg Pro Glu Val Glu Asn Arg
                325                 330                 335

Pro Pro Glu Thr Gln Ala Ser Glu Thr Ser Arg Pro Ser Ser Pro Glu
            340                 345                 350

Ile Thr Ile Thr Glu Ala Pro Val Leu Asp His Ser Val Ala Leu Pro
        355                 360                 365

Ala Leu Thr Gln Leu Pro Cys Gln His Gly Arg Arg Pro Thr Ala Pro
    370                 375                 380

Gly Gly Arg Ser Leu Asn Cys Leu Val Asn Gly Ser Leu His Ile Ser
385                 390                 395                 400

Ser Ser Leu Val Pro Met His Gln Gly Ser Leu Ala Ala Gly Pro Cys
                405                 410                 415
```

```
Gly Cys Cys Ser Ser Cys Leu Asn Ile Gly Ser Lys Gly Lys Ser Ser
            420                 425                 430

Tyr Cys Ser Glu Pro Thr Leu Leu Lys Lys Ala Asn Lys Lys Gln Asn
        435                 440                 445

Phe Lys Ser Glu Val Met Val Pro Val Lys Ala Ser Gly Ser Ser His
    450                 455                 460

Cys Arg Ala Gly Gln Thr Gly Val Cys Leu Ile Met
465                 470                 475


<210> 10892
<211> 245
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2159; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK1G; "

<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt
      kinase IG; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000392173"

<400> 10892
Met Gly Arg Lys Glu Glu Asp Asp Cys Ser Ser Trp Lys Lys Gln Thr
1               5                  10                  15

Thr Asn Ile Arg Lys Thr Phe Ile Phe Met Glu Val Leu Gly Ser Gly
            20                  25                  30

Ala Phe Ser Glu Val Phe Leu Val Lys Gln Arg Leu Thr Gly Lys Leu
        35                  40                  45

Phe Ala Leu Lys Cys Ile Lys Lys Ser Pro Ala Phe Arg Asp Ser Ser
    50                  55                  60
```

```
Leu Glu Asn Glu Ile Ala Val Leu Lys Lys Ile Lys His Glu Asn Ile
65                  70                  75                  80

Val Thr Leu Glu Asp Ile Tyr Glu Ser Thr Thr His Tyr Tyr Leu Val
                85                  90                  95

Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Leu Glu Arg
            100                 105                 110

Gly Val Tyr Thr Glu Lys Asp Ala Ser Leu Val Ile Gln Gln Val Leu
        115                 120                 125

Ser Ala Val Lys Tyr Leu His Glu Asn Gly Ile Val His Arg Asp Leu
    130                 135                 140

Lys Pro Glu Asn Leu Leu Tyr Leu Thr Pro Glu Glu Asn Ser Lys Ile
145                 150                 155                 160

Met Ile Thr Asp Phe Gly Leu Ser Lys Met Glu Gln Asn Gly Ile Met
                165                 170                 175

Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Gly Ser Val Asp Thr Pro
            180                 185                 190

His Ser Met Lys Lys Arg Ser Leu Ser Phe Ser Arg Arg Ser Arg Arg
        195                 200                 205

Ala Thr Met Ser Leu Ser Leu His Ser Gly Met Thr Phe Leu Ser Gln
    210                 215                 220

Pro Arg Thr Leu Phe Ala Thr Cys Leu Arg Arg Ile Arg Thr Ser Gly
225                 230                 235                 240

Thr Pro Val Arg Arg
                245
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<210> 10893
<211> 478
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2160; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2A; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II alpha; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UQM7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000261793"

<400> 10893
Met Ala Thr Ile Thr Cys Thr Arg Phe Thr Glu Glu Tyr Gln Leu Phe
1   5   10   15

Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val Lys
            20   25   30

Val Leu Ala Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys Lys
        35   40   45

Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile Cys
    50   55   60

Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile Ser
65   70   75   80

Glu Glu Gly His His Tyr Leu Ile Phe Asp Leu Val Thr Gly Gly Glu
                85   90   95

Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp Ala
            100   105   110

Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln
        115   120   125

Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala
    130   135   140

Ser Lys Leu Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala
145   150   155   160

```
Ile Glu Val Glu Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr
                165                 170                 175

Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly Lys
            180                 185                 190

Pro Val Asp Leu Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val
        195                 200                 205

Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln Gln
    210                 215                 220

Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val
225                 230                 235                 240

Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn Pro
                245                 250                 255

Ser Lys Arg Ile Thr Ala Ala Glu Ala Leu Lys His Pro Trp Ile Ser
            260                 265                 270

His Arg Ser Thr Val Ala Ser Cys Met His Arg Gln Glu Thr Val Asp
        275                 280                 285

Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu
    290                 295                 300

Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Gly Gly Lys Ser Gly Gly
305                 310                 315                 320

Asn Lys Lys Ser Asp Gly Val Lys Glu Ser Ser Glu Ser Thr Asn Thr
                325                 330                 335

Thr Ile Glu Asp Glu Asp Thr Lys Val Arg Lys Gln Glu Ile Ile Lys
            340                 345                 350

Val Thr Glu Gln Leu Ile Glu Ala Ile Ser Asn Gly Asp Phe Glu Ser
        355                 360                 365

Tyr Thr Lys Met Cys Asp Pro Gly Met Thr Ala Phe Glu Pro Glu Ala
    370                 375                 380
```

```
Leu Gly Asn Leu Val Glu Gly Leu Asp Phe His Arg Phe Tyr Phe Glu
385                 390                 395                 400

Asn Leu Trp Ser Arg Asn Ser Lys Pro Val His Thr Thr Ile Leu Asn
                405                 410                 415

Pro His Ile His Leu Met Gly Asp Glu Ser Ala Cys Ile Ala Tyr Ile
            420                 425                 430

Arg Ile Thr Gln Tyr Leu Asp Ala Gly Gly Ile Pro Arg Thr Ala Gln
        435                 440                 445

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Ile
    450                 455                 460

Val His Phe His Arg Ser Gly Ala Pro Ser Val Leu Pro His
465                 470                 475


<210> 10894
<211> 489
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<221> source
<223> /note="Gene Symbol: CAMK2A; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
      II alpha; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9UQM7; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381412"

<400> 10894
Met Ala Thr Ile Thr Cys Thr Arg Phe Thr Glu Glu Tyr Gln Leu Phe
1               5                   10                  15

Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val Lys
            20                  25                  30
```

Val Leu Ala Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys Lys
35 40 45

Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile Cys
50 55 60

Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile Ser
65 70 75 80

Glu Glu Gly His His Tyr Leu Ile Phe Asp Leu Val Thr Gly Gly Glu
85 90 95

Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp Ala
100 105 110

Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln
115 120 125

Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala
130 135 140

Ser Lys Leu Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala
145 150 155 160

Ile Glu Val Glu Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr
165 170 175

Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly Lys
180 185 190

Pro Val Asp Leu Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val
195 200 205

Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln Gln
210 215 220

Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val
225 230 235 240

Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn Pro
245 250 255

```
Ser Lys Arg Ile Thr Ala Ala Glu Ala Leu Lys His Pro Trp Ile Ser
            260                 265                 270

His Arg Ser Thr Val Ala Ser Cys Met His Arg Gln Glu Thr Val Asp
        275                 280                 285

Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu
    290                 295                 300

Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Gly Gly Lys Ser Gly Gly
305                 310                 315                 320

Asn Lys Lys Ser Asp Gly Val Lys Lys Arg Lys Ser Ser Ser Ser Val
                325                 330                 335

Gln Leu Met Glu Ser Ser Glu Ser Thr Asn Thr Thr Ile Glu Asp Glu
            340                 345                 350

Asp Thr Lys Val Arg Lys Gln Glu Ile Ile Lys Val Thr Glu Gln Leu
        355                 360                 365

Ile Glu Ala Ile Ser Asn Gly Asp Phe Glu Ser Tyr Thr Lys Met Cys
    370                 375                 380

Asp Pro Gly Met Thr Ala Phe Glu Pro Glu Ala Leu Gly Asn Leu Val
385                 390                 395                 400

Glu Gly Leu Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Trp Ser Arg
                405                 410                 415

Asn Ser Lys Pro Val His Thr Thr Ile Leu Asn Pro His Ile His Leu
            420                 425                 430

Met Gly Asp Glu Ser Ala Cys Ile Ala Tyr Ile Arg Ile Thr Gln Tyr
        435                 440                 445

Leu Asp Ala Gly Gly Ile Pro Arg Thr Ala Gln Ser Glu Glu Thr Arg
    450                 455                 460

Val Trp His Arg Arg Asp Gly Lys Trp Gln Ile Val His Phe His Arg
465                 470                 475                 480
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Ser Gly Ala Pro Ser Val Leu Pro His
485

<210> 10895
<211> 90
<212> PRT
<213> Homo sapiens

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<220>
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<400> 10895
Met Ala Thr Ile Thr Cys Thr Arg Phe Thr Glu Glu Tyr Gln Leu Phe
1 5 10 15

Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val Lys
20 25 30

Val Leu Ala Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys Lys
35 40 45

Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile Cys
50 55 60

Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile Ser
65 70 75 80

Glu Glu Gly His His Tyr Leu Ile Phe Asp
85 90

<210> 10896
<211> 24
<212> PRT
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II alpha; "

<220>
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<400> 10896
Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala
1 5 10 15

Ser Lys Leu Lys Gly Ala Ala Val
20

<210> 10897
<211> 517
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CAMK2B; "

<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II beta; "

<220>
<221> source
<223> /note="Uniprot ID: Q13554; "

<220>
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<400> 10897
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val

```
            20                  25                  30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115                 120                 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255
```

```
Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu
305                 310                 315                 320

Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn
                325                 330                 335

Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu
            340                 345                 350

Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu
        355                 360                 365

Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala
    370                 375                 380

Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val
385                 390                 395                 400

Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu
                405                 410                 415

Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp
            420                 425                 430

Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro
        435                 440                 445

Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp
    450                 455                 460

Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln
465                 470                 475                 480
```

Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg
485 490 495

Arg Asp Gly Lys Trp Gln Asn Val His Phe His Cys Ser Gly Ala Pro
500 505 510

Val Ala Pro Leu Gln
515

<210> 10898
<211> 542
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q13554; "

<220>
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<400> 10898
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile

65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225 230 235 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
245 250 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

```
Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr
305                 310                 315                 320

Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly
                325                 330                 335

Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val
            340                 345                 350

Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro
        355                 360                 365

Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile
    370                 375                 380

His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr
385                 390                 395                 400

Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile Ile Lys
                405                 410                 415

Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala
            420                 425                 430

Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala
        435                 440                 445

Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu
    450                 455                 460

Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn
465                 470                 475                 480

Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile
                485                 490                 495

Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln
            500                 505                 510

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn
        515                 520                 525
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Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln
530 535 540

<210> 10899
<211> 479
<212> PRT
<213> Homo sapiens

<220>
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<400> 10899
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp

```
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115                 120                 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ala Asp Gly Val Lys Glu Ser Ser Asp Ser Ala Asn
                325                 330                 335
```

```
Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile Ile
            340                 345                 350

Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu
        355                 360                 365

Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu
    370                 375                 380

Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe
385                 390                 395                 400

Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu
                405                 410                 415

Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr
            420                 425                 430

Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser
        435                 440                 445

Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln
    450                 455                 460

Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln
465                 470                 475


<210> 10900
<211> 449
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      II beta; "

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<221> source
<223> /note="Uniprot ID: Q13554; "

<220>
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<400> 10900
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1   5   10   15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20   25   30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65   70   75   80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85   90   95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100   105   110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115   120   125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130   135   140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145   150   155   160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165   170   175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180   185   190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu

```
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Arg Lys Gln Glu
305                 310                 315                 320

Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp
                325                 330                 335

Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu
            340                 345                 350

Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe
        355                 360                 365

Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr
    370                 375                 380

Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile
385                 390                 395                 400

Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg
                405                 410                 415

Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys
            420                 425                 430
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Trp Gln Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu
        435   440   445

Gln

<210> 10901
<211> 492
<212> PRT
<213> Homo sapiens

<220>
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      II beta; "

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<223> /note="Uniprot ID: Q13554; "

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<400> 10901
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1   5   10   15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20   25   30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65   70   75   80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225 230 235 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
245 250 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr

305 310 315 320

Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly
325 330 335

Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val
340 345 350

Lys Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys
355 360 365

Glu Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys
370 375 380

Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala
385 390 395 400

Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Phe Tyr Phe Glu Asn Leu
405 410 415

Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His
420 425 430

Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu
435 440 445

Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu
450 455 460

Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His
465 470 475 480

Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln
485 490

<210> 10902
<211> 362
<212> PRT
<213> Homo sapiens

<220>
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II beta; "

<220>
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<223> /note="ENSP ID: ENSP00000326600"

<400> 10902

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Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1               5                  10                  15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20                  25                  30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115                 120                 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175
```

```
Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Pro Arg Val
    290                 295                 300

Tyr Ser Thr Arg Lys Gln Met Glu Ser Ser Pro Arg Arg Ile Ala Pro
305                 310                 315                 320

Lys Thr Val Gln Pro Pro Pro Ala Pro Lys Gly Arg Phe Leu Leu Pro
                325                 330                 335

Pro Trp Ser Leu Lys Pro Pro Ser Ser Ile Thr Gln Trp Thr Gly Leu
            340                 345                 350

Arg Ser Leu Leu Thr Val Pro Ile Pro Pro
        355                 360


<210> 10903
<211> 503
<212> PRT
<213> Homo sapiens

<220>
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<220>
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II beta; "

<220>
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<223> /note="Uniprot ID: Q13554; "

<220>
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<400> 10903
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1   5   10   15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20   25   30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65   70   75   80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85   90   95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100   105   110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115   120   125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130   135   140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145   150   155   160

```
Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys
                325                 330                 335

Asn Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala
            340                 345                 350

Leu Glu Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala
        355                 360                 365

Lys Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu
    370                 375                 380
```

```
Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro
385                 390                 395                 400

Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly
                405                 410                 415

Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser
            420                 425                 430

Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly
        435                 440                 445

Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp
    450                 455                 460

Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp
465                 470                 475                 480

His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Cys Ser Gly
                485                 490                 495

Ala Pro Val Ala Pro Leu Gln
            500


<210> 10904
<211> 518
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      II beta; "

<220>
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<223> /note="Uniprot ID:  Q13554; "

<220>
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<400> 10904
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
210 215 220

```
Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys
                325                 330                 335

Asn Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala
            340                 345                 350

Leu Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys
        355                 360                 365

Glu Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys
    370                 375                 380

Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala
385                 390                 395                 400

Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly
                405                 410                 415

Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met
            420                 425                 430

Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys
        435                 440                 445
```

```
Pro Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu
    450                 455                 460

Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly
465                 470                 475                 480

Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His
                485                 490                 495

Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Cys Ser Gly Ala
            500                 505                 510

Pro Val Ala Pro Leu Gln
        515
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<210> 10905
<211> 666
<212> PRT
<213> Homo sapiens

<220>
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<220>
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II beta; "

<220>
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<220>
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<400> 10905

```
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1               5                   10                  15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20                  25                  30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45
```

```
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115                 120                 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270
```

```
Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr
305                 310                 315                 320

Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly
                325                 330                 335

Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val
            340                 345                 350

Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro
        355                 360                 365

Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile
    370                 375                 380

His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr
385                 390                 395                 400

Thr Ile Glu Asp Glu Asp Ala Lys Ala Pro Arg Val Pro Asp Ile Leu
                405                 410                 415

Ser Ser Val Arg Arg Gly Ser Gly Ala Pro Glu Ala Glu Gly Pro Leu
            420                 425                 430

Pro Cys Pro Ser Pro Ala Pro Phe Ser Pro Leu Pro Ala Pro Ser Pro
        435                 440                 445

Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro
    450                 455                 460

Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys Leu Ser Pro
465                 470                 475                 480

Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile Ser Asp Ile
                485                 490                 495
```

```
Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro
            500                 505                 510

Ser Pro Val Gly Pro Pro Pro Cys Pro Ser Pro Thr Ile Pro Gly Pro
        515                 520                 525

Leu Pro Thr Pro Ser Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln
    530                 535                 540

Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile
545                 550                 555                 560

Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu
                565                 570                 575

Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala
            580                 585                 590

Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His
        595                 600                 605

Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln
    610                 615                 620

Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr
625                 630                 635                 640

Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His
                645                 650                 655

Cys Ser Gly Ala Pro Val Ala Pro Leu Gln
            660                 665


<210> 10906
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II beta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388445"

<400> 10906
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Leu His Gly Glu Leu Gly
130 135 140

Ala Ser Thr His Ser Arg Trp Gln Asn His His Val Gln Trp Pro Val
145 150 155 160

Asp Trp Cys Ser Val Asp Thr Asp Ala Cys Ala Pro Ala Gly Trp Asp
165 170 175

Pro Gln Gly Asp
180

<210> 10907
<211> 184
<212> PRT
<213> Homo sapiens

<220>
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<220>
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II beta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000388951"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 10907
Xaa Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn Pro Ala Lys
1 5 10 15

Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val Cys Gln Arg
20 25 30

Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Glu Cys Leu
35 40 45

Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr
50 55 60

Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr Thr Ala Pro
65 70 75 80

Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly Leu Val Glu
85 90 95

Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val Lys Pro Gln
100 105 110

```
Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr
        115                 120                 125

Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile His Asn Pro
    130                 135                 140

Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu
145                 150                 155                 160

Asp Glu Asp Ala Lys Gly Met Asp Asp Ile Pro Gly Leu Leu Pro Pro
                165                 170                 175

Pro Pro Val Gly Arg His Gln Thr
            180


<210> 10908
<211> 518
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Uniprot ID:  Q13554; "

<220>
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<223> /note="ENSP ID: ENSP00000390292"

<400> 10908
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1               5                   10                  15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20                  25                  30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
```

```
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115                 120                 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270
```

```
Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys
                325                 330                 335

Asn Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala
            340                 345                 350

Leu Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys
        355                 360                 365

Glu Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys
    370                 375                 380

Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala
385                 390                 395                 400

Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly
                405                 410                 415

Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met
            420                 425                 430

Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys
        435                 440                 445

Pro Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu
    450                 455                 460

Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly
465                 470                 475                 480

Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His
                485                 490                 495
```

```
Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Cys Ser Gly Ala
            500                 505                 510

Pro Val Ala Pro Leu Gln
        515
```

<210> 10909
<211> 173
<212> PRT
<213> Homo sapiens

<220>
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II beta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390419"

<400> 10909

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Met Arg Ile Pro Glu Trp Val Ala Gly Ser Pro Val Phe Thr Pro Gln
1               5                   10                  15

Met His Arg Ser Thr Pro Val Cys Pro Leu Gly Leu Gln Arg Cys Pro
            20                  25                  30

Gly His Trp Arg Gly Arg Gly Ala Phe Ser Val Val Arg Arg Cys Val
        35                  40                  45

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
    50                  55                  60

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
65                  70                  75                  80

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
                85                  90                  95

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
```

100 105 110

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
115 120 125

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
130 135 140

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
145 150 155 160

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp
165 170

<210> 10910
<211> 542
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID: Q13554; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000397937"

<400> 10910
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

```
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
        115                 120                 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val
            260                 265                 270
```

```
Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr
305                 310                 315                 320

Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly
                325                 330                 335

Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val
            340                 345                 350

Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro
        355                 360                 365

Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile
    370                 375                 380

His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr
385                 390                 395                 400

Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile Ile Lys
                405                 410                 415

Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala
            420                 425                 430

Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala
        435                 440                 445

Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu
    450                 455                 460

Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn
465                 470                 475                 480

Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile
                485                 490                 495

Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln
```

```
            500                 505                 510

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn
        515                 520                 525

Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln
    530                 535                 540


<210> 10911
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<220>
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      II beta; "

<220>
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<223> /note="ENSP ID: ENSP00000400387"

<400> 10911
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1               5                   10                  15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20                  25                  30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95
```

```
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Arg Ala Thr Arg Thr Asn Pro Pro Ala Val Cys His Ser His Cys
        115                 120                 125

Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln Met Gly Val
    130                 135                 140

Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala Ser Lys Cys
145                 150                 155                 160

Lys Gly Ala Ala Val Lys Leu Ala
                165
```

<210> 10912
<211> 184
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000410445"

<400> 10912

```
Leu Pro Ala Val Ser Leu Thr Gly Met Asp Asp Ile Pro Gly Leu Leu
1               5                   10                  15

Pro Pro Pro Pro Val Gly Arg His Gln Thr Gly Gly Gly Val Glu Ile
            20                  25                  30

Leu Leu Glu Lys Arg Leu Leu Gly His Gly Leu Gly Met Ala Gly Gln
        35                  40                  45

Trp Leu Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile
```

```
    50                  55                  60

Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp
65                  70                  75                  80

Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu
                85                  90                  95

Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn
            100                 105                 110

Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile
        115                 120                 125

Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile
    130                 135                 140

Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val
145                 150                 155                 160

Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Cys Ser
                165                 170                 175

Gly Ala Pro Val Ala Pro Leu Gln
            180


<210> 10913
<211> 112
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2161; "

<220>
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      II beta; "

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<400> 10913
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1   5   10   15

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20   25   30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Thr Val Ser Ser Arg Ser
65   70   75   80

Trp Arg Pro Phe Ser Ile Val Thr Lys Trp Gly Ser Ser Thr Glu Thr
                85   90   95

Ser Ser Arg Arg Thr Cys Phe Trp Pro Ala Ser Ala Lys Gly Leu Gln
            100   105   110

<210> 10914
<211> 478
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
      II delta; "

<220>
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<223> /note="Uniprot ID: Q13557; "

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<400> 10914
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu

```
1               5                   10                  15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
            20                  25                  30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
        115                 120                 125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240
```

```
Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Lys Lys Pro Asp Gly Val Lys Glu Ser Thr Glu Ser Ser Asn Thr
                325                 330                 335

Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys
            340                 345                 350

Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala
        355                 360                 365

Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala
    370                 375                 380

Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu
385                 390                 395                 400

Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn
                405                 410                 415

Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile
            420                 425                 430

Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln
        435                 440                 445

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn
    450                 455                 460
```

Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys
465 470 475

<210> 10915
<211> 499
<212> PRT
<213> Homo sapiens

<220>
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II delta; "

<220>
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<223> /note="Uniprot ID: Q13557; "

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<400> 10915
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
20 25 30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp

100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
115 120 125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
180 185 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225 230 235 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
245 250 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305 310 315 320

Leu Lys Lys Pro Asp Gly Val Lys Glu Ser Thr Glu Ser Ser Asn Thr
325 330 335

```
Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys
            340                 345                 350

Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala
        355                 360                 365

Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala
    370                 375                 380

Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu
385                 390                 395                 400

Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn
                405                 410                 415

Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile
            420                 425                 430

Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln
        435                 440                 445

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn
    450                 455                 460

Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys Pro Pro
465                 470                 475                 480

Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser Leu Trp
                485                 490                 495

Gln Asn Ile
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<210> 10916
<211> 478
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CAMK2D; "

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II delta; "

<220>
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<223> /note="Uniprot ID: Q13557; "

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<400> 10916
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1   5   10   15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
            20   25   30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65   70   75   80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85   90   95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100   105   110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
        115   120   125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130   135   140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145   150   155   160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly

```
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Lys Lys Pro Asp Gly Val Lys Glu Ser Thr Glu Ser Ser Asn Thr
                325                 330                 335

Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys
            340                 345                 350

Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala
        355                 360                 365

Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala
    370                 375                 380

Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu
385                 390                 395                 400
```

Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn
405 410 415

Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile
420 425 430

Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln
435 440 445

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn
450 455 460

Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys
465 470 475

<210> 10917
<211> 492
<212> PRT
<213> Homo sapiens

<220>
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II delta; "

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<223> /note="ENSP ID: ENSP00000378030"

<400> 10917
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
20 25 30

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Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
        115                 120                 125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
```

260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305 310 315 320

Leu Lys Lys Pro Asp Gly Val Lys Glu Pro Gln Thr Thr Val Ile His
325 330 335

Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser Asn Thr Thr Ile
340 345 350

Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys Val Thr
355 360 365

Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala Tyr Thr
370 375 380

Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala Leu Gly
385 390 395 400

Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Ala
405 410 415

Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn Pro His
420 425 430

Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu
435 440 445

Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln Ser Glu
450 455 460

Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His
465 470 475 480

Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys
485 490

<210> 10918
<211> 478
<212> PRT
<213> Homo sapiens

<220>
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II delta; "

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<223> /note="Uniprot ID: Q13557; "

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<223> /note="ENSP ID: ENSP00000378032"

<400> 10918
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1   5   10   15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
            20   25   30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65   70   75   80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85   90   95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100   105   110

```
Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
        115                 120                 125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Lys Lys Pro Asp Gly Val Lys Glu Ser Thr Glu Ser Ser Asn Thr
                325                 330                 335

Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys
```

```
            340                 345                 350

Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala
        355                 360                 365

Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala
    370                 375                 380

Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu
385                 390                 395                 400

Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn
                405                 410                 415

Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile
            420                 425                 430

Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln
        435                 440                 445

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn
    450                 455                 460

Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Asn
465                 470                 475


<210> 10919
<211> 489
<212> PRT
<213> Homo sapiens

<220>
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      II delta; "

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<223> /note="Uniprot ID:  Q13557; "
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<220>
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<223> /note="ENSP ID: ENSP00000422566"

<400> 10919
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1   5   10   15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
            20   25   30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65   70   75   80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85   90   95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100   105   110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
        115   120   125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130   135   140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145   150   155   160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165   170   175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180   185   190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195   200   205

```
Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Lys Lys Pro Asp Gly Val Lys Lys Arg Lys Ser Ser Ser Ser Val
                325                 330                 335

Gln Met Met Glu Ser Thr Glu Ser Ser Asn Thr Thr Ile Glu Asp Glu
            340                 345                 350

Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys Val Thr Glu Gln Leu
        355                 360                 365

Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala Tyr Thr Lys Ile Cys
    370                 375                 380

Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala Leu Gly Asn Leu Val
385                 390                 395                 400

Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Ala Leu Ser Lys
                405                 410                 415

Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn Pro His Val His Leu
            420                 425                 430

Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr
```

435 440 445

Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln Ser Glu Glu Thr Arg
450 455 460

Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Arg
465 470 475 480

Ser Gly Ser Pro Thr Val Pro Ile Lys
485

<210> 10920
<211> 510
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2162; "

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<223> /note="ENSP ID: ENSP00000423482"

<400> 10920
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
20 25 30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

```
Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
        115                 120                 125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285
```

```
Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Lys Lys Pro Asp Gly Val Lys Lys Arg Lys Ser Ser Ser Ser Val
                325                 330                 335

Gln Met Met Glu Ser Thr Glu Ser Ser Asn Thr Thr Ile Glu Asp Glu
            340                 345                 350

Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys Val Thr Glu Gln Leu
        355                 360                 365

Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala Tyr Thr Lys Ile Cys
    370                 375                 380

Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala Leu Gly Asn Leu Val
385                 390                 395                 400

Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Ala Leu Ser Lys
                405                 410                 415

Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn Pro His Val His Leu
            420                 425                 430

Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr
        435                 440                 445

Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln Ser Glu Glu Thr Arg
    450                 455                 460

Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Arg
465                 470                 475                 480

Ser Gly Ser Pro Thr Val Pro Ile Lys Pro Pro Cys Ile Pro Asn Gly
                485                 490                 495

Lys Glu Asn Phe Ser Gly Gly Thr Ser Leu Trp Gln Asn Ile
            500                 505                 510
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<210> 10921

<211> 498
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<223> /note="Gene Symbol: CAMK2D; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II delta; "

<220>
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<223> /note="ENSP ID: ENSP00000423677"

<400> 10921
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
20 25 30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His
115 120 125

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
180 185 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225 230 235 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
245 250 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu
305 310 315 320

Lys Lys Pro Asp Gly Val Lys Glu Ser Thr Glu Ser Ser Asn Thr Thr
325 330 335

Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile Lys Val
340 345 350

Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala Tyr
355 360 365

```
Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu Ala Leu
    370                 375                 380

Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn
385                 390                 395                 400

Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu Asn Pro
                405                 410                 415

His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr Ile Arg
            420                 425                 430

Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met Gln Ser
        435                 440                 445

Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val
    450                 455                 460

His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys Pro Pro Cys
465                 470                 475                 480

Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser Leu Trp Gln
                485                 490                 495

Asn Ile
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<210> 10922
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2162; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2D; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II delta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423753"

<400> 10922
Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg
1 5 10 15

Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu
20 25 30

Trp Asp Thr Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu
35 40 45

Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His
50 55 60

Pro Trp Ile Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln
65 70 75 80

Glu Thr Val Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys
85 90 95

Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys
100 105 110

Ser Leu Leu Lys Lys Pro Asp Gly Val Lys Ser Thr Glu Ser Ser Asn
115 120 125

Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile
130 135 140

Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu
145 150 155 160

Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu
165 170 175

Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe
180 185 190

Glu Asn

<210> 10923
<211> 512
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2162; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2D; "

<220>
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II delta; "

<220>
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<223> /note="ENSP ID: ENSP00000424245"

<400> 10923
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
20 25 30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu

145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
180 185 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225 230 235 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
245 250 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305 310 315 320

Leu Lys Lys Pro Asp Gly Val Lys Ile Asn Asn Lys Ala Asn Val Val
325 330 335

Thr Ser Pro Lys Glu Asn Ile Pro Thr Pro Ala Leu Glu Pro Gln Thr
340 345 350

Thr Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser
355 360 365

Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile
370 375 380

```
Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe
385                 390                 395                 400

Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro
                405                 410                 415

Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr
            420                 425                 430

Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile
        435                 440                 445

Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala
    450                 455                 460

Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr
465                 470                 475                 480

Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp
                485                 490                 495

Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys
            500                 505                 510


<210> 10924
<211> 182
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2162; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2D; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
      II delta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424247"
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10924
Xaa Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg
1 5 10 15

Asn Phe Ser Ala Ala Lys Ser Leu Leu Lys Lys Pro Asp Gly Val Lys
20 25 30

Glu Ser Thr Glu Ser Ser Asn Thr Thr Ile Glu Asp Glu Asp Val Lys
35 40 45

Ala Arg Lys Gln Glu Ile Ile Lys Val Thr Glu Gln Leu Ile Glu Ala
50 55 60

Ile Asn Asn Gly Asp Phe Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly
65 70 75 80

Leu Thr Ala Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met
85 90 95

Asp Phe His Arg Phe Tyr Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys
100 105 110

Pro Ile His Thr Ile Ile Leu Asn Pro His Val His Leu Val Gly Asp
115 120 125

Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly
130 135 140

Ser Gly Met Pro Lys Thr Met Gln Ser Glu Glu Thr Arg Val Trp His
145 150 155 160

Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Arg Ser Gly Ser
165 170 175

Pro Thr Val Pro Ile Lys
180

<210> 10925
<211> 533
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2162; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2D; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II delta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425824"

<400> 10925
Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met
20 25 30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu

145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
180 185 190

Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225 230 235 240

Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn
245 250 255

Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile
260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu
305 310 315 320

Leu Lys Lys Pro Asp Gly Val Lys Ile Asn Asn Lys Ala Asn Val Val
325 330 335

Thr Ser Pro Lys Glu Asn Ile Pro Thr Pro Ala Leu Glu Pro Gln Thr
340 345 350

Thr Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser
355 360 365

Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile
370 375 380

```
Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe
385                 390                 395                 400

Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro
                405                 410                 415

Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr
            420                 425                 430

Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile
        435                 440                 445

Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala
    450                 455                 460

Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr
465                 470                 475                 480

Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp
                485                 490                 495

Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys
            500                 505                 510

Pro Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser
        515                 520                 525

Leu Trp Gln Asn Ile
    530


<210> 10926
<211> 495
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
<221> source
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<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II gamma; "

<220>
<221> source
<223> /note="Uniprot ID: Q13555; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000277853"

<400> 10926

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Met Ala Thr Thr Ala Thr Cys Thr Arg Phe Thr Asp Asp Tyr Gln Leu
1               5                  10                  15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20                  25                  30

Lys Lys Thr Ser Thr Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His
        115                 120                 125

Gln His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
```

```
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Glu Pro Gln Thr Thr Val
                325                 330                 335

Val His Asn Ala Thr Asp Gly Ile Lys Gly Ser Thr Glu Ser Cys Asn
            340                 345                 350

Thr Thr Thr Glu Asp Glu Asp Leu Lys Val Arg Lys Gln Glu Ile Ile
        355                 360                 365

Lys Ile Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu
    370                 375                 380

Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu
385                 390                 395                 400

Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Lys Phe Tyr Phe
                405                 410                 415
```

Glu Asn Leu Leu Ser Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu
420 425 430

Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr
435 440 445

Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser
450 455 460

Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Leu
465 470 475 480

Asn Val His Tyr His Cys Ser Gly Ala Pro Ala Ala Pro Leu Gln
485 490 495

<210> 10927
<211> 529
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II gamma; "

<220>
<221> source
<223> /note="Uniprot ID: Q13555; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000307082"

<400> 10927
Met Ala Thr Thr Ala Thr Cys Thr Arg Phe Thr Asp Asp Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

```
Lys Lys Thr Ser Thr Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35                  40                  45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50                  55                  60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His
        115                 120                 125

Gln His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val
```

```
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Lys Arg Lys Ser Ser Ser
                325                 330                 335

Ser Val His Leu Met Pro Gln Ser Asn Asn Lys Asn Ser Leu Val Ser
            340                 345                 350

Pro Ala Gln Glu Pro Ala Pro Leu Gln Thr Ala Met Glu Pro Gln Thr
        355                 360                 365

Thr Val Val His Asn Ala Thr Asp Gly Ile Lys Gly Ser Thr Glu Ser
    370                 375                 380

Cys Asn Thr Thr Thr Glu Asp Glu Asp Leu Lys Val Arg Lys Gln Glu
385                 390                 395                 400

Ile Ile Lys Ile Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp
                405                 410                 415

Phe Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu
            420                 425                 430

Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Lys Phe
        435                 440                 445

Tyr Phe Glu Asn Leu Leu Ser Lys Asn Ser Lys Pro Ile His Thr Thr
    450                 455                 460

Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile
465                 470                 475                 480

Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg
                485                 490                 495
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Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys
500 505 510

Trp Leu Asn Val His Tyr His Cys Ser Gly Ala Pro Ala Ala Pro Leu
515 520 525

Gln

<210> 10928
<211> 527
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase II gamma; "

<220>
<221> source
<223> /note="Uniprot ID: Q13555; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000315599"

<400> 10928
Met Ala Thr Thr Ala Thr Cys Thr Arg Phe Thr Asp Asp Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Lys Thr Ser Thr Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

```
Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65                  70                  75                  80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85                  90                  95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100                 105                 110

Ala Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His
        115                 120                 125

Gln His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
```

```
    290                 295                 300

Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Val Gly Arg Gln Ser
305                 310                 315                 320

Ser Ala Pro Ala Ser Pro Ala Ala Ser Ala Ala Gly Leu Ala Gly Gln
                325                 330                 335

Ala Ala Lys Ser Leu Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Lys
            340                 345                 350

Arg Lys Ser Ser Ser Ser Val His Leu Met Glu Pro Gln Thr Thr Val
        355                 360                 365

Val His Asn Ala Thr Asp Gly Ile Lys Gly Ser Thr Glu Ser Cys Asn
    370                 375                 380

Thr Thr Thr Glu Asp Glu Asp Leu Lys Val Arg Lys Gln Glu Ile Ile
385                 390                 395                 400

Lys Ile Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu
                405                 410                 415

Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu
            420                 425                 430

Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Lys Phe Tyr Phe
        435                 440                 445

Glu Asn Leu Leu Ser Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu
    450                 455                 460

Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr
465                 470                 475                 480

Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser
                485                 490                 495

Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Leu
            500                 505                 510

Asn Val His Tyr His Cys Ser Gly Ala Pro Ala Ala Pro Leu Gln
        515                 520                 525
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<210> 10929
<211> 556
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II gamma; "

<220>
<221> source
<223> /note="Uniprot ID: Q13555; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000319060"

<400> 10929
Met Ala Thr Thr Ala Thr Cys Thr Arg Phe Thr Asp Asp Tyr Gln Leu
1   5   10   15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
            20   25   30

Lys Lys Thr Ser Thr Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
        35   40   45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
    50   55   60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65   70   75   80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
                85   90   95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
            100   105   110

```
Ala Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His
        115                 120                 125

Gln His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145                 150                 155                 160

Ala Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Pro Gln Ser Asn Asn Lys
                325                 330                 335

Asn Ser Leu Val Ser Pro Ala Gln Glu Pro Ala Pro Leu Gln Thr Ala
```

340 345 350

Met Glu Pro Gln Thr Thr Val Val His Asn Ala Thr Asp Gly Ile Lys
355 360 365

Gly Ser Thr Glu Ser Cys Asn Thr Thr Thr Glu Asp Glu Asp Leu Lys
370 375 380

Ala Ala Pro Leu Arg Thr Gly Asn Gly Ser Ser Val Pro Glu Gly Arg
385 390 395 400

Ser Ser Arg Asp Arg Thr Ala Pro Ser Ala Gly Met Gln Pro Gln Pro
405 410 415

Ser Leu Cys Ser Ser Ala Met Arg Lys Gln Glu Ile Ile Lys Ile Thr
420 425 430

Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala Tyr Thr
435 440 445

Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly
450 455 460

Asn Leu Val Glu Gly Met Asp Phe His Lys Phe Tyr Phe Glu Asn Leu
465 470 475 480

Leu Ser Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His
485 490 495

Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu
500 505 510

Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu
515 520 525

Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Leu Asn Val His
530 535 540

Tyr His Cys Ser Gly Ala Pro Ala Ala Pro Leu Gln
545 550 555

<210> 10930
<211> 516

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II gamma; "

<220>
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<223> /note="ENSP ID: ENSP00000361851"

<400> 10930
Met Ala Thr Thr Ala Thr Cys Thr Arg Phe Thr Asp Asp Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Lys Thr Ser Thr Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His
115 120 125

Gln His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

Ala Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225 230 235 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
245 250 255

Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val
260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
275 280 285

Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
290 295 300

Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Val Gly Arg Gln Ser
305 310 315 320

Ser Ala Pro Ala Ser Pro Ala Ala Ser Ala Ala Gly Leu Ala Gly Gln
325 330 335

Ala Ala Lys Ser Leu Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Glu
340 345 350

Pro Gln Thr Thr Val Val His Asn Ala Thr Asp Gly Ile Lys Gly Ser
355 360 365

Thr Glu Ser Cys Asn Thr Thr Thr Glu Asp Glu Asp Leu Lys Val Arg

```
    370                 375                 380

Lys Gln Glu Ile Ile Lys Ile Thr Glu Gln Leu Ile Glu Ala Ile Asn
385                 390                 395                 400

Asn Gly Asp Phe Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr
                405                 410                 415

Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe
            420                 425                 430

His Lys Phe Tyr Phe Glu Asn Leu Leu Ser Lys Asn Ser Lys Pro Ile
        435                 440                 445

His Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala
    450                 455                 460

Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly
465                 470                 475                 480

Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg
                485                 490                 495

Asp Gly Lys Trp Leu Asn Val His Tyr His Cys Ser Gly Ala Pro Ala
            500                 505                 510

Ala Pro Leu Gln
        515
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<210> 10931
<211> 539
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
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<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II gamma; "

<220>
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<223> /note="ENSP ID: ENSP00000378243"

<400> 10931
Met Ala Thr Thr Ala Thr Cys Thr Arg Phe Thr Asp Asp Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Lys Thr Ser Thr Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His
115 120 125

Gln His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

Ala Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
195 200 205

```
Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Val Gly Arg Gln Ser
305                 310                 315                 320

Ser Ala Pro Ala Ser Pro Ala Ala Ser Ala Ala Gly Leu Ala Gly Gln
                325                 330                 335

Ala Ala Lys Ser Leu Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Pro
            340                 345                 350

Gln Ser Asn Asn Lys Asn Ser Leu Val Ser Pro Ala Gln Glu Pro Ala
        355                 360                 365

Pro Leu Gln Thr Ala Met Glu Pro Gln Thr Thr Val Val His Asn Ala
    370                 375                 380

Thr Asp Gly Ile Lys Gly Ser Thr Glu Ser Cys Asn Thr Thr Thr Glu
385                 390                 395                 400

Asp Glu Asp Leu Lys Val Arg Lys Gln Glu Ile Ile Lys Ile Thr Glu
                405                 410                 415

Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala Tyr Thr Lys
            420                 425                 430

Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn
```

```
        435                 440                 445

Leu Val Glu Gly Met Asp Phe His Lys Phe Tyr Phe Glu Asn Leu Leu
    450                 455                 460

Ser Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val
465                 470                 475                 480

His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr
                485                 490                 495

Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu
            500                 505                 510

Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Leu Asn Val His Tyr
        515                 520                 525

His Cys Ser Gly Ala Pro Ala Ala Pro Leu Gln
    530                 535


<210> 10932
<211> 453
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2163; "

<220>
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<223> /note="Gene Symbol: CAMK2G; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
      II gamma; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000393784"

<400> 10932
Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile Ser
1               5                   10                  15

Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly Glu
            20                  25                  30
```

```
Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp Ala
        35                  40                  45

Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His Gln
    50                  55                  60

His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala
65                  70                  75                  80

Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala
                85                  90                  95

Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr
            100                 105                 110

Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly Lys
        115                 120                 125

Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val
    130                 135                 140

Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln Gln
145                 150                 155                 160

Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val
                165                 170                 175

Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn Pro
            180                 185                 190

Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val Cys
        195                 200                 205

Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Glu
    210                 215                 220

Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu
225                 230                 235                 240

Thr Thr Met Leu Val Ser Arg Asn Phe Ser Ala Ala Lys Ser Leu Leu
                245                 250                 255
```

```
Asn Lys Lys Ser Asp Gly Gly Val Lys Pro Gln Ser Asn Asn Lys Asn
            260                 265                 270

Ser Leu Val Ser Pro Ala Gln Glu Pro Ala Pro Leu Gln Thr Ala Met
        275                 280                 285

Glu Pro Gln Thr Thr Val Val His Asn Ala Thr Asp Gly Ile Lys Gly
    290                 295                 300

Ser Thr Glu Ser Cys Asn Thr Thr Thr Glu Asp Glu Asp Leu Lys Val
305                 310                 315                 320

Arg Lys Gln Glu Ile Ile Lys Ile Thr Glu Gln Leu Ile Glu Ala Ile
                325                 330                 335

Asn Asn Gly Asp Phe Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu
            340                 345                 350

Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp
        355                 360                 365

Phe His Lys Phe Tyr Phe Glu Asn Leu Leu Ser Lys Asn Ser Lys Pro
    370                 375                 380

Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp
385                 390                 395                 400

Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln
                405                 410                 415

Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg
            420                 425                 430

Arg Asp Gly Lys Trp Leu Asn Val His Tyr His Cys Ser Gly Ala Pro
        435                 440                 445

Ala Ala Pro Leu Gln
    450
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<210> 10933
<211> 335
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II gamma; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000405561"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 10933
Xaa Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu
1 5 10 15

Trp Asp Thr Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu
20 25 30

Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His
35 40 45

Pro Trp Val Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln
50 55 60

Glu Thr Val Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys
65 70 75 80

Gly Ala Ile Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Ala Ala
85 90 95

Lys Ser Leu Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Pro Gln Ser
100 105 110

Asn Asn Lys Asn Ser Leu Val Ser Pro Ala Gln Glu Pro Ala Pro Leu
115 120 125

Gln Thr Ala Met Glu Pro Gln Thr Thr Val Val His Asn Ala Thr Asp

130 135 140

Gly Ile Lys Gly Ser Thr Glu Ser Cys Asn Thr Thr Thr Glu Asp Glu
145 150 155 160

Asp Leu Lys Ala Ala Pro Leu Arg Thr Gly Asn Gly Ser Ser Val Pro
165 170 175

Glu Gly Arg Ser Ser Arg Asp Arg Thr Ala Pro Ser Ala Gly Met Gln
180 185 190

Pro Gln Pro Ser Leu Cys Ser Ser Ala Met Arg Lys Gln Glu Ile Ile
195 200 205

Lys Ile Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu
210 215 220

Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu
225 230 235 240

Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Lys Phe Tyr Phe
245 250 255

Glu Asn Leu Leu Ser Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu
260 265 270

Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr
275 280 285

Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser
290 295 300

Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Leu
305 310 315 320

Asn Val His Tyr His Cys Ser Gly Ala Pro Ala Ala Pro Leu Gln
325 330 335

<210> 10934
<211> 558
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2163; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2G; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase
II gamma; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410298"

<400> 10934
Met Ala Thr Thr Ala Thr Cys Thr Arg Phe Thr Asp Asp Tyr Gln Leu
1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
20 25 30

Lys Lys Thr Ser Thr Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile
50 55 60

Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
100 105 110

Ala Ser His Cys Ile His Gln Ile Leu Glu Ser Val Asn His Ile His
115 120 125

Gln His Asp Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
145 150 155 160

```
Ala Ile Glu Val Gln Gly Glu Gln Gln Ala Trp Phe Gly Phe Ala Gly
                165                 170                 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly
            180                 185                 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu
        195                 200                 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln
    210                 215                 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr
225                 230                 235                 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn
                245                 250                 255

Pro Ala Lys Arg Ile Thr Ala Asp Gln Ala Leu Lys His Pro Trp Val
            260                 265                 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val
        275                 280                 285

Glu Cys Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile
    290                 295                 300

Leu Thr Thr Met Leu Val Ser Arg Asn Phe Ser Ala Ala Lys Ser Leu
305                 310                 315                 320

Leu Asn Lys Lys Ser Asp Gly Gly Val Lys Lys Arg Lys Ser Ser Ser
                325                 330                 335

Ser Val His Leu Met Pro Gln Ser Asn Asn Lys Asn Ser Leu Val Ser
            340                 345                 350

Pro Ala Gln Glu Pro Ala Pro Leu Gln Thr Ala Met Glu Pro Gln Thr
        355                 360                 365

Thr Val Val His Asn Ala Thr Asp Gly Ile Lys Gly Ser Thr Glu Ser
    370                 375                 380

Cys Asn Thr Thr Thr Glu Asp Glu Asp Leu Lys Gly Arg Val Pro Glu
```

385 390 395 400

Gly Arg Ser Ser Arg Asp Arg Thr Ala Pro Ser Ala Gly Met Gln Pro
405 410 415

Gln Pro Ser Leu Cys Ser Ser Ala Met Arg Lys Gln Glu Ile Ile Lys
420 425 430

Ile Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu Ala
435 440 445

Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala
450 455 460

Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Lys Phe Tyr Phe Glu
465 470 475 480

Asn Leu Leu Ser Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn
485 490 495

Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile
500 505 510

Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln
515 520 525

Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Leu Asn
530 535 540

Val His Tyr His Cys Ser Gly Ala Pro Ala Ala Pro Leu Gln
545 550 555

<210> 10935
<211> 78
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2164; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2N1; "

<220>

<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase II
inhibitor 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q7Z7J9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000364219"

<400> 10935
Met Ser Glu Val Leu Pro Tyr Gly Asp Glu Lys Leu Ser Pro Tyr Gly
1   5   10   15

Asp Gly Gly Asp Val Gly Gln Ile Phe Ser Cys Arg Leu Gln Asp Thr
            20   25   30

Asn Asn Phe Phe Gly Ala Gly Gln Asn Lys Arg Pro Pro Lys Leu Gly
        35   40   45

Gln Ile Gly Arg Ser Lys Arg Val Val Ile Glu Asp Asp Arg Ile Asp
    50   55   60

Asp Val Leu Lys Asn Met Thr Asp Lys Ala Pro Pro Gly Val
65   70   75

<210> 10936
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2165; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK2N2; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt kinase II
inhibitor 2; "

<220>
<221> source
<223> /note="Uniprot ID: Q96S95; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000296238"

<400> 10936
Met Ser Glu Ile Leu Pro Tyr Ser Glu Asp Lys Met Gly Arg Phe Gly
1   5   10   15

Ala Asp Pro Glu Gly Ser Asp Leu Ser Phe Ser Cys Arg Leu Gln Asp
            20   25   30

Thr Asn Ser Phe Phe Ala Gly Asn Gln Ala Lys Arg Pro Pro Lys Leu
        35   40   45

Gly Gln Ile Gly Arg Ala Lys Arg Val Val Ile Glu Asp Asp Arg Ile
    50   55   60

Asp Asp Val Leu Lys Gly Met Gly Glu Lys Pro Pro Ser Gly Val
65   70   75

<210> 10937
<211> 473
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2166; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK4; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
      kinase IV; "

<220>
<221> source
<223> /note="Uniprot ID: Q16566; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000282356"

<400> 10937
Met Leu Lys Val Thr Val Pro Ser Cys Ser Ala Ser Ser Cys Ser Ser
1   5   10   15

Val Thr Ala Ser Ala Ala Pro Gly Thr Ala Ser Leu Val Pro Asp Tyr

```
            20                  25                  30

Trp Ile Asp Gly Ser Asn Arg Asp Ala Leu Ser Asp Phe Phe Glu Val
        35                  40                  45

Glu Ser Glu Leu Gly Arg Gly Ala Thr Ser Ile Val Tyr Arg Cys Lys
    50                  55                  60

Gln Lys Gly Thr Gln Lys Pro Tyr Ala Leu Lys Val Leu Lys Lys Thr
65                  70                  75                  80

Val Asp Lys Lys Ile Val Arg Thr Glu Ile Gly Val Leu Leu Arg Leu
                85                  90                  95

Ser His Pro Asn Ile Ile Lys Leu Lys Glu Ile Phe Glu Thr Pro Thr
            100                 105                 110

Glu Ile Ser Leu Val Leu Glu Leu Val Thr Gly Gly Glu Leu Phe Asp
        115                 120                 125

Arg Ile Val Glu Lys Gly Tyr Tyr Ser Glu Arg Asp Ala Ala Asp Ala
    130                 135                 140

Val Lys Gln Ile Leu Glu Ala Val Ala Tyr Leu His Glu Asn Gly Ile
145                 150                 155                 160

Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Tyr Ala Thr Pro Ala
                165                 170                 175

Pro Asp Ala Pro Leu Lys Ile Ala Asp Phe Gly Leu Ser Lys Ile Val
            180                 185                 190

Glu His Gln Val Leu Met Lys Thr Val Cys Gly Thr Pro Gly Tyr Cys
        195                 200                 205

Ala Pro Glu Ile Leu Arg Gly Cys Ala Tyr Gly Pro Glu Val Asp Met
    210                 215                 220

Trp Ser Val Gly Ile Ile Thr Tyr Ile Leu Leu Cys Gly Phe Glu Pro
225                 230                 235                 240

Phe Tyr Asp Glu Arg Gly Asp Gln Phe Met Phe Arg Arg Ile Leu Asn
                245                 250                 255
```

```
Cys Glu Tyr Tyr Phe Ile Ser Pro Trp Trp Asp Glu Val Ser Leu Asn
            260                 265                 270

Ala Lys Asp Leu Val Arg Lys Leu Ile Val Leu Asp Pro Lys Lys Arg
        275                 280                 285

Leu Thr Thr Phe Gln Ala Leu Gln His Pro Trp Val Thr Gly Lys Ala
    290                 295                 300

Ala Asn Phe Val His Met Asp Thr Ala Gln Lys Lys Leu Gln Glu Phe
305                 310                 315                 320

Asn Ala Arg Arg Lys Leu Lys Ala Ala Val Lys Ala Val Val Ala Ser
                325                 330                 335

Ser Arg Leu Gly Ser Ala Ser Ser Ser His Gly Ser Ile Gln Glu Ser
            340                 345                 350

His Lys Ala Ser Arg Asp Pro Ser Pro Ile Gln Asp Gly Asn Glu Asp
        355                 360                 365

Met Lys Ala Ile Pro Glu Gly Glu Lys Ile Gln Gly Asp Gly Ala Gln
    370                 375                 380

Ala Ala Val Lys Gly Ala Gln Ala Glu Leu Met Lys Val Gln Ala Leu
385                 390                 395                 400

Glu Lys Val Lys Gly Ala Asp Ile Asn Ala Glu Glu Ala Pro Lys Met
                405                 410                 415

Val Pro Lys Ala Val Glu Asp Gly Ile Lys Val Ala Asp Leu Glu Leu
            420                 425                 430

Glu Glu Gly Leu Ala Glu Glu Lys Leu Lys Thr Val Glu Glu Ala Ala
        435                 440                 445

Ala Pro Arg Glu Gly Gln Gly Ser Ser Ala Val Gly Phe Glu Val Pro
    450                 455                 460

Gln Gln Asp Val Ile Leu Pro Glu Tyr
465                 470
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<210> 10938
<211> 109
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2166; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK4; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase IV; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421606"

<400> 10938
Met Leu Lys Val Thr Val Pro Ser Cys Ser Ala Ser Ser Cys Ser Ser
1 5 10 15

Val Thr Ala Ser Ala Ala Pro Gly Thr Ala Ser Leu Val Pro Asp Tyr
20 25 30

Trp Ile Asp Gly Ser Asn Arg Asp Ala Leu Ser Asp Phe Phe Glu Val
35 40 45

Glu Ser Glu Leu Gly Arg Gly Ala Thr Ser Ile Val Tyr Arg Cys Lys
50 55 60

Gln Lys Gly Thr Gln Lys Pro Tyr Ala Leu Lys Val Leu Lys Lys Thr
65 70 75 80

Val Asp Lys Lys Ile Val Arg Thr Glu Ile Gly Val Leu Leu Arg Leu
85 90 95

Ser His Pro Asn Ile Asp Cys Gly Lys Gly Ile Leu Gln
100 105

<210> 10939
<211> 473
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2166; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK4; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase IV; "

<220>
<221> source
<223> /note="Uniprot ID: Q16566; "

<220>
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<223> /note="ENSP ID: ENSP00000422634"

<400> 10939
Met Leu Lys Val Thr Val Pro Ser Cys Ser Ala Ser Ser Cys Ser Ser
1   5   10   15

Val Thr Ala Ser Ala Ala Pro Gly Thr Ala Ser Leu Val Pro Asp Tyr
            20   25   30

Trp Ile Asp Gly Ser Asn Arg Asp Ala Leu Ser Asp Phe Phe Glu Val
        35   40   45

Glu Ser Glu Leu Gly Arg Gly Ala Thr Ser Ile Val Tyr Arg Cys Lys
    50   55   60

Gln Lys Gly Thr Gln Lys Pro Tyr Ala Leu Lys Val Leu Lys Lys Thr
65   70   75   80

Val Asp Lys Lys Ile Val Arg Thr Glu Ile Gly Val Leu Leu Arg Leu
                85   90   95

Ser His Pro Asn Ile Ile Lys Leu Lys Glu Ile Phe Glu Thr Pro Thr
            100   105   110

Glu Ile Ser Leu Val Leu Glu Leu Val Thr Gly Gly Glu Leu Phe Asp
        115   120   125

Arg Ile Val Glu Lys Gly Tyr Tyr Ser Glu Arg Asp Ala Ala Asp Ala
    130   135   140

```
Val Lys Gln Ile Leu Glu Ala Val Ala Tyr Leu His Glu Asn Gly Ile
145                 150                 155                 160

Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Tyr Ala Thr Pro Ala
                165                 170                 175

Pro Asp Ala Pro Leu Lys Ile Ala Asp Phe Gly Leu Ser Lys Ile Val
            180                 185                 190

Glu His Gln Val Leu Met Lys Thr Val Cys Gly Thr Pro Gly Tyr Cys
        195                 200                 205

Ala Pro Glu Ile Leu Arg Gly Cys Ala Tyr Gly Pro Glu Val Asp Met
    210                 215                 220

Trp Ser Val Gly Ile Ile Thr Tyr Ile Leu Leu Cys Gly Phe Glu Pro
225                 230                 235                 240

Phe Tyr Asp Glu Arg Gly Asp Gln Phe Met Phe Arg Arg Ile Leu Asn
                245                 250                 255

Cys Glu Tyr Tyr Phe Ile Ser Pro Trp Trp Asp Glu Val Ser Leu Asn
            260                 265                 270

Ala Lys Asp Leu Val Arg Lys Leu Ile Val Leu Asp Pro Lys Lys Arg
        275                 280                 285

Leu Thr Thr Phe Gln Ala Leu Gln His Pro Trp Val Thr Gly Lys Ala
    290                 295                 300

Ala Asn Phe Val His Met Asp Thr Ala Gln Lys Lys Leu Gln Glu Phe
305                 310                 315                 320

Asn Ala Arg Arg Lys Leu Lys Ala Ala Val Lys Ala Val Val Ala Ser
                325                 330                 335

Ser Arg Leu Gly Ser Ala Ser Ser Ser His Gly Ser Ile Gln Glu Ser
            340                 345                 350

His Lys Ala Ser Arg Asp Pro Ser Pro Ile Gln Asp Gly Asn Glu Asp
        355                 360                 365
```

```
Met Lys Ala Ile Pro Glu Gly Glu Lys Ile Gln Gly Asp Gly Ala Gln
    370                 375                 380

Ala Ala Val Lys Gly Ala Gln Ala Glu Leu Met Lys Val Gln Ala Leu
385                 390                 395                 400

Glu Lys Val Lys Gly Ala Asp Ile Asn Ala Glu Glu Ala Pro Lys Met
                405                 410                 415

Val Pro Lys Ala Val Glu Asp Gly Ile Lys Val Ala Asp Leu Glu Leu
            420                 425                 430

Glu Glu Gly Leu Ala Glu Glu Lys Leu Lys Thr Val Glu Glu Ala Ala
        435                 440                 445

Ala Pro Arg Glu Gly Gln Gly Ser Ser Ala Val Gly Phe Glu Val Pro
    450                 455                 460

Gln Gln Asp Val Ile Leu Pro Glu Tyr
465                 470
```

<210> 10940
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2166; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK4; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase IV; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000423761"

<400> 10940

```
Met Leu Lys Val Thr Val Pro Ser Cys Ser Ala Ser Ser Cys Ser Ser
1               5                   10                  15

Val Thr Ala Ser Ala Ala Pro Gly Thr Ala Ser Leu Val Pro Asp Tyr
            20                  25                  30
```

```
Trp Ile Asp Gly Ser Asn Arg Asp Ala Leu Ser Asp Phe Phe Glu Val
        35                  40                  45

Glu Ser Glu Leu Gly Arg Gly Ala Thr Ser Ile Val Tyr Arg Cys Lys
    50                  55                  60

Gln Lys Gly Thr Gln Lys Pro Tyr Ala Leu Lys Val Leu Lys Lys Thr
65                  70                  75                  80

Asp Cys Gly Lys Gly Ile Leu Gln
                85


<210> 10941
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2166; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK4; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
      kinase IV; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424912"

<400> 10941
Met Leu Lys Val Thr Val Pro Ser Cys Ser Ala Ser Ser Cys Ser Ser
1               5                   10                  15

Val Thr Ala Ser Ala Ala Pro Gly Thr Ala Ser Leu Val Pro Asp Tyr
            20                  25                  30

Trp Ile Asp Gly Ser Asn Arg Asp Ala Leu Ser Asp Phe Phe Glu Val
        35                  40                  45

Glu Ser Glu Leu Gly Arg Gly Ala Thr Ser Ile Val Tyr Arg Cys Lys
    50                  55                  60
```

Gln Lys Gly Thr Gln Lys Pro Tyr Ala Leu Lys Val Leu Lys Lys Thr
65 70 75 80

Asp Cys Gly Lys Gly Ile Leu Gln
85

<210> 10942
<211> 142
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2166; "

<220>
<221> source
<223> /note="Gene Symbol: CAMK4; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase IV; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426940"

<400> 10942
Met Leu Lys Val Thr Val Pro Ser Cys Ser Ala Ser Ser Cys Ser Ser
1 5 10 15

Val Thr Ala Ser Ala Ala Pro Gly Thr Ala Ser Leu Val Pro Asp Tyr
20 25 30

Trp Ile Asp Gly Ser Asn Arg Asp Ala Leu Ser Asp Phe Phe Glu Val
35 40 45

Glu Ser Glu Leu Gly Arg Gly Ala Thr Ser Ile Val Tyr Arg Cys Lys
50 55 60

Gln Lys Gly Thr Gln Lys Pro Tyr Ala Leu Lys Val Leu Lys Lys Thr
65 70 75 80

Val Asp Lys Lys Ile Val Arg Thr Glu Ile Gly Val Leu Leu Arg Leu
85 90 95

Ser His Pro Asn Ile Ile Lys Leu Lys Glu Ile Phe Glu Thr Pro Thr
100 105 110

Glu Ile Ser Leu Val Leu Glu Leu Val Thr Gly Gly Glu Leu Phe Asp
        115   120   125

Arg Ile Val Glu Lys Gly Tyr Tyr Ser Glu Arg Asp Ala Ala
    130   135   140

<210> 10943
<211> 520
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2167; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK1; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
      kinase kinase 1,
      alpha; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N5S9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000158166"

<400> 10943
Met Glu Gly Gly Pro Ala Val Cys Cys Gln Asp Pro Arg Ala Glu Leu
1   5   10   15

Val Glu Arg Val Ala Ala Ile Asp Val Thr His Leu Glu Glu Ala Asp
            20   25   30

Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Pro Arg Ala
        35   40   45

Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro Ala
    50   55   60

Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro Ala
65   70   75   80

```
Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro Ala
                85                  90                  95

Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser His
            100                 105                 110

His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln Tyr
        115                 120                 125

Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg Leu
    130                 135                 140

Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu Ser
145                 150                 155                 160

Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro Pro
                165                 170                 175

Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu Pro
            180                 185                 190

Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp His
        195                 200                 205

Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu Asp
    210                 215                 220

Asn Leu Tyr Leu Ala Leu Gln Asn Gln Ala Gln Asn Ile Gln Leu Asp
225                 230                 235                 240

Ser Thr Asn Ile Ala Lys Pro His Ser Leu Leu Pro Ser Glu Gln Gln
                245                 250                 255

Asp Ser Gly Ser Thr Trp Ala Ala Arg Ser Val Phe Asp Leu Leu Arg
            260                 265                 270

Lys Gly Pro Val Met Glu Val Pro Cys Asp Lys Pro Phe Ser Glu Glu
        275                 280                 285

Gln Ala Arg Leu Tyr Leu Arg Asp Val Ile Leu Gly Leu Glu Tyr Leu
    290                 295                 300
```

```
His Cys Gln Lys Ile Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu
305                 310                 315                 320

Leu Gly Asp Asp Gly His Val Lys Ile Ala Asp Phe Gly Val Ser Asn
                325                 330                 335

Gln Phe Glu Gly Asn Asp Ala Gln Leu Ser Ser Thr Ala Gly Thr Pro
            340                 345                 350

Ala Phe Met Ala Pro Glu Ala Ile Ser Asp Ser Gly Gln Ser Phe Ser
        355                 360                 365

Gly Lys Ala Leu Asp Val Trp Ala Thr Gly Val Thr Leu Tyr Cys Phe
    370                 375                 380

Val Tyr Gly Lys Cys Pro Phe Ile Asp Asp Phe Ile Leu Ala Leu His
385                 390                 395                 400

Arg Lys Ile Lys Asn Glu Pro Val Val Phe Pro Glu Glu Pro Glu Ile
                405                 410                 415

Ser Glu Glu Leu Lys Asp Leu Ile Leu Lys Met Leu Asp Lys Asn Pro
            420                 425                 430

Glu Thr Arg Ile Gly Val Pro Asp Ile Lys Leu His Pro Trp Val Thr
        435                 440                 445

Lys Asn Gly Glu Glu Pro Leu Pro Ser Glu Glu Glu His Cys Ser Val
    450                 455                 460

Val Glu Val Thr Glu Glu Glu Val Lys Asn Ser Val Arg Leu Ile Pro
465                 470                 475                 480

Ser Trp Thr Thr Val Ile Leu Val Lys Ser Met Leu Arg Lys Arg Ser
                485                 490                 495

Phe Gly Asn Pro Phe Glu Pro Gln Ala Arg Arg Glu Glu Arg Ser Met
            500                 505                 510

Ser Ala Pro Gly Asn Leu Leu Val
        515                 520
```

<210> 10944

<211> 505
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2167; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK1; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase kinase 1,
alpha; "

<220>
<221> source
<223> /note="Uniprot ID: Q8N5S9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000323118"

<400> 10944
Met Glu Gly Gly Pro Ala Val Cys Cys Gln Asp Pro Arg Ala Glu Leu
1   5   10   15

Val Glu Arg Val Ala Ala Ile Asp Val Thr His Leu Glu Glu Ala Asp
            20   25   30

Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Pro Arg Ala
        35   40   45

Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro Ala
    50   55   60

Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro Ala
65   70   75   80

Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro Ala
                85   90   95

Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser His
            100   105   110

His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln Tyr
        115   120   125

```
Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg Leu
    130                 135                 140

Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu Ser
145                 150                 155                 160

Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro Pro
                165                 170                 175

Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu Pro
            180                 185                 190

Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp His
        195                 200                 205

Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu Asp
    210                 215                 220

Asn Leu Tyr Leu Val Phe Asp Leu Leu Arg Lys Gly Pro Val Met Glu
225                 230                 235                 240

Val Pro Cys Asp Lys Pro Phe Ser Glu Glu Gln Ala Arg Leu Tyr Leu
                245                 250                 255

Arg Asp Val Ile Leu Gly Leu Glu Tyr Leu His Cys Gln Lys Ile Val
            260                 265                 270

His Arg Asp Ile Lys Pro Ser Asn Leu Leu Leu Gly Asp Asp Gly His
        275                 280                 285

Val Lys Ile Ala Asp Phe Gly Val Ser Asn Gln Phe Glu Gly Asn Asp
    290                 295                 300

Ala Gln Leu Ser Ser Thr Ala Gly Thr Pro Ala Phe Met Ala Pro Glu
305                 310                 315                 320

Ala Ile Ser Asp Ser Gly Gln Ser Phe Ser Gly Lys Ala Leu Asp Val
                325                 330                 335

Trp Ala Thr Gly Val Thr Leu Tyr Cys Phe Val Tyr Gly Lys Cys Pro
            340                 345                 350
```

```
Phe Ile Asp Asp Phe Ile Leu Ala Leu His Arg Lys Ile Lys Asn Glu
        355                 360                 365

Pro Val Val Phe Pro Glu Glu Pro Glu Ile Ser Glu Glu Leu Lys Asp
    370                 375                 380

Leu Ile Leu Lys Met Leu Asp Lys Asn Pro Glu Thr Arg Ile Gly Val
385                 390                 395                 400

Pro Asp Ile Lys Leu His Pro Trp Val Thr Lys Asn Gly Glu Glu Pro
                405                 410                 415

Leu Pro Ser Glu Glu Glu His Cys Ser Val Val Glu Val Thr Glu Glu
            420                 425                 430

Glu Val Lys Asn Ser Val Arg Leu Ile Pro Ser Trp Thr Thr Val Ile
        435                 440                 445

Leu Val Lys Ser Met Leu Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu
    450                 455                 460

Pro Gln Ala Arg Arg Glu Glu Arg Ser Met Ser Ala Pro Gly Asn Leu
465                 470                 475                 480

Leu Val Lys Glu Gly Phe Gly Glu Gly Gly Lys Ser Pro Glu Leu Pro
                485                 490                 495

Gly Val Gln Glu Asp Glu Ala Ala Ser
            500                 505


<210> 10945
<211> 532
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2167; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK1; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
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kinase kinase 1,
alpha; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000371188"

<400> 10945

```
Met Gln Phe Gly Lys Leu Trp Cys Gly Cys Ser Gly Glu Phe Pro Thr
1               5                  10                  15

Arg Leu Arg Arg Arg Thr Pro Leu Thr Glu Ala Met Glu Gly Gly Pro
            20                  25                  30

Ala Val Cys Cys Gln Asp Pro Arg Ala Glu Leu Val Glu Arg Val Ala
        35                  40                  45

Ala Ile Asp Val Thr His Leu Glu Glu Ala Asp Gly Gly Pro Glu Pro
    50                  55                  60

Thr Arg Asn Gly Val Asp Pro Pro Pro Arg Ala Arg Ala Ala Ser Val
65                  70                  75                  80

Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro Ala Arg Pro Ser Leu Ser
                85                  90                  95

Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro Ala Gly Ser Tyr Leu Glu
            100                 105                 110

Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro Ala Ser His Ile Ser Pro
        115                 120                 125

Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser His His Val Ala Ile Ser
    130                 135                 140

Asp Ala Glu Asp Cys Val Gln Leu Asn Gln Tyr Lys Leu Gln Ser Glu
145                 150                 155                 160

Ile Gly Lys Gly Ala Tyr Gly Val Val Arg Leu Ala Tyr Asn Glu Ser
                165                 170                 175

Glu Asp Arg His Tyr Ala Met Lys Val Leu Ser Lys Lys Lys Leu Leu
            180                 185                 190

Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro Pro Arg Gly Ser Gln Ala
```

```
        195                 200                 205

Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu Pro Leu Glu Arg Val Tyr
    210                 215                 220

Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp His Val Asn Val Val Lys
225                 230                 235                 240

Leu Ile Glu Val Leu Asp Asp Pro Ala Glu Asp Asn Leu Tyr Leu Val
                245                 250                 255

Phe Asp Leu Leu Arg Lys Gly Pro Val Met Glu Val Pro Cys Asp Lys
            260                 265                 270

Pro Phe Ser Glu Glu Gln Ala Arg Leu Tyr Leu Arg Asp Val Ile Leu
        275                 280                 285

Gly Leu Glu Tyr Leu His Cys Gln Lys Ile Val His Arg Asp Ile Lys
    290                 295                 300

Pro Ser Asn Leu Leu Leu Gly Asp Asp Gly His Val Lys Ile Ala Asp
305                 310                 315                 320

Phe Gly Val Ser Asn Gln Phe Glu Gly Asn Asp Ala Gln Leu Ser Ser
                325                 330                 335

Thr Ala Gly Thr Pro Ala Phe Met Ala Pro Glu Ala Ile Ser Asp Ser
            340                 345                 350

Gly Gln Ser Phe Ser Gly Lys Ala Leu Asp Val Trp Ala Thr Gly Val
        355                 360                 365

Thr Leu Tyr Cys Phe Val Tyr Gly Lys Cys Pro Phe Ile Asp Asp Phe
    370                 375                 380

Ile Leu Ala Leu His Arg Lys Ile Lys Asn Glu Pro Val Val Phe Pro
385                 390                 395                 400

Glu Glu Pro Glu Ile Ser Glu Glu Leu Lys Asp Leu Ile Leu Lys Met
                405                 410                 415

Leu Asp Lys Asn Pro Glu Thr Arg Ile Gly Val Pro Asp Ile Lys Leu
            420                 425                 430
```

```
His Pro Trp Val Thr Lys Asn Gly Glu Glu Pro Leu Pro Ser Glu Glu
        435                 440                 445

Glu His Cys Ser Val Val Glu Val Thr Glu Glu Glu Val Lys Asn Ser
    450                 455                 460

Val Arg Leu Ile Pro Ser Trp Thr Thr Val Ile Leu Val Lys Ser Met
465                 470                 475                 480

Leu Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu Pro Gln Ala Arg Arg
                485                 490                 495

Glu Glu Arg Ser Met Ser Ala Pro Gly Asn Leu Leu Val Lys Glu Gly
            500                 505                 510

Phe Gly Glu Gly Gly Lys Ser Pro Glu Leu Pro Gly Val Gln Glu Asp
        515                 520                 525

Glu Ala Ala Ser
    530
```

<210> 10946
<211> 588
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2168; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK2; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase kinase 2,
beta; "

<220>
<221> source
<223> /note="Uniprot ID: Q96RR4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312741"

<400> 10946
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1 5 10 15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
20 25 30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
35 40 45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
50 55 60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65 70 75 80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
85 90 95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
100 105 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
115 120 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
130 135 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145 150 155 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
165 170 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
180 185 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
195 200 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
210 215 220

```
Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg
        435                 440                 445

His Gly Ala Glu Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val
```

```
    450                 455                 460

Glu Val Thr Glu Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser
465                 470                 475                 480

Leu Ala Thr Val Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe
                485                 490                 495

Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala
            500                 505                 510

Pro Gly Asn Leu Leu Thr Lys Lys Pro Thr Arg Glu Cys Glu Ser Leu
        515                 520                 525

Ser Glu Leu Lys Glu Ala Arg Gln Arg Arg Gln Pro Pro Gly His Arg
    530                 535                 540

Pro Ala Pro Arg Gly Gly Gly Gly Ser Ala Leu Val Arg Gly Ser Pro
545                 550                 555                 560

Cys Val Glu Ser Cys Trp Ala Pro Ala Pro Gly Ser Pro Ala Arg Met
                565                 570                 575

His Pro Leu Arg Pro Glu Glu Ala Met Glu Pro Glu
            580                 585


<210> 10947
<211> 545
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2168; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK2; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
      kinase kinase 2,
      beta; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96RR4; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000321230"

<400> 10947
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1   5   10   15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
            20   25   30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
        35   40   45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50   55   60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65   70   75   80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85   90   95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100   105   110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115   120   125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130   135   140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145   150   155   160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165   170   175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180   185   190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195   200   205

```
Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430
```

```
Ser Arg Ile Val Val Pro Glu Ile Lys Ile Leu Val Lys Thr Met Ile
        435                 440                 445

Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu
    450                 455                 460

Arg Ser Leu Ser Ala Pro Gly Asn Leu Leu Thr Lys Lys Pro Thr Arg
465                 470                 475                 480

Glu Cys Glu Ser Leu Ser Glu Leu Lys Glu Ala Arg Gln Arg Arg Gln
                485                 490                 495

Pro Pro Gly His Arg Pro Ala Pro Arg Gly Gly Gly Gly Ser Ala Leu
            500                 505                 510

Val Arg Gly Ser Pro Cys Val Glu Ser Cys Trp Ala Pro Ala Pro Gly
        515                 520                 525

Ser Pro Ala Arg Met His Pro Leu Arg Pro Glu Glu Ala Met Glu Pro
    530                 535                 540

Glu
545
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<210> 10948
<211> 541
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<213> Homo sapiens

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kinase kinase 2,
beta; "

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<223> /note="ENSP ID: ENSP00000336634"

<400> 10948

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Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1               5                  10                  15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
            20                  25                  30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
        35                  40                  45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50                  55                  60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65                  70                  75                  80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85                  90                  95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100                 105                 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115                 120                 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130                 135                 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145                 150                 155                 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165                 170                 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220
```

```
Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg
        435                 440                 445
```

```
His Gly Ala Glu Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val
    450                 455                 460

Glu Val Thr Glu Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser
465                 470                 475                 480

Leu Ala Thr Val Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe
                485                 490                 495

Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala
            500                 505                 510

Pro Gly Asn Leu Leu Thr Lys Gln Gly Ser Glu Asp Asn Leu Gln Gly
        515                 520                 525

Thr Asp Pro Pro Pro Val Gly Glu Glu Glu Val Leu Leu
    530                 535                 540


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      beta; "

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<223> /note="Uniprot ID:  Q96RR4; "

<220>
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<223> /note="ENSP ID: ENSP00000376265"

<400> 10949
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1               5                   10                  15
```

```
Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
            20                  25                  30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
        35                  40                  45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50                  55                  60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65                  70                  75                  80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85                  90                  95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100                 105                 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115                 120                 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130                 135                 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145                 150                 155                 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165                 170                 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
```

```
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg
        435                 440                 445

His Gly Ala Glu Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val
    450                 455                 460

Glu Val Thr Glu Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser
465                 470                 475                 480
```

```
Leu Ala Thr Val Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe
                485                 490                 495

Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala
            500                 505                 510

Pro Gly Asn Leu Leu Thr Lys Lys Pro Thr Arg Glu Cys Glu Ser Leu
        515                 520                 525

Ser Glu Leu Lys Thr
    530


<210> 10950
<211> 556
<212> PRT
<213> Homo sapiens

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      beta; "

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<220>
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<400> 10950
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1               5                   10                  15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
            20                  25                  30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
        35                  40                  45
```

```
Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50                  55                  60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65                  70                  75                  80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85                  90                  95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100                 105                 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115                 120                 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130                 135                 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145                 150                 155                 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165                 170                 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270
```

```
Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg
        435                 440                 445

His Gly Ala Glu Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val
    450                 455                 460

Glu Val Thr Glu Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser
465                 470                 475                 480

Leu Ala Thr Val Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe
                485                 490                 495

Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala
```

```
            500                 505                 510

Pro Gly Asn Leu Leu Thr Lys Lys Pro Thr Arg Glu Cys Glu Ser Leu
        515                 520                 525

Ser Glu Leu Lys Gly Thr Lys Lys Lys Lys Gly Leu Asp Ser Met Thr
    530                 535                 540

Ser Thr Val Ala Ala Gly Trp Leu Asp Arg Arg Val
545                 550                 555


<210> 10951
<211> 588
<212> PRT
<213> Homo sapiens

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<223> /note="ENSP ID: ENSP00000384591"

<400> 10951
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1               5                   10                  15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
            20                  25                  30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
        35                  40                  45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50                  55                  60
```

```
Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65                  70                  75                  80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85                  90                  95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100                 105                 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115                 120                 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130                 135                 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145                 150                 155                 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165                 170                 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285
```

```
Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg
        435                 440                 445

His Gly Ala Glu Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val
    450                 455                 460

Glu Val Thr Glu Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser
465                 470                 475                 480

Leu Ala Thr Val Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe
                485                 490                 495

Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala
            500                 505                 510
```

Pro Gly Asn Leu Leu Thr Lys Lys Pro Thr Arg Glu Cys Glu Ser Leu
515 520 525

Ser Glu Leu Lys Glu Ala Arg Gln Arg Arg Gln Pro Pro Gly His Arg
530 535 540

Pro Ala Pro Arg Gly Gly Gly Gly Ser Ala Leu Val Arg Gly Ser Pro
545 550 555 560

Cys Val Glu Ser Cys Trp Ala Pro Ala Pro Gly Ser Pro Ala Arg Met
565 570 575

His Pro Leu Arg Pro Glu Glu Ala Met Glu Pro Glu
580 585

<210> 10952
<211> 588
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase kinase 2,
beta; "

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<223> /note="Uniprot ID: Q96RR4; "

<220>
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<223> /note="ENSP ID: ENSP00000384600"

<400> 10952
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1 5 10 15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
20 25 30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly

```
        35                  40                  45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50                  55                  60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65                  70                  75                  80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85                  90                  95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100                 105                 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115                 120                 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130                 135                 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145                 150                 155                 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165                 170                 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270
```

```
Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg
        435                 440                 445

His Gly Ala Glu Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val
    450                 455                 460

Glu Val Thr Glu Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser
465                 470                 475                 480

Leu Ala Thr Val Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe
                485                 490                 495
```

```
Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala
            500                 505                 510

Pro Gly Asn Leu Leu Thr Lys Lys Pro Thr Arg Glu Cys Glu Ser Leu
        515                 520                 525

Ser Glu Leu Lys Glu Ala Arg Gln Arg Arg Gln Pro Pro Gly His Arg
    530                 535                 540

Pro Ala Pro Arg Gly Gly Gly Gly Ser Ala Leu Val Arg Gly Ser Pro
545                 550                 555                 560

Cys Val Glu Ser Cys Trp Ala Pro Ala Pro Gly Ser Pro Ala Arg Met
                565                 570                 575

His Pro Leu Arg Pro Glu Glu Ala Met Glu Pro Glu
            580                 585


<210> 10953
<211> 490
<212> PRT
<213> Homo sapiens

<220>
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      beta; "

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<220>
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<223> /note="ENSP ID: ENSP00000388273"

<400> 10953
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1               5                   10                  15
```

```
Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
            20                  25                  30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
        35                  40                  45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50                  55                  60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65                  70                  75                  80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85                  90                  95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100                 105                 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115                 120                 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130                 135                 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145                 150                 155                 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165                 170                 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
```

```
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Ile Leu Val Lys Thr Met Ile
        435                 440                 445

Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu
    450                 455                 460

Arg Ser Leu Ser Ala Pro Gly Asn Leu Leu Thr Lys Lys Pro Thr Arg
465                 470                 475                 480
```

```
Glu Cys Glu Ser Leu Ser Glu Leu Lys Thr
                485                 490


<210> 10954
<211> 541
<212> PRT
<213> Homo sapiens

<220>
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<220>
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      beta; "

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<220>
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<223> /note="ENSP ID: ENSP00000388368"

<400> 10954
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1               5                   10                  15


Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
            20                  25                  30


Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
        35                  40                  45


Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
    50                  55                  60


Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65                  70                  75                  80


Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
                85                  90                  95
```

```
Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
            100                 105                 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
        115                 120                 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
    130                 135                 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145                 150                 155                 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
                165                 170                 175

Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320
```

```
Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400

Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg
        435                 440                 445

His Gly Ala Glu Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val
    450                 455                 460

Glu Val Thr Glu Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser
465                 470                 475                 480

Leu Ala Thr Val Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe
                485                 490                 495

Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala
            500                 505                 510

Pro Gly Asn Leu Leu Thr Lys Gln Gly Ser Glu Asp Asn Leu Gln Gly
        515                 520                 525

Thr Asp Pro Pro Pro Val Gly Glu Glu Glu Val Leu Leu
    530                 535                 540
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<210> 10955

<211> 343
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2168; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK2; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase kinase 2,
beta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000441352"

<400> 10955
Met Gln Pro Ser Cys Trp Gln Thr Gln Pro Arg Gly Cys Cys Leu Leu
1 5 10 15

Pro Ala His Ile Tyr Ser Leu Phe Phe Ser Pro Ala Ile Arg Leu Leu
20 25 30

Pro Ile Pro Cys Gly Cys Ala Lys Val Leu Asp Asp Pro Asn Glu Asp
35 40 45

His Leu Tyr Met Val Phe Glu Leu Val Asn Gln Gly Pro Val Met Glu
50 55 60

Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln Ala Arg Phe Tyr Phe
65 70 75 80

Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His Tyr Gln Lys Ile Ile
85 90 95

His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val Gly Glu Asp Gly His
100 105 110

Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu Phe Lys Gly Ser Asp
115 120 125

Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala Phe Met Ala Pro Glu
130 135 140

Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly Lys Ala Leu Asp Val
145 150 155 160

Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val Phe Gly Gln Cys Pro
165 170 175

Phe Met Asp Glu Arg Ile Met Cys Leu His Ser Lys Ile Lys Ser Gln
180 185 190

Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala Glu Asp Leu Lys Asp
195 200 205

Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu Ser Arg Ile Val Val
210 215 220

Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg His Gly Ala Glu Pro
225 230 235 240

Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val Glu Val Thr Glu Glu
245 250 255

Glu Val Glu Asn Ser Val Lys His Ile Pro Ser Leu Ala Thr Val Ile
260 265 270

Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu
275 280 285

Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala Pro Gly Asn Leu Leu
290 295 300

Thr Lys Lys Pro Thr Arg Glu Cys Glu Ser Leu Ser Glu Leu Lys Gly
305 310 315 320

Thr Lys Lys Lys Lys Gly Leu Asp Ser Met Thr Ser Thr Val Ala Ala
325 330 335

Gly Trp Leu Asp Arg Arg Val
340

<210> 10956
<211> 125
<212> PRT

<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2168; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK2; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase kinase 2,
beta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000444894"

<400> 10956
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1 5 10 15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
20 25 30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
35 40 45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
50 55 60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65 70 75 80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
85 90 95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
100 105 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser
115 120 125

<210> 10957
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CAMKK2; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase kinase 2,
beta; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445400"

<400> 10957
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1 5 10 15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
20 25 30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
35 40 45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
50 55 60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65 70 75 80

Val Pro Leu Asp Thr Ser Gly
85

<210> 10958
<211> 498
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2168; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKK2; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent prt
kinase kinase 2,
beta; "

<220>
<221> source
<223> /note="Uniprot ID: Q96RR4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000445944"

<400> 10958
Met Ser Ser Cys Val Ser Ser Gln Pro Ser Ser Asn Arg Ala Ala Pro
1 5 10 15

Gln Asp Glu Leu Gly Gly Arg Gly Ser Ser Ser Ser Glu Ser Gln Lys
20 25 30

Pro Cys Glu Ala Leu Arg Gly Leu Ser Ser Leu Ser Ile His Leu Gly
35 40 45

Met Glu Ser Phe Ile Val Val Thr Glu Cys Glu Pro Gly Cys Ala Val
50 55 60

Asp Leu Gly Leu Ala Arg Asp Arg Pro Leu Glu Ala Asp Gly Gln Glu
65 70 75 80

Val Pro Leu Asp Thr Ser Gly Ser Gln Ala Arg Pro His Leu Ser Gly
85 90 95

Arg Lys Leu Ser Leu Gln Glu Arg Ser Gln Gly Gly Leu Ala Ala Gly
100 105 110

Gly Ser Leu Asp Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr
115 120 125

Ser Pro Val Ser Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro
130 135 140

Thr Val Glu Ser His His Val Ser Ile Thr Gly Met Gln Asp Cys Val
145 150 155 160

Gln Leu Asn Gln Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr
165 170 175

```
Gly Val Val Lys Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala
            180                 185                 190

Met Lys Val Leu Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro
        195                 200                 205

Arg Arg Pro Pro Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile
    210                 215                 220

Gln Pro Arg Gly Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu
225                 230                 235                 240

Lys Lys Leu Asp His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp
                245                 250                 255

Asp Pro Asn Glu Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln
            260                 265                 270

Gly Pro Val Met Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln
        275                 280                 285

Ala Arg Phe Tyr Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His
    290                 295                 300

Tyr Gln Lys Ile Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val
305                 310                 315                 320

Gly Glu Asp Gly His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu
                325                 330                 335

Phe Lys Gly Ser Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala
            340                 345                 350

Phe Met Ala Pro Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly
        355                 360                 365

Lys Ala Leu Asp Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val
    370                 375                 380

Phe Gly Gln Cys Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser
385                 390                 395                 400
```

```
Lys Ile Lys Ser Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala
                405                 410                 415

Glu Asp Leu Lys Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu
            420                 425                 430

Ser Arg Ile Val Val Pro Glu Ile Lys Ile Leu Val Lys Thr Met Ile
        435                 440                 445

Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu Gly Ser Arg Arg Glu Glu
    450                 455                 460

Arg Ser Leu Ser Ala Pro Gly Asn Leu Leu Thr Lys Gln Gly Ser Glu
465                 470                 475                 480

Asp Asn Leu Gln Gly Thr Asp Pro Pro Pro Val Gly Glu Glu Glu Val
                485                 490                 495

Leu Leu
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<210> 10959
<211> 590
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2169; "

<220>
<221> source
<223> /note="Gene Symbol: CASK; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent serine prt
kinase (MAGUK
family); "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367396"

<400> 10959

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Met Ala Asp Asp Asp Val Leu Phe Glu Asp Val Tyr Glu Leu Cys Glu
1               5                  10                  15
```

```
Val Ile Gly Lys Gly Pro Phe Ser Val Val Arg Arg Cys Ile Asn Arg
            20                  25                  30

Glu Thr Gly Gln Gln Phe Ala Val Lys Ile Val Asp Val Ala Lys Phe
        35                  40                  45

Thr Ser Ser Pro Gly Leu Ser Thr Glu Asp Leu Lys Arg Glu Ala Ser
    50                  55                  60

Ile Cys His Met Leu Lys His Pro His Ile Val Glu Leu Leu Glu Thr
65                  70                  75                  80

Tyr Ser Ser Asp Gly Met Leu Tyr Met Val Phe Glu Phe Met Asp Gly
                85                  90                  95

Ala Asp Leu Cys Phe Glu Ile Val Lys Arg Ala Asp Ala Gly Phe Val
            100                 105                 110

Tyr Ser Glu Ala Val Ala Ser His Tyr Met Arg Gln Ile Leu Glu Ala
        115                 120                 125

Leu Arg Tyr Cys His Asp Asn Asn Ile Ile His Arg Asp Val Lys Pro
    130                 135                 140

His Cys Val Leu Leu Ala Ser Lys Glu Asn Ser Ala Pro Val Lys Leu
145                 150                 155                 160

Gly Gly Phe Gly Val Ala Ile Gln Leu Gly Glu Ser Gly Leu Val Ala
                165                 170                 175

Gly Gly Arg Val Gly Thr Pro His Phe Met Ala Pro Glu Val Val Lys
            180                 185                 190

Arg Glu Pro Tyr Gly Lys Pro Val Asp Val Trp Gly Cys Gly Val Ile
        195                 200                 205

Leu Phe Ile Leu Leu Ser Gly Cys Leu Pro Phe Tyr Gly Thr Lys Glu
    210                 215                 220

Arg Leu Phe Glu Gly Ile Ile Lys Gly Lys Tyr Lys Met Asn Pro Arg
225                 230                 235                 240

Gln Trp Ser His Ile Ser Glu Ser Ala Lys Asp Leu Val Arg Arg Met
```

```
                245                 250                 255

Leu Met Leu Asp Pro Ala Glu Arg Ile Thr Val Tyr Glu Ala Leu Asn
            260                 265                 270

His Pro Trp Leu Lys Glu Arg Asp Arg Tyr Ala Tyr Lys Ile His Leu
        275                 280                 285

Pro Glu Thr Val Glu Gln Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu
    290                 295                 300

Lys Gly Ala Val Leu Ala Ala Val Ser Ser His Lys Phe Asn Ser Phe
305                 310                 315                 320

Tyr Gly Asp Pro Pro Glu Glu Leu Pro Asp Phe Ser Glu Asp Pro Thr
                325                 330                 335

Ser Ser Gly Leu Leu Ala Ala Glu Arg Ala Val Ser Gln Val Leu Asp
            340                 345                 350

Ser Leu Glu Glu Ile His Ala Leu Thr Asp Cys Ser Glu Lys Asp Leu
        355                 360                 365

Asp Phe Leu His Ser Val Phe Gln Asp Gln His Leu His Thr Leu Leu
    370                 375                 380

Asp Leu Tyr Asp Lys Ile Asn Thr Lys Ser Ser Pro Gln Ile Arg Asn
385                 390                 395                 400

Pro Pro Ser Asp Ala Val Gln Arg Ala Lys Glu Val Leu Glu Glu Ile
                405                 410                 415

Ser Cys Tyr Pro Glu Asn Asn Asp Ala Lys Glu Leu Lys Arg Ile Leu
            420                 425                 430

Thr Gln Pro His Phe Met Ala Leu Leu Gln Thr His Asp Val Val Ala
        435                 440                 445

His Glu Val Tyr Ser Asp Glu Ala Leu Arg Val Thr Pro Pro Pro Thr
    450                 455                 460

Ser Pro Tyr Leu Asn Gly Asp Ser Pro Glu Ser Ala Asn Gly Asp Met
465                 470                 475                 480
```

```
Asp Met Glu Asn Val Thr Arg Val Arg Leu Val Gln Phe Gln Lys Asn
                485                 490                 495

Thr Asp Glu Pro Met Gly Ile Thr Leu Lys Met Asn Glu Leu Asn His
            500                 505                 510

Cys Ile Val Ala Arg Ile Met His Gly Gly Met Ile His Arg Gln Gly
        515                 520                 525

Thr Leu His Val Gly Asp Glu Ile Arg Glu Ile Asn Gly Ile Ser Val
    530                 535                 540

Ala Asn Gln Thr Val Glu Gln Leu Gln Lys Met Leu Arg Glu Met Arg
545                 550                 555                 560

Gly Ser Ile Thr Phe Lys Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser
                565                 570                 575

Ser Cys Glu Val Met Thr Leu Thr Asn His Pro His Leu Leu
            580                 585                 590


<210> 10960
<211> 909
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2169; "

<220>
<221> source
<223> /note="Gene Symbol: CASK; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent serine prt
      kinase (MAGUK
      family); "

<220>
<221> source
<223> /note="Uniprot ID:  O14936; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367400"
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<400> 10960
Met Ala Asp Asp Asp Val Leu Phe Glu Asp Val Tyr Glu Leu Cys Glu
1 5 10 15

Val Ile Gly Lys Gly Pro Phe Ser Val Val Arg Arg Cys Ile Asn Arg
20 25 30

Glu Thr Gly Gln Gln Phe Ala Val Lys Ile Val Asp Val Ala Lys Phe
35 40 45

Thr Ser Ser Pro Gly Leu Ser Thr Glu Asp Leu Lys Arg Glu Ala Ser
50 55 60

Ile Cys His Met Leu Lys His Pro His Ile Val Glu Leu Leu Glu Thr
65 70 75 80

Tyr Ser Ser Asp Gly Met Leu Tyr Met Val Phe Glu Phe Met Asp Gly
85 90 95

Ala Asp Leu Cys Phe Glu Ile Val Lys Arg Ala Asp Ala Gly Phe Val
100 105 110

Tyr Ser Glu Ala Val Ala Ser His Tyr Met Arg Gln Ile Leu Glu Ala
115 120 125

Leu Arg Tyr Cys His Asp Asn Asn Ile Ile His Arg Asp Val Lys Pro
130 135 140

His Cys Val Leu Leu Ala Ser Lys Glu Asn Ser Ala Pro Val Lys Leu
145 150 155 160

Gly Gly Phe Gly Val Ala Ile Gln Leu Gly Glu Ser Gly Leu Val Ala
165 170 175

Gly Gly Arg Val Gly Thr Pro His Phe Met Ala Pro Glu Val Val Lys
180 185 190

Arg Glu Pro Tyr Gly Lys Pro Val Asp Val Trp Gly Cys Gly Val Ile
195 200 205

Leu Phe Ile Leu Leu Ser Gly Cys Leu Pro Phe Tyr Gly Thr Lys Glu
210 215 220

```
Arg Leu Phe Glu Gly Ile Ile Lys Gly Lys Tyr Lys Met Asn Pro Arg
225                 230                 235                 240

Gln Trp Ser His Ile Ser Glu Ser Ala Lys Asp Leu Val Arg Arg Met
                245                 250                 255

Leu Met Leu Asp Pro Ala Glu Arg Ile Thr Val Tyr Glu Ala Leu Asn
            260                 265                 270

His Pro Trp Leu Lys Glu Arg Asp Arg Tyr Ala Tyr Lys Ile His Leu
        275                 280                 285

Pro Glu Thr Val Glu Gln Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu
    290                 295                 300

Lys Gly Ala Val Leu Ala Ala Val Ser Ser His Lys Phe Asn Ser Phe
305                 310                 315                 320

Tyr Gly Asp Pro Pro Glu Glu Leu Pro Asp Phe Ser Glu Asp Pro Thr
                325                 330                 335

Ser Ser Gly Leu Leu Ala Ala Glu Arg Ala Val Ser Gln Val Leu Asp
            340                 345                 350

Ser Leu Glu Glu Ile His Ala Leu Thr Asp Cys Ser Glu Lys Asp Leu
        355                 360                 365

Asp Phe Leu His Ser Val Phe Gln Asp Gln His Leu His Thr Leu Leu
    370                 375                 380

Asp Leu Tyr Asp Lys Ile Asn Thr Lys Ser Ser Pro Gln Ile Arg Asn
385                 390                 395                 400

Pro Pro Ser Asp Ala Val Gln Arg Ala Lys Glu Val Leu Glu Glu Ile
                405                 410                 415

Ser Cys Tyr Pro Glu Asn Asn Asp Ala Lys Glu Leu Lys Arg Ile Leu
            420                 425                 430

Thr Gln Pro His Phe Met Ala Leu Leu Gln Thr His Asp Val Val Ala
        435                 440                 445

His Glu Val Tyr Ser Asp Glu Ala Leu Arg Val Thr Pro Pro Pro Thr
```

```
    450                 455                 460

Ser Pro Tyr Leu Asn Gly Asp Ser Pro Glu Ser Ala Asn Gly Asp Met
465                 470                 475                 480

Asp Met Glu Asn Val Thr Arg Val Arg Leu Val Gln Phe Gln Lys Asn
                485                 490                 495

Thr Asp Glu Pro Met Gly Ile Thr Leu Lys Met Asn Glu Leu Asn His
            500                 505                 510

Cys Ile Val Ala Arg Ile Met His Gly Gly Met Ile His Arg Gln Gly
        515                 520                 525

Thr Leu His Val Gly Asp Glu Ile Arg Glu Ile Asn Gly Ile Ser Val
    530                 535                 540

Ala Asn Gln Thr Val Glu Gln Leu Gln Lys Met Leu Arg Glu Met Arg
545                 550                 555                 560

Gly Ser Ile Thr Phe Lys Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser
                565                 570                 575

Ser Cys Glu Arg Asp Ser Pro Ser Thr Ser Arg Gln Ser Pro Ala Asn
            580                 585                 590

Gly His Ser Ser Thr Asn Asn Ser Val Ser Ile Tyr Val Arg Ala Gln
        595                 600                 605

Phe Glu Tyr Asp Pro Ala Lys Asp Asp Leu Ile Pro Cys Lys Glu Ala
    610                 615                 620

Gly Ile Arg Phe Arg Val Gly Asp Ile Ile Gln Ile Ile Ser Lys Asp
625                 630                 635                 640

Asp His Asn Trp Trp Gln Gly Lys Leu Glu Asn Ser Lys Asn Gly Thr
                645                 650                 655

Ala Gly Leu Ile Pro Ser Pro Glu Leu Gln Glu Trp Arg Val Ala Cys
            660                 665                 670

Ile Ala Met Glu Lys Thr Lys Gln Glu Gln Gln Ala Ser Cys Thr Trp
        675                 680                 685
```

```
Phe Gly Lys Lys Lys Lys Gln Tyr Lys Asp Lys Tyr Leu Ala Lys His
    690                 695                 700

Asn Ala Asp Leu Val Thr Tyr Glu Glu Val Val Lys Leu Pro Ala Phe
705                 710                 715                 720

Lys Arg Lys Thr Leu Val Leu Leu Gly Ala His Gly Val Gly Arg Arg
                725                 730                 735

His Ile Lys Asn Thr Leu Ile Thr Lys His Pro Asp Arg Phe Ala Tyr
            740                 745                 750

Pro Ile Pro His Thr Thr Arg Pro Pro Lys Lys Asp Glu Glu Asn Gly
        755                 760                 765

Lys Asn Tyr Tyr Phe Val Ser His Asp Gln Met Met Gln Asp Ile Ser
    770                 775                 780

Asn Asn Glu Tyr Leu Glu Tyr Gly Ser His Glu Asp Ala Met Tyr Gly
785                 790                 795                 800

Thr Lys Leu Glu Thr Ile Arg Lys Ile His Glu Gln Gly Leu Ile Ala
                805                 810                 815

Ile Leu Asp Val Glu Pro Gln Ala Leu Lys Val Leu Arg Thr Ala Glu
            820                 825                 830

Phe Ala Pro Phe Val Val Phe Ile Ala Ala Pro Thr Ile Thr Pro Gly
        835                 840                 845

Leu Asn Glu Asp Glu Ser Leu Gln Arg Leu Gln Lys Glu Ser Asp Ile
    850                 855                 860

Leu Gln Arg Thr Tyr Ala His Tyr Phe Asp Leu Thr Ile Ile Asn Asn
865                 870                 875                 880

Glu Ile Asp Glu Thr Ile Arg His Leu Glu Glu Ala Val Glu Leu Val
                885                 890                 895

Cys Thr Ala Pro Gln Trp Val Pro Val Ser Trp Val Tyr
            900                 905
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<210> 10961
<211> 926
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2169; "

<220>
<221> source
<223> /note="Gene Symbol: CASK; "

<220>
<221> source
<223> /note="Gene Name: calcium/calmodulin-dependent serine prt
kinase (MAGUK
family); "

<220>
<221> source
<223> /note="Uniprot ID: O14936; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000367405"

<400> 10961
Met Ala Asp Asp Asp Val Leu Phe Glu Asp Val Tyr Glu Leu Cys Glu
1   5   10   15

Val Ile Gly Lys Gly Pro Phe Ser Val Val Arg Arg Cys Ile Asn Arg
            20   25   30

Glu Thr Gly Gln Gln Phe Ala Val Lys Ile Val Asp Val Ala Lys Phe
        35   40   45

Thr Ser Ser Pro Gly Leu Ser Thr Glu Asp Leu Lys Arg Glu Ala Ser
    50   55   60

Ile Cys His Met Leu Lys His Pro His Ile Val Glu Leu Leu Glu Thr
65   70   75   80

Tyr Ser Ser Asp Gly Met Leu Tyr Met Val Phe Glu Phe Met Asp Gly
                85   90   95

Ala Asp Leu Cys Phe Glu Ile Val Lys Arg Ala Asp Ala Gly Phe Val
            100   105   110

```
Tyr Ser Glu Ala Val Ala Ser His Tyr Met Arg Gln Ile Leu Glu Ala
        115                 120                 125

Leu Arg Tyr Cys His Asp Asn Asn Ile Ile His Arg Asp Val Lys Pro
    130                 135                 140

His Cys Val Leu Leu Ala Ser Lys Glu Asn Ser Ala Pro Val Lys Leu
145                 150                 155                 160

Gly Gly Phe Gly Val Ala Ile Gln Leu Gly Glu Ser Gly Leu Val Ala
                165                 170                 175

Gly Gly Arg Val Gly Thr Pro His Phe Met Ala Pro Glu Val Val Lys
            180                 185                 190

Arg Glu Pro Tyr Gly Lys Pro Val Asp Val Trp Gly Cys Gly Val Ile
        195                 200                 205

Leu Phe Ile Leu Leu Ser Gly Cys Leu Pro Phe Tyr Gly Thr Lys Glu
    210                 215                 220

Arg Leu Phe Glu Gly Ile Ile Lys Gly Lys Tyr Lys Met Asn Pro Arg
225                 230                 235                 240

Gln Trp Ser His Ile Ser Glu Ser Ala Lys Asp Leu Val Arg Arg Met
                245                 250                 255

Leu Met Leu Asp Pro Ala Glu Arg Ile Thr Val Tyr Glu Ala Leu Asn
            260                 265                 270

His Pro Trp Leu Lys Glu Arg Asp Arg Tyr Ala Tyr Lys Ile His Leu
        275                 280                 285

Pro Glu Thr Val Glu Gln Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu
    290                 295                 300

Lys Gly Ala Val Leu Ala Ala Val Ser Ser His Lys Phe Asn Ser Phe
305                 310                 315                 320

Tyr Gly Asp Pro Pro Glu Glu Leu Pro Asp Phe Ser Glu Asp Pro Thr
                325                 330                 335

Ser Ser Gly Leu Leu Ala Ala Glu Arg Ala Val Ser Gln Val Leu Asp
```

```
            340                 345                 350

Ser Leu Glu Glu Ile His Ala Leu Thr Asp Cys Ser Glu Lys Asp Leu
        355                 360                 365

Asp Phe Leu His Ser Val Phe Gln Asp Gln His Leu His Thr Leu Leu
    370                 375                 380

Asp Leu Tyr Asp Lys Ile Asn Thr Lys Ser Ser Pro Gln Ile Arg Asn
385                 390                 395                 400

Pro Pro Ser Asp Ala Val Gln Arg Ala Lys Glu Val Leu Glu Glu Ile
                405                 410                 415

Ser Cys Tyr Pro Glu Asn Asn Asp Ala Lys Glu Leu Lys Arg Ile Leu
            420                 425                 430

Thr Gln Pro His Phe Met Ala Leu Leu Gln Thr His Asp Val Val Ala
        435                 440                 445

His Glu Val Tyr Ser Asp Glu Ala Leu Arg Val Thr Pro Pro Pro Thr
    450                 455                 460

Ser Pro Tyr Leu Asn Gly Asp Ser Pro Glu Ser Ala Asn Gly Asp Met
465                 470                 475                 480

Asp Met Glu Asn Val Thr Arg Val Arg Leu Val Gln Phe Gln Lys Asn
                485                 490                 495

Thr Asp Glu Pro Met Gly Ile Thr Leu Lys Met Asn Glu Leu Asn His
            500                 505                 510

Cys Ile Val Ala Arg Ile Met His Gly Gly Met Ile His Arg Gln Gly
        515                 520                 525

Thr Leu His Val Gly Asp Glu Ile Arg Glu Ile Asn Gly Ile Ser Val
    530                 535                 540

Ala Asn Gln Thr Val Glu Gln Leu Gln Lys Met Leu Arg Glu Met Arg
545                 550                 555                 560

Gly Ser Ile Thr Phe Lys Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser
                565                 570                 575
```

```
Ser Cys Glu Arg Asp Ser Pro Ser Thr Ser Arg Gln Ser Pro Ala Asn
            580                 585                 590

Gly His Ser Ser Thr Asn Asn Ser Val Ser Asp Leu Pro Ser Thr Thr
        595                 600                 605

Gln Pro Lys Gly Arg Gln Ile Tyr Val Arg Ala Gln Phe Glu Tyr Asp
    610                 615                 620

Pro Ala Lys Asp Asp Leu Ile Pro Cys Lys Glu Ala Gly Ile Arg Phe
625                 630                 635                 640

Arg Val Gly Asp Ile Ile Gln Ile Ile Ser Lys Asp Asp His Asn Trp
                645                 650                 655

Trp Gln Gly Lys Leu Glu Asn Ser Lys Asn Gly Thr Ala Gly Leu Ile
            660                 665                 670

Pro Ser Pro Glu Leu Gln Glu Trp Arg Val Ala Cys Ile Ala Met Glu
        675                 680                 685

Lys Thr Lys Gln Glu Gln Gln Ala Ser Cys Thr Trp Phe Gly Lys Lys
    690                 695                 700

Lys Lys Gln Tyr Lys Asp Lys Tyr Leu Ala Lys His Asn Ala Val Phe
705                 710                 715                 720

Asp Gln Leu Asp Leu Val Thr Tyr Glu Glu Val Val Lys Leu Pro Ala
                725                 730                 735

Phe Lys Arg Lys Thr Leu Val Leu Leu Gly Ala His Gly Val Gly Arg
            740                 745                 750

Arg His Ile Lys Asn Thr Leu Ile Thr Lys His Pro Asp Arg Phe Ala
        755                 760                 765

Tyr Pro Ile Pro His Thr Thr Arg Pro Pro Lys Lys Asp Glu Glu Asn
    770                 775                 780

Gly Lys Asn Tyr Tyr Phe Val Ser His Asp Gln Met Met Gln Asp Ile
785                 790                 795                 800
```

```
Ser Asn Asn Glu Tyr Leu Glu Tyr Gly Ser His Glu Asp Ala Met Tyr
                805                 810                 815

Gly Thr Lys Leu Glu Thr Ile Arg Lys Ile His Glu Gln Gly Leu Ile
            820                 825                 830

Ala Ile Leu Asp Val Glu Pro Gln Ala Leu Lys Val Leu Arg Thr Ala
        835                 840                 845

Glu Phe Ala Pro Phe Val Val Phe Ile Ala Ala Pro Thr Ile Thr Pro
    850                 855                 860

Gly Leu Asn Glu Asp Glu Ser Leu Gln Arg Leu Gln Lys Glu Ser Asp
865                 870                 875                 880

Ile Leu Gln Arg Thr Tyr Ala His Tyr Phe Asp Leu Thr Ile Ile Asn
                885                 890                 895

Asn Glu Ile Asp Glu Thr Ile Arg His Leu Glu Glu Ala Val Glu Leu
            900                 905                 910

Val Cys Thr Ala Pro Gln Trp Val Pro Val Ser Trp Val Tyr
        915                 920                 925


<210> 10962
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<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name: calcium/calmodulin-dependent serine prt
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<400> 10962
Met Ala Asp Asp Asp Val Leu Phe Glu Asp Val Tyr Glu Leu Cys Glu
1 5 10 15

Val Ile Gly Lys Gly Pro Phe Ser Val Val Arg Arg Cys Ile Asn Arg
20 25 30

Glu Thr Gly Gln Gln Phe Ala Val Lys Ile Val Asp Val Ala Lys Phe
35 40 45

Thr Ser Ser Pro Gly Leu Ser Thr Glu Asp Leu Lys Arg Glu Ala Ser
50 55 60

Ile Cys His Met Leu Lys His Pro His Ile Val Glu Leu Leu Glu Thr
65 70 75 80

Tyr Ser Ser Asp Gly Met Leu Tyr Met Val Phe Glu Phe Met Asp Gly
85 90 95

Ala Asp Leu Cys Phe Glu Ile Val Lys Arg Ala Asp Ala Gly Phe Val
100 105 110

Tyr Ser Glu Ala Val Ala Ser His Tyr Met Arg Gln Ile Leu Glu Ala
115 120 125

Leu Arg Tyr Cys His Asp Asn Asn Ile Ile His Arg Asp Val Lys Pro
130 135 140

His Cys Val Leu Leu Ala Ser Lys Glu Asn Ser Ala Pro Val Lys Leu
145 150 155 160

Gly Gly Phe Gly Val Ala Ile Gln Leu Gly Glu Ser Gly Leu Val Ala
165 170 175

Gly Gly Arg Val Gly Thr Pro His Phe Met Ala Pro Glu Val Val Lys
180 185 190

Arg Glu Pro Tyr Gly Lys Pro Val Asp Val Trp Gly Cys Gly Val Ile
195 200 205

Leu Phe Ile Leu Leu Ser Gly Cys Leu Pro Phe Tyr Gly Thr Lys Glu

```
    210                 215                 220

Arg Leu Phe Glu Gly Ile Ile Lys Gly Lys Tyr Lys Met Asn Pro Arg
225                 230                 235                 240

Gln Trp Ser His Ile Ser Glu Ser Ala Lys Asp Leu Val Arg Arg Met
                245                 250                 255

Leu Met Leu Asp Pro Ala Glu Arg Ile Thr Val Tyr Glu Ala Leu Asn
            260                 265                 270

His Pro Trp Leu Lys Glu Arg Asp Arg Tyr Ala Tyr Lys Ile His Leu
        275                 280                 285

Pro Glu Thr Val Glu Gln Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu
    290                 295                 300

Lys Gly Ala Val Leu Ala Ala Val Ser Ser His Lys Phe Asn Ser Phe
305                 310                 315                 320

Tyr Gly Asp Pro Pro Glu Glu Leu Pro Asp Phe Ser Glu Asp Pro Thr
                325                 330                 335

Ser Ser Gly Leu Leu Ala Ala Glu Arg Ala Val Ser Gln Val Leu Asp
            340                 345                 350

Ser Leu Glu Glu Ile His Ala Leu Thr Asp Cys Ser Glu Lys Asp Leu
        355                 360                 365

Asp Phe Leu His Ser Val Phe Gln Asp Gln His Leu His Thr Leu Leu
    370                 375                 380

Asp Leu Tyr Asp Lys Ile Asn Thr Lys Ser Ser Pro Gln Ile Arg Asn
385                 390                 395                 400

Pro Pro Ser Asp Ala Val Gln Arg Ala Lys Glu Val Leu Glu Glu Ile
                405                 410                 415

Ser Cys Tyr Pro Glu Asn Asn Asp Ala Lys Glu Leu Lys Arg Ile Leu
            420                 425                 430

Thr Gln Pro His Phe Met Ala Leu Leu Gln Thr His Asp Val Val Ala
        435                 440                 445
```

```
His Glu Val Tyr Ser Asp Glu Ala Leu Arg Val Thr Pro Pro Pro Thr
    450                 455                 460

Ser Pro Tyr Leu Asn Gly Asp Ser Pro Glu Ser Ala Asn Gly Asp Met
465                 470                 475                 480

Asp Met Glu Asn Val Thr Arg Val Arg Leu Val Gln Phe Gln Lys Asn
                485                 490                 495

Thr Asp Glu Pro Met Gly Ile Thr Leu Lys Met Asn Glu Leu Asn His
            500                 505                 510

Cys Ile Val Ala Arg Ile Met His Gly Gly Met Ile His Arg Gln Gly
        515                 520                 525

Thr Leu His Val Gly Asp Glu Ile Arg Glu Ile Asn Gly Ile Ser Val
    530                 535                 540

Ala Asn Gln Thr Val Glu Gln Leu Gln Lys Met Leu Arg Glu Met Arg
545                 550                 555                 560

Gly Ser Ile Thr Phe Lys Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser
                565                 570                 575

Ser Cys Glu Arg Asp Ser Pro Ser Thr Ser Arg Gln Ser Pro Ala Asn
            580                 585                 590

Gly His Ser Ser Thr Asn Asn Ser Val Ser Asp Leu Pro Ser Thr Thr
        595                 600                 605

Gln Pro Lys Gly Arg Gln Ile Tyr Val Arg Ala Gln Phe Glu Tyr Asp
    610                 615                 620

Pro Ala Lys Asp Asp Leu Ile Pro Cys Lys Glu Ala Gly Ile Arg Phe
625                 630                 635                 640

Arg Val Gly Asp Ile Ile Gln Ile Ile Ser Lys Asp Asp His Asn Trp
                645                 650                 655

Trp Gln Gly Lys Leu Glu Asn Ser Lys Asn Gly Thr Ala Gly Leu Ile
            660                 665                 670
```

```
Pro Ser Pro Glu Leu Gln Glu Trp Arg Val Ala Cys Ile Ala Met Glu
        675                 680                 685

Lys Thr Lys Gln Glu Gln Gln Ala Ser Cys Thr Trp Phe Gly Lys Lys
    690                 695                 700

Lys Lys Gln Tyr Lys Asp Lys Tyr Leu Ala Lys His Asn Ala Asp Leu
705                 710                 715                 720

Val Thr Tyr Glu Glu Val Val Lys Leu Pro Ala Phe Lys Arg Lys Thr
                725                 730                 735

Leu Val Leu Leu Gly Ala His Gly Val Gly Arg Arg His Ile Lys Asn
            740                 745                 750

Thr Leu Ile Thr Lys His Pro Asp Arg Phe Ala Tyr Pro Ile Pro His
        755                 760                 765

Thr Thr Arg Pro Pro Lys Lys Asp Glu Glu Asn Gly Lys Asn Tyr Tyr
    770                 775                 780

Phe Val Ser His Asp Gln Met Met Gln Asp Ile Ser Asn Asn Glu Tyr
785                 790                 795                 800

Leu Glu Tyr Gly Ser His Glu Asp Ala Met Tyr Gly Thr Lys Leu Glu
                805                 810                 815

Thr Ile Arg Lys Ile His Glu Gln Gly Leu Ile Ala Ile Leu Asp Val
            820                 825                 830

Glu Pro Gln Ala Leu Lys Val Leu Arg Thr Ala Glu Phe Ala Pro Phe
        835                 840                 845

Val Val Phe Ile Ala Ala Pro Thr Ile Thr Pro Gly Leu Asn Glu Asp
    850                 855                 860

Glu Ser Leu Gln Arg Leu Gln Lys Glu Ser Asp Ile Leu Gln Arg Thr
865                 870                 875                 880

Tyr Ala His Tyr Phe Asp Leu Thr Ile Ile Asn Asn Glu Ile Asp Glu
                885                 890                 895
```

Thr Ile Arg His Leu Glu Glu Ala Val Glu Leu Val Cys Thr Ala Pro
900 905 910

Gln Trp Val Pro Val Ser Trp Val Tyr
915 920

<210> 10963
<211> 381
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CASK; "

<220>
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kinase (MAGUK
family); "

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<223> /note="ENSP ID: ENSP00000367410"

<400> 10963
Asp Glu Ile Arg Glu Ile Asn Gly Ile Ser Val Ala Asn Gln Thr Val
1 5 10 15

Glu Gln Leu Gln Lys Met Leu Arg Glu Met Arg Gly Ser Ile Thr Phe
20 25 30

Lys Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser Ser Cys Glu Arg Asp
35 40 45

Ser Pro Ser Thr Ser Arg Gln Ser Pro Ala Asn Gly His Ser Ser Thr
50 55 60

Asn Asn Ser Val Ser Ile Tyr Val Arg Ala Gln Phe Glu Tyr Asp Pro
65 70 75 80

Ala Lys Asp Asp Leu Ile Pro Cys Lys Glu Ala Gly Ile Arg Phe Arg
85 90 95

Val Gly Asp Ile Ile Gln Ile Ile Ser Lys Asp Asp His Asn Trp Trp

```
            100                 105                 110

Gln Gly Lys Leu Glu Asn Ser Lys Asn Gly Thr Ala Gly Leu Ile Pro
        115                 120                 125

Ser Pro Glu Leu Gln Glu Trp Arg Val Ala Cys Ile Ala Met Glu Lys
    130                 135                 140

Thr Lys Gln Glu Gln Gln Ala Ser Cys Thr Trp Phe Gly Lys Lys Lys
145                 150                 155                 160

Lys Gln Tyr Lys Asp Lys Tyr Leu Ala Lys His Asn Ala Val Phe Asp
                165                 170                 175

Gln Leu Asp Leu Val Thr Tyr Glu Glu Val Val Lys Leu Pro Ala Phe
            180                 185                 190

Lys Arg Lys Thr Leu Val Leu Leu Gly Ala His Gly Val Gly Arg Arg
        195                 200                 205

His Ile Lys Asn Thr Leu Ile Thr Lys His Pro Asp Arg Phe Ala Tyr
    210                 215                 220

Pro Ile Pro His Thr Thr Arg Pro Pro Lys Lys Asp Glu Glu Asn Gly
225                 230                 235                 240

Lys Asn Tyr Tyr Phe Val Ser His Asp Gln Met Met Gln Asp Ile Ser
                245                 250                 255

Asn Asn Glu Tyr Leu Glu Tyr Gly Ser His Glu Asp Ala Met Tyr Gly
            260                 265                 270

Thr Lys Leu Glu Thr Ile Arg Lys Ile His Glu Gln Gly Leu Ile Ala
        275                 280                 285

Ile Leu Asp Val Glu Pro Gln Ala Leu Lys Val Leu Arg Thr Ala Glu
    290                 295                 300

Phe Ala Pro Phe Val Val Phe Ile Ala Ala Pro Thr Ile Thr Pro Gly
305                 310                 315                 320

Leu Asn Glu Asp Glu Ser Leu Gln Arg Leu Gln Lys Glu Ser Asp Ile
                325                 330                 335
```

Leu Gln Arg Thr Tyr Ala His Tyr Phe Asp Leu Thr Ile Ile Asn Asn
340 345 350

Glu Ile Asp Glu Thr Ile Arg His Leu Glu Glu Ala Val Glu Leu Val
355 360 365

Cys Thr Ala Pro Gln Trp Val Pro Val Ser Trp Val Tyr
370 375 380

<210> 10964
<211> 518
<212> PRT
<213> Homo sapiens

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<400> 10964
Leu Tyr Asp Lys Ile Asn Thr Lys Ser Ser Pro Gln Ile Arg Asn Pro
1 5 10 15

Pro Ser Asp Ala Val Gln Arg Ala Lys Glu Val Leu Glu Glu Ile Ser
20 25 30

Cys Tyr Pro Glu Asn Asn Asp Ala Lys Glu Leu Lys Arg Ile Leu Thr
35 40 45

Gln Pro His Phe Met Ala Leu Leu Gln Thr His Asp Val Val Ala His
50 55 60

Glu Val Tyr Ser Asp Glu Ala Leu Arg Val Thr Pro Pro Pro Thr Ser
65 70 75 80

```
Pro Tyr Leu Asn Gly Asp Ser Pro Glu Ser Ala Asn Gly Asp Met Asp
                85                  90                  95

Met Glu Asn Val Thr Arg Val Arg Leu Val Gln Phe Gln Lys Asn Thr
            100                 105                 110

Asp Glu Pro Met Gly Ile Thr Leu Lys Met Asn Glu Leu Asn His Cys
        115                 120                 125

Ile Val Ala Arg Ile Met His Gly Gly Met Ile His Arg Gln Gly Thr
    130                 135                 140

Leu His Val Gly Asp Glu Ile Arg Glu Ile Asn Gly Ile Ser Val Ala
145                 150                 155                 160

Asn Gln Thr Val Glu Gln Leu Gln Lys Met Leu Arg Glu Met Arg Gly
                165                 170                 175

Ser Ile Thr Phe Lys Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser Ser
            180                 185                 190

Cys Glu Asp Leu Pro Ser Thr Thr Gln Pro Lys Gly Arg Gln Ile Tyr
        195                 200                 205

Val Arg Ala Gln Phe Glu Tyr Asp Pro Ala Lys Asp Asp Leu Ile Pro
    210                 215                 220

Cys Lys Glu Ala Gly Ile Arg Phe Arg Val Gly Asp Ile Ile Gln Ile
225                 230                 235                 240

Ile Ser Lys Asp Asp His Asn Trp Trp Gln Gly Lys Leu Glu Asn Ser
                245                 250                 255

Lys Asn Gly Thr Ala Gly Leu Ile Pro Ser Pro Glu Leu Gln Glu Trp
            260                 265                 270

Arg Val Ala Cys Ile Ala Met Glu Lys Thr Lys Gln Glu Gln Gln Ala
        275                 280                 285

Ser Cys Thr Trp Phe Gly Lys Lys Lys Lys Gln Tyr Lys Asp Lys Tyr
    290                 295                 300
```

Leu Ala Lys His Asn Ala Val Phe Asp Gln Leu Asp Leu Val Thr Tyr
305 310 315 320

Glu Glu Val Val Lys Leu Pro Ala Phe Lys Arg Lys Thr Leu Val Leu
325 330 335

Leu Gly Ala His Gly Val Gly Arg Arg His Ile Lys Asn Thr Leu Ile
340 345 350

Thr Lys His Pro Asp Arg Phe Ala Tyr Pro Ile Pro His Thr Thr Arg
355 360 365

Pro Pro Lys Lys Asp Glu Glu Asn Gly Lys Asn Tyr Tyr Phe Val Ser
370 375 380

His Asp Gln Met Met Gln Asp Ile Ser Asn Asn Glu Tyr Leu Glu Tyr
385 390 395 400

Gly Ser His Glu Asp Ala Met Tyr Gly Thr Lys Leu Glu Thr Ile Arg
405 410 415

Lys Ile His Glu Gln Gly Leu Ile Ala Ile Leu Asp Val Glu Pro Gln
420 425 430

Ala Leu Lys Val Leu Arg Thr Ala Glu Phe Ala Pro Phe Val Val Phe
435 440 445

Ile Ala Ala Pro Thr Ile Thr Pro Gly Leu Asn Glu Asp Glu Ser Leu
450 455 460

Gln Arg Leu Gln Lys Glu Ser Asp Ile Leu Gln Arg Thr Tyr Ala His
465 470 475 480

Tyr Phe Asp Leu Thr Ile Ile Asn Asn Glu Ile Asp Glu Thr Ile Arg
485 490 495

His Leu Glu Glu Ala Val Glu Leu Val Cys Thr Ala Pro Gln Trp Val
500 505 510

Pro Val Ser Trp Val Tyr
515

<210> 10965

<211> 898
<212> PRT
<213> Homo sapiens

<220>
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<400> 10965
Met Ala Asp Asp Asp Val Leu Phe Glu Asp Val Tyr Glu Leu Cys Glu
1   5   10   15

Val Ile Gly Lys Gly Pro Phe Ser Val Val Arg Arg Cys Ile Asn Arg
            20   25   30

Glu Thr Gly Gln Gln Phe Ala Val Lys Ile Val Asp Val Ala Lys Phe
        35   40   45

Thr Ser Ser Pro Gly Leu Ser Thr Glu Asp Leu Lys Arg Glu Ala Ser
    50   55   60

Ile Cys His Met Leu Lys His Pro His Ile Val Glu Leu Leu Glu Thr
65   70   75   80

Tyr Ser Ser Asp Gly Met Leu Tyr Met Val Phe Glu Phe Met Asp Gly
                85   90   95

Ala Asp Leu Cys Phe Glu Ile Val Lys Arg Ala Asp Ala Gly Phe Val
            100   105   110

Tyr Ser Glu Ala Val Ala Ser His Tyr Met Arg Gln Ile Leu Glu Ala
        115   120   125

```
Leu Arg Tyr Cys His Asp Asn Asn Ile Ile His Arg Asp Val Lys Pro
    130                 135                 140

His Cys Val Leu Leu Ala Ser Lys Glu Asn Ser Ala Pro Val Lys Leu
145                 150                 155                 160

Gly Gly Phe Gly Val Ala Ile Gln Leu Gly Glu Ser Gly Leu Val Ala
                165                 170                 175

Gly Gly Arg Val Gly Thr Pro His Phe Met Ala Pro Glu Val Val Lys
            180                 185                 190

Arg Glu Pro Tyr Gly Lys Pro Val Asp Val Trp Gly Cys Gly Val Ile
        195                 200                 205

Leu Phe Ile Leu Leu Ser Gly Cys Leu Pro Phe Tyr Gly Thr Lys Glu
    210                 215                 220

Arg Leu Phe Glu Gly Ile Ile Lys Gly Lys Tyr Lys Met Asn Pro Arg
225                 230                 235                 240

Gln Trp Ser His Ile Ser Glu Ser Ala Lys Asp Leu Val Arg Arg Met
                245                 250                 255

Leu Met Leu Asp Pro Ala Glu Arg Ile Thr Val Tyr Glu Ala Leu Asn
            260                 265                 270

His Pro Trp Leu Lys Glu Arg Asp Arg Tyr Ala Tyr Lys Ile His Leu
        275                 280                 285

Pro Glu Thr Val Glu Gln Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu
    290                 295                 300

Lys Gly Ala Val Leu Ala Ala Val Ser Ser His Lys Phe Asn Ser Phe
305                 310                 315                 320

Tyr Gly Asp Pro Pro Glu Glu Leu Pro Asp Phe Ser Glu Asp Pro Thr
                325                 330                 335

Ser Ser Gly Leu Leu Ala Ala Glu Arg Ala Val Ser Gln Val Leu Asp
            340                 345                 350
```

```
Ser Leu Glu Glu Ile His Ala Leu Thr Asp Cys Ser Glu Lys Asp Leu
        355                 360                 365

Asp Phe Leu His Ser Val Phe Gln Asp Gln His Leu His Thr Leu Leu
    370                 375                 380

Asp Leu Tyr Asp Lys Ile Asn Thr Lys Ser Ser Pro Gln Ile Arg Asn
385                 390                 395                 400

Pro Pro Ser Asp Ala Val Gln Arg Ala Lys Glu Val Leu Glu Glu Ile
                405                 410                 415

Ser Cys Tyr Pro Glu Asn Asn Asp Ala Lys Glu Leu Lys Arg Ile Leu
            420                 425                 430

Thr Gln Pro His Phe Met Ala Leu Leu Gln Thr His Asp Val Val Ala
        435                 440                 445

His Glu Val Tyr Ser Asp Glu Ala Leu Arg Val Thr Pro Pro Pro Thr
    450                 455                 460

Ser Pro Tyr Leu Asn Gly Asp Ser Pro Glu Ser Ala Asn Gly Asp Met
465                 470                 475                 480

Asp Met Glu Asn Val Thr Arg Val Arg Leu Val Gln Phe Gln Lys Asn
                485                 490                 495

Thr Asp Glu Pro Met Gly Ile Thr Leu Lys Met Asn Glu Leu Asn His
            500                 505                 510

Cys Ile Val Ala Arg Ile Met His Gly Gly Met Ile His Arg Gln Gly
        515                 520                 525

Thr Leu His Val Gly Asp Glu Ile Arg Glu Ile Asn Gly Ile Ser Val
    530                 535                 540

Ala Asn Gln Thr Val Glu Gln Leu Gln Lys Met Leu Arg Glu Met Arg
545                 550                 555                 560

Gly Ser Ile Thr Phe Lys Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser
                565                 570                 575
```

```
Ser Cys Glu Asp Leu Pro Ser Thr Thr Gln Pro Lys Gly Arg Gln Ile
            580                 585                 590

Tyr Val Arg Ala Gln Phe Glu Tyr Asp Pro Ala Lys Asp Asp Leu Ile
        595                 600                 605

Pro Cys Lys Glu Ala Gly Ile Arg Phe Arg Val Gly Asp Ile Ile Gln
    610                 615                 620

Ile Ile Ser Lys Asp Asp His Asn Trp Trp Gln Gly Lys Leu Glu Asn
625                 630                 635                 640

Ser Lys Asn Gly Thr Ala Gly Leu Ile Pro Ser Pro Glu Leu Gln Glu
                645                 650                 655

Trp Arg Val Ala Cys Ile Ala Met Glu Lys Thr Lys Gln Glu Gln Gln
            660                 665                 670

Ala Ser Cys Thr Trp Phe Gly Lys Lys Lys Lys Gln Tyr Lys Asp Lys
        675                 680                 685

Tyr Leu Ala Lys His Asn Ala Asp Leu Val Thr Tyr Glu Glu Val Val
    690                 695                 700

Lys Leu Pro Ala Phe Lys Arg Lys Thr Leu Val Leu Leu Gly Ala His
705                 710                 715                 720

Gly Val Gly Arg Arg His Ile Lys Asn Thr Leu Ile Thr Lys His Pro
                725                 730                 735

Asp Arg Phe Ala Tyr Pro Ile Pro His Thr Thr Arg Pro Pro Lys Lys
            740                 745                 750

Asp Glu Glu Asn Gly Lys Asn Tyr Tyr Phe Val Ser His Asp Gln Met
        755                 760                 765

Met Gln Asp Ile Ser Asn Asn Glu Tyr Leu Glu Tyr Gly Ser His Glu
    770                 775                 780

Asp Ala Met Tyr Gly Thr Lys Leu Glu Thr Ile Arg Lys Ile His Glu
785                 790                 795                 800

Gln Gly Leu Ile Ala Ile Leu Asp Val Glu Pro Gln Ala Leu Lys Val
```

```
                805                 810                 815

Leu Arg Thr Ala Glu Phe Ala Pro Phe Val Val Phe Ile Ala Ala Pro
            820                 825                 830

Thr Ile Thr Pro Gly Leu Asn Glu Asp Glu Ser Leu Gln Arg Leu Gln
        835                 840                 845

Lys Glu Ser Asp Ile Leu Gln Arg Thr Tyr Ala His Tyr Phe Asp Leu
    850                 855                 860

Thr Ile Ile Asn Asn Glu Ile Asp Glu Thr Ile Arg His Leu Glu Glu
865                 870                 875                 880

Ala Val Glu Leu Val Cys Thr Ala Pro Gln Trp Val Pro Val Ser Trp
                885                 890                 895

Val Tyr
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<210> 10966
<211> 897
<212> PRT
<213> Homo sapiens

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kinase (MAGUK
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<400> 10966

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Met Ala Asp Asp Asp Val Leu Phe Glu Asp Val Tyr Glu Leu Cys Glu
1               5                   10                  15
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Val Ile Gly Lys Gly Pro Phe Ser Val Val Arg Arg Cys Ile Asn Arg
            20                  25                  30

Glu Thr Gly Gln Gln Phe Ala Val Lys Ile Val Asp Val Ala Lys Phe
        35                  40                  45

Thr Ser Ser Pro Gly Leu Ser Thr Glu Asp Leu Lys Arg Glu Ala Ser
    50                  55                  60

Ile Cys His Met Leu Lys His Pro His Ile Val Glu Leu Leu Glu Thr
65                  70                  75                  80

Tyr Ser Ser Asp Gly Met Leu Tyr Met Val Phe Glu Phe Met Asp Gly
                85                  90                  95

Ala Asp Leu Cys Phe Glu Ile Val Lys Arg Ala Asp Ala Gly Phe Val
            100                 105                 110

Tyr Ser Glu Ala Val Ala Ser His Tyr Met Arg Gln Ile Leu Glu Ala
        115                 120                 125

Leu Arg Tyr Cys His Asp Asn Asn Ile Ile His Arg Asp Val Lys Pro
    130                 135                 140

His Cys Val Leu Leu Ala Ser Lys Glu Asn Ser Ala Pro Val Lys Leu
145                 150                 155                 160

Gly Gly Phe Gly Val Ala Ile Gln Leu Gly Glu Ser Gly Leu Val Ala
                165                 170                 175

Gly Gly Arg Val Gly Thr Pro His Phe Met Ala Pro Glu Val Val Lys
            180                 185                 190

Arg Glu Pro Tyr Gly Lys Pro Val Asp Val Trp Gly Cys Gly Val Ile
        195                 200                 205

Leu Phe Ile Leu Leu Ser Gly Cys Leu Pro Phe Tyr Gly Thr Lys Glu
    210                 215                 220

Arg Leu Phe Glu Gly Ile Ile Lys Gly Lys Tyr Lys Met Asn Pro Arg
225                 230                 235                 240
```

```
Gln Trp Ser His Ile Ser Glu Ser Ala Lys Asp Leu Val Arg Arg Met
                245                 250                 255

Leu Met Leu Asp Pro Ala Glu Arg Ile Thr Val Tyr Glu Ala Leu Asn
            260                 265                 270

His Pro Trp Leu Lys Glu Arg Asp Arg Tyr Ala Tyr Lys Ile His Leu
        275                 280                 285

Pro Glu Thr Val Glu Gln Leu Arg Lys Phe Asn Ala Arg Arg Lys Leu
    290                 295                 300

Lys Gly Ala Val Leu Ala Ala Val Ser Ser His Lys Phe Asn Ser Phe
305                 310                 315                 320

Tyr Gly Asp Pro Pro Glu Glu Leu Pro Asp Phe Ser Glu Asp Pro Thr
                325                 330                 335

Ser Ser Gly Ala Val Ser Gln Val Leu Asp Ser Leu Glu Glu Ile His
            340                 345                 350

Ala Leu Thr Asp Cys Ser Glu Lys Asp Leu Asp Phe Leu His Ser Val
        355                 360                 365

Phe Gln Asp Gln His Leu His Thr Leu Leu Asp Leu Tyr Asp Lys Ile
    370                 375                 380

Asn Thr Lys Ser Ser Pro Gln Ile Arg Asn Pro Pro Ser Asp Ala Val
385                 390                 395                 400

Gln Arg Ala Lys Glu Val Leu Glu Glu Ile Ser Cys Tyr Pro Glu Asn
                405                 410                 415

Asn Asp Ala Lys Glu Leu Lys Arg Ile Leu Thr Gln Pro His Phe Met
            420                 425                 430

Ala Leu Leu Gln Thr His Asp Val Val Ala His Glu Val Tyr Ser Asp
        435                 440                 445

Glu Ala Leu Arg Val Thr Pro Pro Pro Thr Ser Pro Tyr Leu Asn Gly
    450                 455                 460
```

```
Asp Ser Pro Glu Ser Ala Asn Gly Asp Met Asp Met Glu Asn Val Thr
465                 470                 475                 480

Arg Val Arg Leu Val Gln Phe Gln Lys Asn Thr Asp Glu Pro Met Gly
                485                 490                 495

Ile Thr Leu Lys Met Asn Glu Leu Asn His Cys Ile Val Ala Arg Ile
            500                 505                 510

Met His Gly Gly Met Ile His Arg Gln Gly Thr Leu His Val Gly Asp
        515                 520                 525

Glu Ile Arg Glu Ile Asn Gly Ile Ser Val Ala Asn Gln Thr Val Glu
    530                 535                 540

Gln Leu Gln Lys Met Leu Arg Glu Met Arg Gly Ser Ile Thr Phe Lys
545                 550                 555                 560

Ile Val Pro Ser Tyr Arg Thr Gln Ser Ser Ser Cys Glu Asp Leu Pro
                565                 570                 575

Ser Thr Thr Gln Pro Lys Gly Arg Gln Ile Tyr Val Arg Ala Gln Phe
            580                 585                 590

Glu Tyr Asp Pro Ala Lys Asp Asp Leu Ile Pro Cys Lys Glu Ala Gly
        595                 600                 605

Ile Arg Phe Arg Val Gly Asp Ile Ile Gln Ile Ile Ser Lys Asp Asp
    610                 615                 620

His Asn Trp Trp Gln Gly Lys Leu Glu Asn Ser Lys Asn Gly Thr Ala
625                 630                 635                 640

Gly Leu Ile Pro Ser Pro Glu Leu Gln Glu Trp Arg Val Ala Cys Ile
                645                 650                 655

Ala Met Glu Lys Thr Lys Gln Glu Gln Gln Ala Ser Cys Thr Trp Phe
            660                 665                 670

Gly Lys Lys Lys Lys Gln Tyr Lys Asp Lys Tyr Leu Ala Lys His Asn
        675                 680                 685

Ala Val Phe Asp Gln Leu Asp Leu Val Thr Tyr Glu Glu Val Val Lys
```

690 695 700

Leu Pro Ala Phe Lys Arg Lys Thr Leu Val Leu Leu Gly Ala His Gly
705 710 715 720

Val Gly Arg Arg His Ile Lys Asn Thr Leu Ile Thr Lys His Pro Asp
725 730 735

Arg Phe Ala Tyr Pro Ile Pro His Thr Thr Arg Pro Pro Lys Lys Asp
740 745 750

Glu Glu Asn Gly Lys Asn Tyr Tyr Phe Val Ser His Asp Gln Met Met
755 760 765

Gln Asp Ile Ser Asn Asn Glu Tyr Leu Glu Tyr Gly Ser His Glu Asp
770 775 780

Ala Met Tyr Gly Thr Lys Leu Glu Thr Ile Arg Lys Ile His Glu Gln
785 790 795 800

Gly Leu Ile Ala Ile Leu Asp Val Glu Pro Gln Ala Leu Lys Val Leu
805 810 815

Arg Thr Ala Glu Phe Ala Pro Phe Val Val Phe Ile Ala Ala Pro Thr
820 825 830

Ile Thr Pro Gly Leu Asn Glu Asp Glu Ser Leu Gln Arg Leu Gln Lys
835 840 845

Glu Ser Asp Ile Leu Gln Arg Thr Tyr Ala His Tyr Phe Asp Leu Thr
850 855 860

Ile Ile Asn Asn Glu Ile Asp Glu Thr Ile Arg His Leu Glu Glu Ala
865 870 875 880

Val Glu Leu Val Cys Thr Ala Pro Gln Trp Val Pro Val Ser Trp Val
885 890 895

Tyr

<210> 10967
<211> 395

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CABS1; "

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<223> /note="Gene Name: calcium-binding prt, spermatid-specific 1; "

<220>
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<223> /note="Uniprot ID: Q96KC9; "

<220>
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<223> /note="ENSP ID: ENSP00000273936"

<400> 10967
Met Ala Glu Asp Gly Leu Pro Lys Ile Tyr Ser His Pro Pro Thr Glu
1   5   10   15

Ser Ser Lys Thr Pro Thr Ala Ala Thr Ile Phe Phe Gly Ala Asp Asn
            20   25   30

Ala Ile Pro Lys Ser Glu Thr Thr Ile Thr Ser Glu Gly Asp His Val
        35   40   45

Thr Ser Val Asn Glu Tyr Met Leu Glu Ser Asp Phe Ser Thr Thr Thr
    50   55   60

Asp Asn Lys Leu Thr Ala Lys Lys Glu Lys Leu Lys Ser Glu Asp Asp
65   70   75   80

Met Gly Thr Asp Phe Ile Lys Ser Thr Thr His Leu Gln Lys Glu Ile
                85   90   95

Thr Ser Leu Thr Gly Thr Thr Asn Ser Ile Thr Arg Asp Ser Ile Thr
            100   105   110

Glu His Phe Met Pro Val Lys Ile Gly Asn Ile Ser Ser Pro Val Thr
        115   120   125

```
Thr Val Ser Leu Ile Asp Phe Ser Thr Asp Ile Ala Lys Glu Asp Ile
    130                 135                 140

Leu Leu Ala Thr Ile Asp Thr Gly Asp Ala Glu Ile Ser Ile Thr Ser
145                 150                 155                 160

Glu Val Ser Gly Thr Leu Lys Asp Ser Ser Ala Gly Val Ala Asp Ala
                165                 170                 175

Pro Ala Phe Pro Arg Lys Lys Asp Glu Ala Asp Met Ser Asn Tyr Asn
            180                 185                 190

Ser Ser Ile Lys Ser Asn Val Pro Ala Asp Glu Ala Val Gln Val Thr
        195                 200                 205

Asp Ser Thr Ile Pro Glu Ala Glu Ile Pro Pro Ala Pro Glu Glu Ser
    210                 215                 220

Phe Thr Thr Ile Pro Asp Ile Thr Ala Leu Glu Glu Glu Lys Ile Thr
225                 230                 235                 240

Glu Ile Asp Leu Ser Val Leu Glu Asp Asp Thr Ser Ala Val Ala Thr
                245                 250                 255

Leu Thr Asp Ser Asp Glu Lys Phe Ile Thr Val Phe Glu Leu Thr Thr
            260                 265                 270

Ser Ala Glu Lys Asp Lys Asp Lys Arg Glu Asp Thr Leu Leu Thr Asp
        275                 280                 285

Glu Glu Thr Thr Glu Gly Ala Ser Ile Trp Met Glu Arg Asp Thr Ala
    290                 295                 300

Asn Glu Ala Glu Thr His Ser Val Leu Leu Thr Ala Val Glu Ser Arg
305                 310                 315                 320

Tyr Asp Phe Val Val Pro Ala Ser Ile Ala Thr Asn Leu Val Glu Glu
                325                 330                 335

Ser Ser Thr Glu Glu Asp Leu Ser Glu Thr Asp Asn Thr Glu Thr Val
            340                 345                 350

Pro Lys Ile Thr Glu Pro Phe Ser Gly Thr Thr Ser Val Leu Asp Thr
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355 360 365

Pro Asp Tyr Lys Glu Asp Thr Ser Thr Thr Glu Thr Asp Ile Phe Glu
370 375 380

Leu Leu Lys Glu Glu Pro Asp Glu Phe Met Ile
385 390 395

<210> 10968
<211> 1078
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CASR; "

<220>
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<223> /note="Gene Name: calcium-sensing receptor; "

<220>
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<223> /note="Uniprot ID: P41180; "

<220>
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<400> 10968
Met Ala Phe Tyr Ser Cys Cys Trp Val Leu Leu Ala Leu Thr Trp His
1 5 10 15

Thr Ser Ala Tyr Gly Pro Asp Gln Arg Ala Gln Lys Lys Gly Asp Ile
20 25 30

Ile Leu Gly Gly Leu Phe Pro Ile His Phe Gly Val Ala Ala Lys Asp
35 40 45

Gln Asp Leu Lys Ser Arg Pro Glu Ser Val Glu Cys Ile Arg Tyr Asn
50 55 60

Phe Arg Gly Phe Arg Trp Leu Gln Ala Met Ile Phe Ala Ile Glu Glu
65 70 75 80

```
Ile Asn Ser Ser Pro Ala Leu Leu Pro Asn Leu Thr Leu Gly Tyr Arg
                85                  90                  95

Ile Phe Asp Thr Cys Asn Thr Val Ser Lys Ala Leu Glu Ala Thr Leu
            100                 105                 110

Ser Phe Val Ala Gln Asn Lys Ile Asp Ser Leu Asn Leu Asp Glu Phe
        115                 120                 125

Cys Asn Cys Ser Glu His Ile Pro Ser Thr Ile Ala Val Val Gly Ala
    130                 135                 140

Thr Gly Ser Gly Val Ser Thr Ala Val Ala Asn Leu Leu Gly Leu Phe
145                 150                 155                 160

Tyr Ile Pro Gln Val Ser Tyr Ala Ser Ser Ser Arg Leu Leu Ser Asn
                165                 170                 175

Lys Asn Gln Phe Lys Ser Phe Leu Arg Thr Ile Pro Asn Asp Glu His
            180                 185                 190

Gln Ala Thr Ala Met Ala Asp Ile Ile Glu Tyr Phe Arg Trp Asn Trp
        195                 200                 205

Val Gly Thr Ile Ala Ala Asp Asp Asp Tyr Gly Arg Pro Gly Ile Glu
    210                 215                 220

Lys Phe Arg Glu Glu Ala Glu Glu Arg Asp Ile Cys Ile Asp Phe Ser
225                 230                 235                 240

Glu Leu Ile Ser Gln Tyr Ser Asp Glu Glu Glu Ile Gln His Val Val
                245                 250                 255

Glu Val Ile Gln Asn Ser Thr Ala Lys Val Ile Val Val Phe Ser Ser
            260                 265                 270

Gly Pro Asp Leu Glu Pro Leu Ile Lys Glu Ile Val Arg Arg Asn Ile
        275                 280                 285

Thr Gly Lys Ile Trp Leu Ala Ser Glu Ala Trp Ala Ser Ser Ser Leu
    290                 295                 300

Ile Ala Met Pro Gln Tyr Phe His Val Val Gly Gly Thr Ile Gly Phe
```

305 310 315 320

Ala Leu Lys Ala Gly Gln Ile Pro Gly Phe Arg Glu Phe Leu Lys Lys
325 330 335

Val His Pro Arg Lys Ser Val His Asn Gly Phe Ala Lys Glu Phe Trp
340 345 350

Glu Glu Thr Phe Asn Cys His Leu Gln Glu Gly Ala Lys Gly Pro Leu
355 360 365

Pro Val Asp Thr Phe Leu Arg Gly His Glu Glu Ser Gly Asp Arg Phe
370 375 380

Ser Asn Ser Ser Thr Ala Phe Arg Pro Leu Cys Thr Gly Asp Glu Asn
385 390 395 400

Ile Ser Ser Val Glu Thr Pro Tyr Ile Asp Tyr Thr His Leu Arg Ile
405 410 415

Ser Tyr Asn Val Tyr Leu Ala Val Tyr Ser Ile Ala His Ala Leu Gln
420 425 430

Asp Ile Tyr Thr Cys Leu Pro Gly Arg Gly Leu Phe Thr Asn Gly Ser
435 440 445

Cys Ala Asp Ile Lys Lys Val Glu Ala Trp Gln Val Leu Lys His Leu
450 455 460

Arg His Leu Asn Phe Thr Asn Asn Met Gly Glu Gln Val Thr Phe Asp
465 470 475 480

Glu Cys Gly Asp Leu Val Gly Asn Tyr Ser Ile Ile Asn Trp His Leu
485 490 495

Ser Pro Glu Asp Gly Ser Ile Val Phe Lys Glu Val Gly Tyr Tyr Asn
500 505 510

Val Tyr Ala Lys Lys Gly Glu Arg Leu Phe Ile Asn Glu Glu Lys Ile
515 520 525

Leu Trp Ser Gly Phe Ser Arg Glu Val Pro Phe Ser Asn Cys Ser Arg
530 535 540

```
Asp Cys Leu Ala Gly Thr Arg Lys Gly Ile Ile Glu Gly Glu Pro Thr
545                 550                 555                 560

Cys Cys Phe Glu Cys Val Glu Cys Pro Asp Gly Glu Tyr Ser Asp Glu
                565                 570                 575

Thr Asp Ala Ser Ala Cys Asn Lys Cys Pro Asp Asp Phe Trp Ser Asn
            580                 585                 590

Glu Asn His Thr Ser Cys Ile Ala Lys Glu Ile Glu Phe Leu Ser Trp
        595                 600                 605

Thr Glu Pro Phe Gly Ile Ala Leu Thr Leu Phe Ala Val Leu Gly Ile
    610                 615                 620

Phe Leu Thr Ala Phe Val Leu Gly Val Phe Ile Lys Phe Arg Asn Thr
625                 630                 635                 640

Pro Ile Val Lys Ala Thr Asn Arg Glu Leu Ser Tyr Leu Leu Leu Phe
                645                 650                 655

Ser Leu Leu Cys Cys Phe Ser Ser Ser Leu Phe Phe Ile Gly Glu Pro
            660                 665                 670

Gln Asp Trp Thr Cys Arg Leu Arg Gln Pro Ala Phe Gly Ile Ser Phe
        675                 680                 685

Val Leu Cys Ile Ser Cys Ile Leu Val Lys Thr Asn Arg Val Leu Leu
    690                 695                 700

Val Phe Glu Ala Lys Ile Pro Thr Ser Phe His Arg Lys Trp Trp Gly
705                 710                 715                 720

Leu Asn Leu Gln Phe Leu Leu Val Phe Leu Cys Thr Phe Met Gln Ile
                725                 730                 735

Val Ile Cys Val Ile Trp Leu Tyr Thr Ala Pro Pro Ser Ser Tyr Arg
            740                 745                 750

Asn Gln Glu Leu Glu Asp Glu Ile Ile Phe Ile Thr Cys His Glu Gly
        755                 760                 765
```

Ser Leu Met Ala Leu Gly Phe Leu Ile Gly Tyr Thr Cys Leu Leu Ala
770 775 780

Ala Ile Cys Phe Phe Phe Ala Phe Lys Ser Arg Lys Leu Pro Glu Asn
785 790 795 800

Phe Asn Glu Ala Lys Phe Ile Thr Phe Ser Met Leu Ile Phe Phe Ile
805 810 815

Val Trp Ile Ser Phe Ile Pro Ala Tyr Ala Ser Thr Tyr Gly Lys Phe
820 825 830

Val Ser Ala Val Glu Val Ile Ala Ile Leu Ala Ala Ser Phe Gly Leu
835 840 845

Leu Ala Cys Ile Phe Phe Asn Lys Ile Tyr Ile Ile Leu Phe Lys Pro
850 855 860

Ser Arg Asn Thr Ile Glu Glu Val Arg Cys Ser Thr Ala Ala His Ala
865 870 875 880

Phe Lys Val Ala Ala Arg Ala Thr Leu Arg Arg Ser Asn Val Ser Arg
885 890 895

Lys Arg Ser Ser Ser Leu Gly Gly Ser Thr Gly Ser Thr Pro Ser Ser
900 905 910

Ser Ile Ser Ser Lys Ser Asn Ser Glu Asp Pro Phe Pro Gln Pro Glu
915 920 925

Arg Gln Lys Gln Gln Gln Pro Leu Ala Leu Thr Gln Gln Glu Gln Gln
930 935 940

Gln Gln Pro Leu Thr Leu Pro Gln Gln Gln Arg Ser Gln Gln Gln Pro
945 950 955 960

Arg Cys Lys Gln Lys Val Ile Phe Gly Ser Gly Thr Val Thr Phe Ser
965 970 975

Leu Ser Phe Asp Glu Pro Gln Lys Asn Ala Met Ala His Arg Asn Ser
980 985 990

Thr His Gln Asn Ser Leu Glu Ala Gln Lys Ser Ser Asp Thr Leu
Thr
        995   1000   1005

Arg His Glu Pro Leu Leu Pro Leu Gln Cys Gly Glu Thr Asp Leu
    1010   1015   1020

Asp Leu Thr Val Gln Glu Thr Gly Leu Gln Gly Pro Val Gly Gly
    1025   1030   1035

Asp Gln Arg Pro Glu Val Glu Asp Pro Glu Glu Leu Ser Pro Ala
    1040   1045   1050

Leu Val Val Ser Ser Ser Gln Ser Phe Val Ile Ser Gly Gly Gly
    1055   1060   1065

Ser Thr Val Thr Glu Asn Val Val Asn Ser
    1070   1075

<210> 10969
<211> 1088
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2171; "

<220>
<221> source
<223> /note="Gene Symbol: CASR; "

<220>
<221> source
<223> /note="Gene Name: calcium-sensing receptor; "

<220>
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<223> /note="ENSP ID: ENSP00000420194"

<400> 10969
Met Ala Phe Tyr Ser Cys Cys Trp Val Leu Leu Ala Leu Thr Trp His
1   5   10   15

Thr Ser Ala Tyr Gly Pro Asp Gln Arg Ala Gln Lys Lys Gly Asp Ile
            20   25   30

Ile Leu Gly Gly Leu Phe Pro Ile His Phe Gly Val Ala Ala Lys Asp
        35   40   45

```
Gln Asp Leu Lys Ser Arg Pro Glu Ser Val Glu Cys Ile Arg Tyr Asn
    50                  55                  60

Phe Arg Gly Phe Arg Trp Leu Gln Ala Met Ile Phe Ala Ile Glu Glu
65                  70                  75                  80

Ile Asn Ser Ser Pro Ala Leu Leu Pro Asn Leu Thr Leu Gly Tyr Arg
                85                  90                  95

Ile Phe Asp Thr Cys Asn Thr Val Ser Lys Ala Leu Glu Ala Thr Leu
            100                 105                 110

Ser Phe Val Ala Gln Asn Lys Ile Asp Ser Leu Asn Leu Asp Glu Phe
        115                 120                 125

Cys Asn Cys Ser Glu His Ile Pro Ser Thr Ile Ala Val Val Gly Ala
    130                 135                 140

Thr Gly Ser Gly Val Ser Thr Ala Val Ala Asn Leu Leu Gly Leu Phe
145                 150                 155                 160

Tyr Ile Pro Gln Val Ser Tyr Ala Ser Ser Ser Arg Leu Leu Ser Asn
                165                 170                 175

Lys Asn Gln Phe Lys Ser Phe Leu Arg Thr Ile Pro Asn Asp Glu His
            180                 185                 190

Gln Ala Thr Ala Met Ala Asp Ile Ile Glu Tyr Phe Arg Trp Asn Trp
        195                 200                 205

Val Gly Thr Ile Ala Ala Asp Asp Asp Tyr Gly Arg Pro Gly Ile Glu
    210                 215                 220

Lys Phe Arg Glu Glu Ala Glu Glu Arg Asp Ile Cys Ile Asp Phe Ser
225                 230                 235                 240

Glu Leu Ile Ser Gln Tyr Ser Asp Glu Glu Glu Ile Gln His Val Val
                245                 250                 255

Glu Val Ile Gln Asn Ser Thr Ala Lys Val Ile Val Val Phe Ser Ser
            260                 265                 270
```

```
Gly Pro Asp Leu Glu Pro Leu Ile Lys Glu Ile Val Arg Arg Asn Ile
        275                 280                 285

Thr Gly Lys Ile Trp Leu Ala Ser Glu Ala Trp Ala Ser Ser Ser Leu
    290                 295                 300

Ile Ala Met Pro Gln Tyr Phe His Val Val Gly Gly Thr Ile Gly Phe
305                 310                 315                 320

Ala Leu Lys Ala Gly Gln Ile Pro Gly Phe Arg Glu Phe Leu Lys Lys
                325                 330                 335

Val His Pro Arg Lys Ser Val His Asn Gly Phe Ala Lys Glu Phe Trp
            340                 345                 350

Glu Glu Thr Phe Asn Cys His Leu Gln Glu Gly Ala Lys Gly Pro Leu
        355                 360                 365

Pro Val Asp Thr Phe Leu Arg Gly His Glu Glu Ser Gly Asp Arg Phe
    370                 375                 380

Ser Asn Ser Ser Thr Ala Phe Arg Pro Leu Cys Thr Gly Asp Glu Asn
385                 390                 395                 400

Ile Ser Ser Val Glu Thr Pro Tyr Ile Asp Tyr Thr His Leu Arg Ile
                405                 410                 415

Ser Tyr Asn Val Tyr Leu Ala Val Tyr Ser Ile Ala His Ala Leu Gln
            420                 425                 430

Asp Ile Tyr Thr Cys Leu Pro Gly Arg Gly Leu Phe Thr Asn Gly Ser
        435                 440                 445

Cys Ala Asp Ile Lys Lys Val Glu Ala Trp Gln Val Leu Lys His Leu
    450                 455                 460

Arg His Leu Asn Phe Thr Asn Asn Met Gly Glu Gln Val Thr Phe Asp
465                 470                 475                 480

Glu Cys Gly Asp Leu Val Gly Asn Tyr Ser Ile Ile Asn Trp His Leu
                485                 490                 495
```

```
Ser Pro Glu Asp Gly Ser Ile Val Phe Lys Glu Val Gly Tyr Tyr Asn
            500                 505                 510

Val Tyr Ala Lys Lys Gly Glu Arg Leu Phe Ile Asn Glu Glu Lys Ile
        515                 520                 525

Leu Trp Ser Gly Phe Ser Arg Glu Pro Leu Thr Phe Val Leu Ser Val
    530                 535                 540

Leu Gln Val Pro Phe Ser Asn Cys Ser Arg Asp Cys Leu Ala Gly Thr
545                 550                 555                 560

Arg Lys Gly Ile Ile Glu Gly Glu Pro Thr Cys Cys Phe Glu Cys Val
                565                 570                 575

Glu Cys Pro Asp Gly Glu Tyr Ser Asp Glu Thr Asp Ala Ser Ala Cys
            580                 585                 590

Asn Lys Cys Pro Asp Asp Phe Trp Ser Asn Glu Asn His Thr Ser Cys
        595                 600                 605

Ile Ala Lys Glu Ile Glu Phe Leu Ser Trp Thr Glu Pro Phe Gly Ile
    610                 615                 620

Ala Leu Thr Leu Phe Ala Val Leu Gly Ile Phe Leu Thr Ala Phe Val
625                 630                 635                 640

Leu Gly Val Phe Ile Lys Phe Arg Asn Thr Pro Ile Val Lys Ala Thr
                645                 650                 655

Asn Arg Glu Leu Ser Tyr Leu Leu Leu Phe Ser Leu Leu Cys Cys Phe
            660                 665                 670

Ser Ser Ser Leu Phe Phe Ile Gly Glu Pro Gln Asp Trp Thr Cys Arg
        675                 680                 685

Leu Arg Gln Pro Ala Phe Gly Ile Ser Phe Val Leu Cys Ile Ser Cys
    690                 695                 700

Ile Leu Val Lys Thr Asn Arg Val Leu Leu Val Phe Glu Ala Lys Ile
705                 710                 715                 720

Pro Thr Ser Phe His Arg Lys Trp Trp Gly Leu Asn Leu Gln Phe Leu
```

```
                725                 730                 735

Leu Val Phe Leu Cys Thr Phe Met Gln Ile Val Ile Cys Val Ile Trp
            740                 745                 750

Leu Tyr Thr Ala Pro Pro Ser Ser Tyr Arg Asn Gln Glu Leu Glu Asp
        755                 760                 765

Glu Ile Ile Phe Ile Thr Cys His Glu Gly Ser Leu Met Ala Leu Gly
    770                 775                 780

Phe Leu Ile Gly Tyr Thr Cys Leu Leu Ala Ala Ile Cys Phe Phe Phe
785                 790                 795                 800

Ala Phe Lys Ser Arg Lys Leu Pro Glu Asn Phe Asn Glu Ala Lys Phe
                805                 810                 815

Ile Thr Phe Ser Met Leu Ile Phe Phe Ile Val Trp Ile Ser Phe Ile
            820                 825                 830

Pro Ala Tyr Ala Ser Thr Tyr Gly Lys Phe Val Ser Ala Val Glu Val
        835                 840                 845

Ile Ala Ile Leu Ala Ala Ser Phe Gly Leu Leu Ala Cys Ile Phe Phe
    850                 855                 860

Asn Lys Ile Tyr Ile Ile Leu Phe Lys Pro Ser Arg Asn Thr Ile Glu
865                 870                 875                 880

Glu Val Arg Cys Ser Thr Ala Ala His Ala Phe Lys Val Ala Ala Arg
                885                 890                 895

Ala Thr Leu Arg Arg Ser Asn Val Ser Arg Lys Arg Ser Ser Ser Leu
            900                 905                 910

Gly Gly Ser Thr Gly Ser Thr Pro Ser Ser Ser Ile Ser Ser Lys Ser
        915                 920                 925

Asn Ser Glu Asp Pro Phe Pro Gln Pro Glu Arg Gln Lys Gln Gln Gln
    930                 935                 940

Pro Leu Ala Leu Thr Gln Gln Glu Gln Gln Gln Gln Pro Leu Thr Leu
945                 950                 955                 960
```

```
Pro Gln Gln Gln Arg Ser Gln Gln Gln Pro Arg Cys Lys Gln Lys Val
                965                 970                 975

Ile Phe Gly Ser Gly Thr Val Thr Phe Ser Leu Ser Phe Asp Glu Pro
            980                 985                 990

Gln Lys Asn Ala Met Ala His Arg  Asn Ser Thr His Gln  Asn Ser
Leu
        995                 1000                1005

Glu Ala  Gln Lys Ser Ser Asp  Thr Leu Thr Arg His  Glu Pro Leu
    1010                1015                1020

Leu Pro  Leu Gln Cys Gly Glu  Thr Asp Leu Asp Leu  Thr Val Gln
    1025                1030                1035

Glu Thr  Gly Leu Gln Gly Pro  Val Gly Gly Asp Gln  Arg Pro Glu
    1040                1045                1050

Val Glu  Asp Pro Glu Glu Leu  Ser Pro Ala Leu Val  Val Ser Ser
    1055                1060                1065

Ser Gln  Ser Phe Val Ile Ser  Gly Gly Gly Ser Thr  Val Thr Glu
    1070                1075                1080

Asn Val  Val Asn Ser
    1085
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<210> 10970
<211> 228
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2172; "

<220>
<221> source
<223> /note="Gene Symbol: CACYBP; "

<220>
<221> source
<223> /note="Gene Name: calcyclin binding prt; "

<220>

<221> source
<223> /note="Uniprot ID: Q9HB71; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000356652"

<400> 10970
Met Ala Ser Glu Glu Leu Gln Lys Asp Leu Glu Glu Val Lys Val Leu
1   5   10   15

Leu Glu Lys Ala Thr Arg Lys Arg Val Arg Asp Ala Leu Thr Ala Glu
            20   25   30

Lys Ser Lys Ile Glu Thr Glu Ile Lys Asn Lys Met Gln Gln Lys Ser
        35   40   45

Gln Lys Lys Ala Glu Leu Leu Asp Asn Glu Lys Pro Ala Ala Val Val
    50   55   60

Ala Pro Ile Thr Thr Gly Tyr Thr Val Lys Ile Ser Asn Tyr Gly Trp
65   70   75   80

Asp Gln Ser Asp Lys Phe Val Lys Ile Tyr Ile Thr Leu Thr Gly Val
                85   90   95

His Gln Val Pro Thr Glu Asn Val Gln Val His Phe Thr Glu Arg Ser
            100   105   110

Phe Asp Leu Leu Val Lys Asn Leu Asn Gly Lys Ser Tyr Ser Met Ile
        115   120   125

Val Asn Asn Leu Leu Lys Pro Ile Ser Val Glu Gly Ser Ser Lys Lys
    130   135   140

Val Lys Thr Asp Thr Val Leu Ile Leu Cys Arg Lys Lys Val Glu Asn
145   150   155   160

Thr Arg Trp Asp Tyr Leu Thr Gln Val Glu Lys Glu Cys Lys Glu Lys
                165   170   175

Glu Lys Pro Ser Tyr Asp Thr Glu Thr Asp Pro Ser Glu Gly Leu Met
            180   185   190

Asn Val Leu Lys Lys Ile Tyr Glu Asp Gly Asp Asp Asp Met Lys Arg

195 200 205

Thr Ile Asn Lys Ala Trp Val Glu Ser Arg Glu Lys Gln Ala Lys Gly
210 215 220

Asp Thr Glu Phe
225

<210> 10971
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Name: calcyclin binding prt; "

<220>
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<223> /note="Uniprot ID: Q9HB71; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384139"

<400> 10971
Met Ala Ser Glu Glu Leu Gln Lys Asp Leu Glu Glu Val Lys Val Leu
1 5 10 15

Leu Glu Lys Ala Thr Arg Lys Arg Val Arg Asp Ala Leu Thr Ala Glu
20 25 30

Lys Ser Lys Ile Glu Thr Glu Ile Lys Asn Lys Met Gln Gln Lys Ser
35 40 45

Gln Lys Lys Ala Glu Leu Leu Asp Asn Glu Lys Pro Ala Ala Val Val
50 55 60

Ala Pro Ile Thr Thr Gly Tyr Thr Asp Gly Ile Ser Gln Ile Ser Leu
65 70 75 80

<210> 10972
<211> 185
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: calcyclin binding prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HB71; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000385771"

<400> 10972
Met Gln Gln Lys Ser Gln Lys Lys Ala Glu Leu Leu Asp Asn Glu Lys
1   5   10   15

Pro Ala Ala Val Val Ala Pro Ile Thr Thr Gly Tyr Thr Val Lys Ile
            20   25   30

Ser Asn Tyr Gly Trp Asp Gln Ser Asp Lys Phe Val Lys Ile Tyr Ile
        35   40   45

Thr Leu Thr Gly Val His Gln Val Pro Thr Glu Asn Val Gln Val His
    50   55   60

Phe Thr Glu Arg Ser Phe Asp Leu Leu Val Lys Asn Leu Asn Gly Lys
65   70   75   80

Ser Tyr Ser Met Ile Val Asn Asn Leu Leu Lys Pro Ile Ser Val Glu
                85   90   95

Gly Ser Ser Lys Lys Val Lys Thr Asp Thr Val Leu Ile Leu Cys Arg
            100   105   110

Lys Lys Val Glu Asn Thr Arg Trp Asp Tyr Leu Thr Gln Val Glu Lys
        115   120   125

```
Glu Cys Lys Glu Lys Glu Lys Pro Ser Tyr Asp Thr Glu Thr Asp Pro
    130                 135                 140

Ser Glu Gly Leu Met Asn Val Leu Lys Lys Ile Tyr Glu Asp Gly Asp
145                 150                 155                 160

Asp Asp Met Lys Arg Thr Ile Asn Lys Ala Trp Val Glu Ser Arg Glu
                165                 170                 175

Lys Gln Ala Lys Gly Asp Thr Glu Phe
            180                 185


<210> 10973
<211> 50
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CACYBP; "

<220>
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<223> /note="Gene Name: calcyclin binding prt; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000403674"

<400> 10973
Met Ala Ser Glu Glu Leu Gln Lys Asp Leu Glu Glu Val Lys Val Leu
1               5                   10                  15

Leu Glu Lys Ala Thr Arg Lys Arg Val Arg Asp Ala Leu Thr Ala Glu
            20                  25                  30

Lys Ser Lys Ile Glu Thr Glu Ile Lys Asn Lys Met Gln Gln Lys Ser
        35                  40                  45

Gln Lys
    50


<210> 10974
<211> 185
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<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2172; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: calcyclin binding prt; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HB71; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000479414"

<400> 10974

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Met Gln Gln Lys Ser Gln Lys Lys Ala Glu Leu Leu Asp Asn Glu Lys
1               5                  10                  15

Pro Ala Ala Val Val Ala Pro Ile Thr Thr Gly Tyr Thr Val Lys Ile
            20                  25                  30

Ser Asn Tyr Gly Trp Asp Gln Ser Asp Lys Phe Val Lys Ile Tyr Ile
        35                  40                  45

Thr Leu Thr Gly Val His Gln Val Pro Thr Glu Asn Val Gln Val His
    50                  55                  60

Phe Thr Glu Arg Ser Phe Asp Leu Leu Val Lys Asn Leu Asn Gly Lys
65                  70                  75                  80

Ser Tyr Ser Met Ile Val Asn Asn Leu Leu Lys Pro Ile Ser Val Glu
                85                  90                  95

Gly Ser Ser Lys Lys Val Lys Thr Asp Thr Val Leu Ile Leu Cys Arg
            100                 105                 110

Lys Lys Val Glu Asn Thr Arg Trp Asp Tyr Leu Thr Gln Val Glu Lys
        115                 120                 125

Glu Cys Lys Glu Lys Glu Lys Pro Ser Tyr Asp Thr Glu Thr Asp Pro
```

```
    130                 135                 140

Ser Glu Gly Leu Met Asn Val Leu Lys Lys Ile Tyr Glu Asp Gly Asp
145                 150                 155                 160

Asp Asp Met Lys Arg Thr Ile Asn Lys Ala Trp Val Glu Ser Arg Glu
                165                 170                 175

Lys Gln Ala Lys Gly Asp Thr Glu Phe
            180                 185


<210> 10975
<211> 217
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2173; "

<220>
<221> source
<223> /note="Gene Symbol: CALY; "

<220>
<221> source
<223> /note="Gene Name: calcyon neuron-specific vesicular prt;
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<220>
<221> source
<223> /note="Uniprot ID:  Q9NYX4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000252939"

<400> 10975
Met Val Lys Leu Gly Cys Ser Phe Ser Gly Lys Pro Gly Lys Asp Pro
1               5                   10                  15

Gly Asp Gln Asp Gly Ala Ala Met Asp Ser Val Pro Leu Ile Ser Pro
            20                  25                  30

Leu Asp Ile Ser Gln Leu Gln Pro Pro Leu Pro Asp Gln Val Val Ile
        35                  40                  45

Lys Thr Gln Thr Glu Tyr Gln Leu Ser Ser Pro Asp Gln Gln Asn Phe
    50                  55                  60
```

```
Pro Asp Leu Glu Gly Gln Arg Leu Asn Cys Ser His Pro Glu Glu Gly
65                  70                  75                  80

Arg Arg Leu Pro Thr Ala Arg Met Ile Ala Phe Ala Met Ala Leu Leu
                85                  90                  95

Gly Cys Val Leu Ile Met Tyr Lys Ala Ile Trp Tyr Asp Gln Phe Thr
            100                 105                 110

Cys Pro Asp Gly Phe Leu Leu Arg His Lys Ile Cys Thr Pro Leu Thr
        115                 120                 125

Leu Glu Met Tyr Tyr Thr Glu Met Asp Pro Glu Arg His Arg Ser Ile
    130                 135                 140

Leu Ala Ala Ile Gly Ala Tyr Pro Leu Ser Arg Lys His Gly Thr Glu
145                 150                 155                 160

Thr Pro Ala Ala Trp Gly Asp Gly Tyr Arg Ala Ala Lys Glu Glu Arg
                165                 170                 175

Lys Gly Pro Thr Gln Ala Gly Ala Ala Ala Ala Ala Thr Glu Pro Pro
            180                 185                 190

Gly Lys Pro Ser Ala Lys Ala Glu Lys Glu Ala Ala Arg Lys Ala Ala
        195                 200                 205

Gly Ser Ala Ala Pro Pro Pro Ala Gln
    210                 215


<210> 10976
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2173; "

<220>
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<223> /note="Gene Symbol: CALY; "

<220>
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<223> /note="Gene Name: calcyon neuron-specific vesicular prt;
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<220>
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<223> /note="Uniprot ID: Q9NYX4; "

<220>
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<223> /note="ENSP ID: ENSP00000357543"

<400> 10976
Met Val Lys Leu Gly Cys Ser Phe Ser Gly Lys Pro Gly Lys Asp Pro
1   5   10   15

Gly Asp Gln Asp Gly Ala Ala Met Asp Ser Val Pro Leu Ile Ser Pro
            20   25   30

Leu Asp Ile Ser Gln Leu Gln Pro Pro Leu Pro Asp Gln Val Val Ile
        35   40   45

Lys Thr Gln Thr Glu Tyr Gln Leu Ser Ser Pro Asp Gln Gln Asn Phe
    50   55   60

Pro Asp Leu Glu Gly Gln Arg Leu Asn Cys Ser His Pro Glu Glu Gly
65   70   75   80

Arg Arg Val Thr Thr Pro Thr Pro Pro Thr Val Gly Thr Gln Asp Arg
                85   90   95

Arg Arg Arg Trp Lys Ala Ala Gly Gly Ala Trp Val Pro Ser Arg Pro
            100   105   110

Val Trp Gly Pro Leu Ala Leu Arg Glu Glu Arg Val Ala Val Ser His
        115   120   125

Pro Ala Gln Ser Trp Pro His Arg Leu Pro Cys Thr His Gln Ala Pro
    130   135   140

Ser Arg Gly Cys Arg Cys Arg Leu Thr Lys Gln Trp Arg Ser
145   150   155

<210> 10977
<211> 124
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2173; "

<220>
<221> source
<223> /note="Gene Symbol: CALY; "

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<223> /note="Gene Name: calcyon neuron-specific vesicular prt;
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<220>
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<223> /note="ENSP ID: ENSP00000357546"

<400> 10977
Met Val Lys Leu Gly Cys Ser Phe Ser Gly Lys Pro Gly Lys Asp Pro
1   5   10   15

Gly Asp Gln Asp Gly Ala Ala Met Asp Ser Val Pro Leu Ile Ser Pro
            20   25   30

Leu Asp Ile Ser Gln Leu Gln Pro Pro Leu Pro Asp Gln Val Val Ile
        35   40   45

Lys Thr Gln Thr Glu Tyr Gln Leu Ser Ser Pro Asp Gln Gln Asn Phe
    50   55   60

Pro Asp Leu Glu Gly Gln Arg Leu Asn Cys Ser His Pro Glu Glu Gly
65   70   75   80

Arg Arg Leu Pro Thr Ala Arg Met Ile Ala Phe Ala Met Ala Leu Leu
                85   90   95

Gly Cys Val Leu Ile Met Tyr Lys Ala Ile Trp Tyr Asp Gln Phe Thr
            100   105   110

Cys Pro Asp Gly Phe Leu Leu Arg Gly Pro Glu Phe
        115   120

<210> 10978
<211> 162
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAPS; "

<220>
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<223> /note="Gene Name: calcyphosine; "

<220>
<221> source
<223> /note="Uniprot ID: Q13938; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000222125"

<400> 10978
Met Asp Ala Val Asp Ala Thr Met Glu Lys Leu Arg Ala Gln Cys Leu
1   5   10   15

Ser Arg Gly Ala Ser Gly Ile Gln Gly Leu Ala Arg Phe Phe Arg Gln
            20   25   30

Leu Asp Arg Asp Gly Ser Arg Ser Leu Asp Ala Asp Glu Phe Arg Gln
        35   40   45

Gly Leu Ala Lys Leu Gly Leu Val Leu Asp Gln Ala Glu Ala Glu Gly
    50   55   60

Val Cys Arg Lys Trp Asp Arg Asn Gly Ser Gly Thr Leu Asp Leu Glu
65   70   75   80

Glu Phe Leu Arg Ala Leu Arg Pro Pro Met Ser Gln Ala Arg Glu Ala
                85   90   95

Val Ile Ala Ala Ala Phe Ala Lys Leu Asp Arg Ser Gly Asp Gly Val
            100   105   110

Val Thr Val Asp Asp Leu Arg Gly Val Tyr Ser Gly Arg Ala His Pro
        115   120   125

Lys Val Thr Leu Ala Glu Phe Gln Asp Tyr Tyr Ser Gly Val Ser Ala
    130   135   140

Ser Met Asn Thr Asp Glu Glu Phe Val Ala Met Met Thr Ser Ala Trp
145 150 155 160

Gln Leu

<210> 10979
<211> 248
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2174; "

<220>
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<223> /note="Gene Symbol: CAPS; "

<220>
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<223> /note="Gene Name: calcyphosine; "

<220>
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<223> /note="Uniprot ID: Q13938; "

<220>
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<223> /note="ENSP ID: ENSP00000403263"

<400> 10979
Met Gln Cys His Arg Asp Leu Ala Leu Ser Gln Ala Leu Trp Gly Trp
1 5 10 15

Gln Leu Ser Lys Gln Ser Gly Trp Ala His Pro Ser Leu Pro His Ser
20 25 30

Pro Leu Pro Ser Thr Val His Ser Cys Ser Trp Ala Pro Pro His Leu
35 40 45

Gln Arg His Leu Pro Leu Ala Thr Val Ser Pro Gly Thr Thr Gln Leu
50 55 60

Thr Gln Gly Pro Ala Gly Arg Thr Leu Gly Gln Thr Gln Ala Ser Cys
65 70 75 80

Pro Glu Pro Arg Pro Ser Met Asp Ala Val Asp Ala Thr Met Glu Lys
85 90 95

```
Leu Arg Ala Gln Cys Leu Ser Arg Gly Ala Ser Gly Ile Gln Gly Leu
            100                 105                 110

Ala Arg Phe Phe Arg Gln Leu Asp Arg Asp Gly Ser Arg Ser Leu Asp
        115                 120                 125

Ala Asp Glu Phe Arg Gln Gly Leu Ala Lys Leu Gly Leu Val Leu Asp
    130                 135                 140

Gln Ala Glu Ala Glu Gly Val Cys Arg Lys Trp Asp Arg Asn Gly Ser
145                 150                 155                 160

Gly Thr Leu Asp Leu Glu Glu Phe Leu Arg Ala Leu Arg Pro Pro Met
                165                 170                 175

Ser Gln Ala Arg Glu Ala Val Ile Ala Ala Ala Phe Ala Lys Leu Asp
            180                 185                 190

Arg Ser Gly Asp Gly Val Val Thr Val Asp Asp Leu Arg Gly Val Tyr
        195                 200                 205

Ser Gly Arg Ala His Pro Lys Val Thr Leu Ala Glu Phe Gln Asp Tyr
    210                 215                 220

Tyr Ser Gly Val Ser Ala Ser Met Asn Thr Asp Glu Glu Phe Val Ala
225                 230                 235                 240

Met Met Thr Ser Ala Trp Gln Leu
                245
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<210> 10980
<211> 275
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2174; "

<220>
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<220>
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<223> /note="Gene Name: calcyphosine; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000465883"

<400> 10980
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Met Gln Cys His Arg Asp Leu Ala Leu Ser Gln Ala Leu Trp Gly Trp
1               5                  10                  15

Gln Leu Ser Lys Gln Ser Gly Trp Ala His Pro Ser Leu Pro His Ser
            20                  25                  30

Pro Leu Pro Ser Thr Val His Ser Cys Ser Trp Ala Pro Pro His Leu
        35                  40                  45

Gln Arg His Leu Pro Leu Ala Thr Val Ser Pro Gly Thr Thr Gln Leu
    50                  55                  60

Thr Gln Gly Pro Ala Gly Arg Thr Leu Gly Gln Thr Gln Ala Ser Cys
65                  70                  75                  80

Pro Glu Pro Arg Pro Ser Met Asp Ala Val Asp Ala Thr Met Glu Lys
                85                  90                  95

Leu Arg Ala Gln Cys Leu Ser Arg Gly Ala Ser Gly Ile Gln Gly Leu
            100                 105                 110

Ala Arg Phe Phe Arg Gln Leu Asp Arg Asp Gly Ser Arg Ser Leu Asp
        115                 120                 125

Ala Asp Glu Phe Arg Gln Gly Leu Ala Lys Leu Gly Leu Val Leu Asp
    130                 135                 140

Gln Ala Glu Ala Glu Gly Val Cys Arg Lys Trp Asp Arg Asn Gly Ser
145                 150                 155                 160

Gly Thr Leu Asp Leu Glu Glu Phe Leu Arg Ala Leu Arg Pro Pro Met
                165                 170                 175

Ser Gln Ala Arg Glu Ala Val Ile Ala Ala Ala Phe Ala Lys Leu Asp
            180                 185                 190

Arg Ser Gly Asp Gly Val Val Thr Val Asp Asp Leu Arg Gly Val Tyr
        195                 200                 205
```

```
Ser Gly Arg Ala His Pro Lys Val Arg Ser Gly Glu Trp Thr Glu Asp
    210                 215                 220

Glu Val Leu Arg Arg Phe Leu Asp Asn Phe Asp Ser Ser Glu Lys Asp
225                 230                 235                 240

Gly Gln Val Thr Leu Ala Glu Phe Gln Asp Tyr Tyr Ser Gly Val Ser
                245                 250                 255

Ala Ser Met Asn Thr Asp Glu Glu Phe Val Ala Met Met Thr Ser Ala
            260                 265                 270

Trp Gln Leu
        275


<210> 10981
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2174; "

<220>
<221> source
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<220>
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<223> /note="Gene Name: calcyphosine; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000468582"

<400> 10981
Met Asp Ala Val Asp Ala Thr Met Glu Lys Leu Arg Ala Gln Cys Leu
1               5                   10                  15

Ser Arg Gly Ala Ser Gly Ile Gln Gly Leu Ala Arg Phe Phe Arg Gln
            20                  25                  30

Leu Asp Arg Asp Gly Ser Arg Ser Leu Asp Ala Asp Glu Phe Arg Gln
        35                  40                  45

Gly Leu Ala Lys Leu Gly Leu Val Leu Asp Gln Ala Glu Ala Glu Gly
```

```
    50                  55                  60

Val Cys Arg Lys Trp Asp Arg Asn Gly Ser Gly Thr Leu Asp Leu Glu
65                  70                  75                  80

Glu Phe Leu Arg Ala Leu Arg Pro Pro Met Ser Gln Ala Arg Glu Ala
                85                  90                  95

Val Ile Ala Ala Ala Phe Ala Lys Leu Asp Arg Ser Gly Asp Gly Val
            100                 105                 110

Val Thr Val Asp Asp Leu Arg Gly Val Tyr Ser Gly Arg Ala His Pro
        115                 120                 125

Lys Val Arg Ser Gly Glu
    130


<210> 10982
<211> 189
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2174; "

<220>
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<220>
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<223> /note="Gene Name: calcyphosine; "

<220>
<221> source
<223> /note="Uniprot ID:  Q13938; "

<220>
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<223> /note="ENSP ID: ENSP00000484912"

<400> 10982
Met Asp Ala Val Asp Ala Thr Met Glu Lys Leu Arg Ala Gln Cys Leu
1               5                   10                  15

Ser Arg Gly Ala Ser Gly Ile Gln Gly Leu Ala Arg Phe Phe Arg Gln
            20                  25                  30
```

```
Leu Asp Arg Asp Gly Ser Arg Ser Leu Asp Ala Asp Glu Phe Arg Gln
        35                  40                  45

Gly Leu Ala Lys Leu Gly Leu Val Leu Asp Gln Ala Glu Ala Glu Gly
    50                  55                  60

Val Cys Arg Lys Trp Asp Arg Asn Gly Ser Gly Thr Leu Asp Leu Glu
65                  70                  75                  80

Glu Phe Leu Arg Ala Leu Arg Pro Pro Met Ser Gln Ala Arg Glu Ala
                85                  90                  95

Val Ile Ala Ala Ala Phe Ala Lys Leu Asp Arg Ser Gly Asp Gly Val
            100                 105                 110

Val Thr Val Asp Asp Leu Arg Gly Val Tyr Ser Gly Arg Ala His Pro
        115                 120                 125

Lys Val Arg Ser Gly Glu Trp Thr Glu Asp Glu Val Leu Arg Arg Phe
    130                 135                 140

Leu Asp Asn Phe Asp Ser Ser Glu Lys Asp Gly Gln Val Thr Leu Ala
145                 150                 155                 160

Glu Phe Gln Asp Tyr Tyr Ser Gly Val Ser Ala Ser Met Asn Thr Asp
                165                 170                 175

Glu Glu Phe Val Ala Met Met Thr Ser Ala Trp Gln Leu
            180                 185


<210> 10983
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2175; "

<220>
<221> source
<223> /note="Gene Symbol: CAPS2; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine 2; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000331007"

<400> 10983
Met Ser Asp Lys Leu Lys Lys Asp Leu Cys Tyr His Asn Ser Asp Ser
1   5   10   15

Pro Glu Tyr Gln Asp Ser Ser Phe Ser Leu Ile Val Ala Phe Thr Asp
            20   25   30

Ala Lys Tyr Cys Ser Trp Val Cys Leu
        35   40

<210> 10984
<211> 142
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2175; "

<220>
<221> source
<223> /note="Gene Symbol: CAPS2; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000338474"

<400> 10984
Met Ser Asp Lys Leu Lys Lys Asp Leu Cys Tyr Asp Gln Asn Ile Ile
1   5   10   15

Pro Glu Asn Leu Pro Ala Pro Thr Asp Lys Cys Lys Leu Lys Tyr Gln
            20   25   30

Gln Cys Lys Thr Glu Ile Lys Glu Gly Tyr Lys Gln Tyr Ser Gln Arg
        35   40   45

Asn Ala Glu Asn Thr Lys Ser Asn Val Thr His Lys Gln Ser Pro Arg
    50   55   60

Asn Lys Ile Asp Glu Lys Cys Val Gln Asp Glu Glu Ala Asn Thr Asp
65   70   75   80

```
Asp Leu Thr Thr Leu Asp Arg Lys Ala Ile Leu Gln Gln Gly Tyr Ala
                85                  90                  95

Asp Asn Ser Cys Asp Lys Gln Gln Arg Ala Arg Lys Leu Asp Ala Val
            100                 105                 110

Ser Cys Gln His Phe Tyr Leu Phe Gly Asn Cys Gly Cys Arg Glu Glu
        115                 120                 125

Glu Thr Asp Cys Cys Arg Ala Ser Asp Asp Arg Pro Leu Ile
    130                 135                 140


<210> 10985
<211> 382
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAPS2; "

<220>
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<223> /note="Gene Name: calcyphosine 2; "

<220>
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<223> /note="Uniprot ID:  Q9BXY5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376963"

<400> 10985
Met Ile Asp His Leu Ser Arg Ala Val Ile Ser Asp Pro Glu Gln Asn
1               5                   10                  15

Leu Ala Ile Glu Gln Lys Glu Ser Asp His Ile Leu Pro Asp Ser Lys
            20                  25                  30

Met Thr Pro Leu Arg Phe Arg Lys Arg Thr Leu His Glu Thr Lys Ile
        35                  40                  45

Arg Thr His Ser Thr Leu Thr Glu Asn Val Leu Ser His Lys Leu Gln
```

```
    50                  55                  60

Phe Asp Gly Arg Ile Val Ser Arg Asn Gly Arg Asp Ala Cys Arg Glu
65                  70                  75                  80

Leu Ile Gly Phe Phe Phe Thr His Asp Gln Ser Leu Thr Ile Tyr Glu
                85                  90                  95

Tyr Arg Gln Phe Gly Lys Asn Arg Thr Asn Val Leu Pro Phe Ile Gln
            100                 105                 110

Lys Ser Ile Tyr Ser His Gln Cys Gly Arg Arg Lys Gly Lys Gln Tyr
        115                 120                 125

Arg Leu Gly Asp Phe Tyr Val Gly Ala Thr Leu Thr Phe Leu Ser Ser
    130                 135                 140

Asp His Leu Ser Leu Pro Glu Ser Ile Lys Glu Asn Thr Leu Leu Lys
145                 150                 155                 160

Leu Arg Ile Thr Asn Ile Asp Gln Ile Ala Leu Asp Ser Leu Lys Thr
                165                 170                 175

Ala Ser Met Glu Gln Glu Asp Asp Ile Ile Ile Gln Glu Thr Asn Asp
            180                 185                 190

Arg Leu Val Phe Lys Ala Ile Gln Asp Val Leu Lys Glu Lys Leu His
        195                 200                 205

Lys Arg Gly Val Arg Ile Leu Thr Gly Leu Gly Lys Tyr Phe Gln Gln
    210                 215                 220

Leu Asp Lys Glu Gly Asn Gly Leu Leu Asp Lys Ala Asp Phe Lys Gln
225                 230                 235                 240

Ala Leu Lys Val Phe His Leu Glu Val Ser Glu Lys Asp Phe Glu Ser
                245                 250                 255

Ala Trp Leu Ile Leu Asn Asp Asn Gly Asn Gly Lys Val Asp Tyr Gly
            260                 265                 270

Glu Phe Lys Arg Gly Ile Ile Gly Glu Met Asn Glu Tyr Arg Lys Ser
        275                 280                 285
```

```
Tyr Val Arg Lys Ala Phe Met Lys Leu Asp Phe Asn Lys Ser Gly Ser
    290                 295                 300

Val Pro Ile Ile Asn Ile Arg Lys Cys Tyr Cys Ala Lys Lys His Ser
305                 310                 315                 320

Gln Val Ile Ser Gly His Ser Thr Glu Glu Glu Ile Lys Ser Ser Phe
                325                 330                 335

Leu Glu Thr Leu Lys Val Ala Cys Ser Lys Ser Asp Glu Val Ser Tyr
            340                 345                 350

Gly Glu Phe Glu Asp Tyr Tyr Glu Gly Leu Ser Ile Gly Ile Val Asp
        355                 360                 365

Asp Glu Asp Phe Val Asn Ile Leu Arg Thr Pro Trp Gly Ile
    370                 375                 380


<210> 10986
<211> 557
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2175; "

<220>
<221> source
<223> /note="Gene Symbol: CAPS2; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine 2; "

<220>
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<223> /note="Uniprot ID:  Q9BXY5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386959"

<400> 10986
Met Gly Asn Ser Phe Cys Tyr Thr Ala Val Tyr Cys Met Ile Asn Thr
1               5                   10                  15

Gly Thr Gln Met Asp Leu Glu Val Lys Gly Val Ala Ala Thr Ser Arg
```

```
            20                  25                  30

Ser Gln Ile Gln Pro Phe Phe Gly Arg Lys Lys Pro Leu Gln Gln Arg
        35                  40                  45

Trp Thr Ser Glu Ser Trp Thr Asn Gln Asn Ser Cys Pro Pro Val Val
    50                  55                  60

Pro Arg Leu Asp Leu Gly Ser Leu Val Asp Ser Asp Asp Glu Asp Asn
65                  70                  75                  80

Phe Ser Tyr Ile Pro Leu Ser Thr Ala Asn Leu Pro Asn Ser Ser Ser
                85                  90                  95

Thr Leu Gly Trp Val Thr Pro Cys Gln Thr Pro Tyr Thr Gln Tyr His
            100                 105                 110

Leu Asn Lys Leu Asp Gln Asn Ile Ile Pro Glu Asn Leu Pro Ala Pro
        115                 120                 125

Thr Asp Lys Cys Lys Leu Lys Tyr Gln Gln Cys Lys Thr Glu Ile Lys
    130                 135                 140

Glu Gly Tyr Lys Gln Tyr Ser Gln Arg Asn Ala Glu Asn Thr Lys Ser
145                 150                 155                 160

Asn Val Thr His Lys Gln Ser Pro Arg Asn Lys Ile Asp Glu Lys Cys
                165                 170                 175

Val Gln Asp Glu Glu Ala Asn Thr Asp Asp Leu Thr Thr Leu Asp Arg
            180                 185                 190

Lys Ala Ile Leu Gln Gln Gly Tyr Ala Asp Asn Ser Cys Asp Lys Gln
        195                 200                 205

Gln Arg Ala Arg Lys Leu Asp Ala Glu Ile Val Ala Ala Glu Lys Lys
    210                 215                 220

Lys Gln Ile Val Ala Glu Gln Val Met Ile Asp His Leu Ser Arg Ala
225                 230                 235                 240

Val Ile Ser Asp Pro Glu Gln Asn Leu Ala Ile Glu Gln Lys Glu Ser
                245                 250                 255
```

```
Asp His Ile Leu Pro Asp Ser Lys Met Thr Pro Leu Arg Phe Arg Lys
            260                 265                 270

Arg Thr Leu His Glu Thr Lys Ile Arg Thr His Ser Thr Leu Thr Glu
        275                 280                 285

Asn Val Leu Ser His Lys Leu Gln Phe Asp Gly Arg Ile Val Ser Arg
    290                 295                 300

Asn Gly Arg Asp Ala Cys Arg Glu Leu Ile Gly Phe Phe Phe Thr His
305                 310                 315                 320

Asp Gln Ser Leu Thr Ile Tyr Glu Tyr Arg Gln Phe Gly Lys Asn Arg
                325                 330                 335

Thr Asn Val Leu Pro Phe Ile Gln Lys Ser Ile Tyr Ser His Gln Cys
            340                 345                 350

Gly Arg Arg Lys Gly Lys Gln Tyr Arg Leu Gly Asp Phe Tyr Val Gly
        355                 360                 365

Ala Thr Leu Thr Phe Leu Ser Ser Asp His Leu Ser Leu Pro Glu Ser
    370                 375                 380

Ile Lys Glu Asn Thr Leu Leu Lys Leu Arg Ile Thr Asn Ile Asp Gln
385                 390                 395                 400

Ile Ala Leu Asp Ser Leu Lys Thr Ala Ser Met Glu Gln Glu Asp Asp
                405                 410                 415

Ile Ile Ile Gln Glu Thr Asn Asp Arg Leu Val Phe Lys Ala Ile Gln
            420                 425                 430

Asp Val Leu Lys Glu Lys Leu His Lys Arg Gly Val Arg Ile Leu Thr
        435                 440                 445

Gly Leu Gly Lys Tyr Phe Gln Gln Leu Asp Lys Glu Gly Asn Gly Leu
    450                 455                 460

Leu Asp Lys Ala Asp Phe Lys Gln Ala Leu Lys Val Phe His Leu Glu
465                 470                 475                 480
```

```
Val Ser Glu Lys Asp Phe Glu Ser Ala Trp Leu Ile Leu Asn Asp Asn
                485                 490                 495

Gly Asn Gly Lys Val Asp Tyr Gly Glu Phe Lys Arg Gly Ile Ile Gly
            500                 505                 510

Glu Met Asn Glu Tyr Arg Lys Ser Tyr Val Arg Lys Ala Phe Met Lys
        515                 520                 525

Leu Asp Phe Asn Lys Ser Gly Ser Val Pro Ile Ile Asn Ile Arg Lys
    530                 535                 540

Cys Tyr Cys Ala Lys Lys His Ser Gln Val Ile Ser Gly
545                 550                 555


<210> 10987
<211> 475
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2175; "

<220>
<221> source
<223> /note="Gene Symbol: CAPS2; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386977"

<400> 10987
Met Ile Asn Thr Gly Thr Gln Met Asp Leu Glu Val Lys Gly Val Ala
1               5                   10                  15

Ala Thr Ser Arg Ser Gln Ile Gln Pro Phe Phe Gly Arg Lys Lys Pro
            20                  25                  30

Leu Gln Gln Arg Trp Thr Ser Glu Ser Trp Thr Asn Gln Asn Ser Cys
        35                  40                  45

Pro Pro Val Val Pro Arg Leu Asp Leu Gly Ser Leu Val Asp Ser Asp
    50                  55                  60
```

```
Asp Glu Asp Gln Asn Ile Ile Pro Glu Asn Leu Pro Ala Pro Thr Asp
65                  70                  75                  80

Lys Cys Lys Leu Lys Tyr Gln Gln Cys Lys Thr Glu Ile Lys Glu Gly
                85                  90                  95

Tyr Lys Gln Tyr Ser Gln Arg Asn Ala Glu Asn Thr Lys Ser Asn Val
            100                 105                 110

Thr His Lys Gln Ser Pro Arg Asn Lys Ile Asp Glu Lys Cys Val Gln
        115                 120                 125

Asp Glu Glu Ala Asn Thr Asp Asp Leu Thr Thr Leu Asp Arg Lys Ala
    130                 135                 140

Ile Leu Gln Gln Gly Tyr Ala Asp Asn Ser Cys Asp Lys Gln Gln Arg
145                 150                 155                 160

Ala Arg Lys Leu Asp Ala Glu Ile Val Ala Ala Glu Lys Lys Lys Gln
                165                 170                 175

Ile Val Ala Glu Gln Val Met Ile Asp His Leu Ser Arg Ala Val Ile
            180                 185                 190

Ser Asp Pro Glu Gln Asn Leu Ala Ile Glu Gln Lys Glu Ser Asp His
        195                 200                 205

Ile Leu Pro Asp Ser Lys Met Thr Pro Leu Arg Phe Arg Lys Arg Thr
    210                 215                 220

Leu His Glu Thr Lys Ile Arg Thr His Ser Thr Leu Thr Glu Asn Val
225                 230                 235                 240

Leu Ser His Lys Leu Gln Phe Asp Gly Arg Ile Val Ser Arg Thr Asn
                245                 250                 255

Val Leu Pro Phe Ile Gln Lys Ser Ile Tyr Ser His Gln Cys Gly Arg
            260                 265                 270

Arg Lys Gly Lys Gln Tyr Arg Leu Gly Asp Phe Tyr Val Gly Ala Thr
        275                 280                 285
```

```
Leu Thr Phe Leu Ser Ser Asp His Leu Ser Leu Pro Glu Ser Ile Lys
    290                 295                 300

Glu Asn Thr Leu Leu Lys Leu Arg Ile Thr Asn Ile Asp Gln Ile Ala
305                 310                 315                 320

Leu Asp Ser Leu Lys Thr Ala Ser Met Glu Gln Glu Asp Asp Ile Ile
                325                 330                 335

Ile Gln Glu Thr Asn Asp Arg Leu Val Phe Lys Ala Ile Gln Asp Val
            340                 345                 350

Leu Lys Glu Lys Leu His Lys Arg Gly Val Arg Ile Leu Thr Gly Leu
        355                 360                 365

Gly Lys Tyr Phe Gln Gln Leu Asp Lys Glu Gly Asn Gly Leu Leu Asp
    370                 375                 380

Lys Ala Asp Phe Lys Gln Ala Leu Lys Val Phe His Leu Glu Val Ser
385                 390                 395                 400

Glu Lys Asp Phe Glu Ser Ala Trp Leu Ile Leu Asn Asp Asn Gly Asn
                405                 410                 415

Gly Lys Val Asp Tyr Gly Glu Phe Lys Arg Gly Ile Ile Gly Glu Met
            420                 425                 430

Asn Glu Tyr Arg Lys Ser Tyr Val Arg Lys Ala Phe Met Lys Leu Asp
        435                 440                 445

Phe Asn Lys Ser Gly Ser Val Pro Ile Ile Asn Ile Arg Lys Cys Tyr
    450                 455                 460

Cys Ala Lys Lys His Ser Gln Val Ile Ser Gly
465                 470                 475


<210> 10988
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2175; "
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<220>
<221> source
<223> /note="Gene Symbol: CAPS2; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine 2; "

<220>
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<223> /note="ENSP ID: ENSP00000411797"

<400> 10988
Met Asp Lys Pro Glu Phe Leu Pro Thr Ser Asp Gln Asn Ile Ile Pro
1   5   10   15

Glu Asn Leu Pro Ala Pro Thr Asp Lys Cys Lys Leu Lys Tyr Gln Gln
            20   25   30

Cys Lys Thr Glu Ile Lys Glu Gly Tyr Lys Gln Tyr Ser Gln Arg Asn
        35   40   45

Ala Glu Asn Thr Lys Ser Asn Val Thr His Lys Gln Ser Pro Arg Asn
    50   55   60

Lys Ile Asp Glu Lys Cys Val Gln Asp Glu Glu Ala Asn Thr Asp Asp
65   70   75   80

Leu Thr Thr Leu Asp Arg Lys Ala Ile Leu Gln Gln Gly Tyr Ala Asp
                85   90   95

Asn Ser Cys Asp Lys Gln Gln Arg Ala Arg Lys Leu Asp Ala Glu Ile
            100   105   110

Val Ala Ala Glu Lys Lys Lys Gln Ile Val Ala Glu Gln Val Met Ile
        115   120   125

Asp His Leu Ser Arg Ala Val
    130   135

<210> 10989
<211> 33
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2175; "

<220>
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<223> /note="Gene Symbol: CAPS2; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000447737"

<400> 10989
Met Ile Asp His Leu Ser Arg Ala Val Ile Ser Asp Pro Glu Gln Asn
1   5   10   15

Leu Ala Ile Glu Gln Lys Glu Ser Asp His Ile Leu Pro Asp Ser Lys
            20   25   30

Met

<210> 10990
<211> 187
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2175; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: calcyphosine 2; "

<220>
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<223> /note="ENSP ID: ENSP00000449797"

<400> 10990
Met Ser Asp Lys Leu Lys Lys Asp Leu Cys Tyr Asp Gln Asn Ile Ile
1   5   10   15

Pro Glu Asn Leu Pro Ala Pro Thr Asp Lys Cys Lys Leu Lys Tyr Gln
            20   25   30

```
Gln Cys Lys Thr Glu Ile Lys Glu Gly Tyr Lys Gln Tyr Ser Gln Arg
        35                  40                  45

Asn Ala Glu Asn Thr Lys Ser Asn Val Thr His Lys Gln Ser Pro Arg
    50                  55                  60

Asn Lys Ile Asp Glu Lys Cys Val Gln Asp Glu Glu Ala Asn Thr Asp
65                  70                  75                  80

Asp Leu Thr Thr Leu Asp Arg Lys Ala Ile Leu Gln Gln Gly Tyr Ala
                85                  90                  95

Asp Asn Ser Cys Asp Lys Gln Gln Arg Ala Arg Lys Leu Asp Ala Glu
            100                 105                 110

Ile Val Ala Ala Glu Lys Lys Lys Gln Ile Val Ala Glu Gln Val Met
        115                 120                 125

Ile Asp His Leu Ser Arg Ala Val Ile Ser Asp Pro Glu Gln Asn Leu
    130                 135                 140

Ala Ile Glu Gln Lys Glu Ser Asp His Ile Leu Pro Asp Ser Lys Met
145                 150                 155                 160

Thr Pro Leu Arg Phe Arg Lys Arg Thr Leu His Glu Thr Lys Ile Arg
                165                 170                 175

Thr His Ser Thr Leu Thr Glu Asn Val Leu Ser
            180                 185


<210> 10991
<211> 208
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2176; "

<220>
<221> source
<223> /note="Gene Symbol: CAPSL; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine-like; "
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<220>
<221> source
<223> /note="Uniprot ID: Q8WWF8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380523"

<400> 10991
Met Ala Gly Thr Ala Arg His Asp Arg Glu Met Ala Ile Gln Ala Lys
1   5   10   15

Lys Lys Leu Thr Thr Ala Thr Asp Pro Ile Glu Arg Leu Arg Leu Gln
            20   25   30

Cys Leu Ala Arg Gly Ser Ala Gly Ile Lys Gly Leu Gly Arg Val Phe
        35   40   45

Arg Ile Met Asp Asp Asp Asn Asn Arg Thr Leu Asp Phe Lys Glu Phe
    50   55   60

Met Lys Gly Leu Asn Asp Tyr Ala Val Val Met Glu Lys Glu Glu Val
65   70   75   80

Glu Glu Leu Phe Arg Arg Phe Asp Lys Asp Gly Asn Gly Thr Ile Asp
                85   90   95

Phe Asn Glu Phe Leu Leu Thr Leu Arg Pro Pro Met Ser Arg Ala Arg
            100   105   110

Lys Glu Val Ile Met Gln Ala Phe Arg Lys Leu Asp Lys Thr Gly Asp
        115   120   125

Gly Val Ile Thr Ile Glu Asp Leu Arg Glu Val Tyr Asn Ala Lys His
    130   135   140

His Pro Lys Tyr Gln Asn Gly Glu Trp Ser Glu Glu Gln Val Phe Arg
145   150   155   160

Lys Phe Leu Asp Asn Phe Asp Ser Pro Tyr Asp Lys Asp Gly Leu Val
                165   170   175

Thr Pro Glu Glu Phe Met Asn Tyr Tyr Ala Gly Val Ser Ala Ser Ile
            180   185   190

```
Asp Thr Asp Val Tyr Phe Ile Ile Met Met Arg Thr Ala Trp Lys Leu
        195                 200                 205


<210> 10992
<211> 208
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: CAPSL; "

<220>
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<223> /note="Gene Name: calcyphosine-like; "

<220>
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<223> /note="Uniprot ID:  Q8WWF8; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000380524"

<400> 10992
Met Ala Gly Thr Ala Arg His Asp Arg Glu Met Ala Ile Gln Ala Lys
1               5                   10                  15


Lys Lys Leu Thr Thr Ala Thr Asp Pro Ile Glu Arg Leu Arg Leu Gln
            20                  25                  30


Cys Leu Ala Arg Gly Ser Ala Gly Ile Lys Gly Leu Gly Arg Val Phe
        35                  40                  45


Arg Ile Met Asp Asp Asp Asn Asn Arg Thr Leu Asp Phe Lys Glu Phe
    50                  55                  60


Met Lys Gly Leu Asn Asp Tyr Ala Val Val Met Glu Lys Glu Glu Val
65                  70                  75                  80


Glu Glu Leu Phe Arg Arg Phe Asp Lys Asp Gly Asn Gly Thr Ile Asp
                85                  90                  95


Phe Asn Glu Phe Leu Leu Thr Leu Arg Pro Pro Met Ser Arg Ala Arg
            100                 105                 110
```

```
Lys Glu Val Ile Met Gln Ala Phe Arg Lys Leu Asp Lys Thr Gly Asp
        115                 120                 125

Gly Val Ile Thr Ile Glu Asp Leu Arg Glu Val Tyr Asn Ala Lys His
    130                 135                 140

His Pro Lys Tyr Gln Asn Gly Glu Trp Ser Glu Glu Gln Val Phe Arg
145                 150                 155                 160

Lys Phe Leu Asp Asn Phe Asp Ser Pro Tyr Asp Lys Asp Gly Leu Val
                165                 170                 175

Thr Pro Glu Glu Phe Met Asn Tyr Tyr Ala Gly Val Ser Ala Ser Ile
            180                 185                 190

Asp Thr Asp Val Tyr Phe Ile Ile Met Met Arg Thr Ala Trp Lys Leu
        195                 200                 205


<210> 10993
<211> 180
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAPSL; "

<220>
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<223> /note="Gene Name: calcyphosine-like; "

<220>
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<223> /note="ENSP ID: ENSP00000421018"

<400> 10993
Met Ala Gly Thr Ala Arg His Asp Arg Glu Met Ala Ile Gln Ala Lys
1               5                   10                  15

Lys Lys Leu Thr Thr Ala Thr Asp Pro Ile Glu Arg Leu Arg Leu Gln
            20                  25                  30

Cys Leu Ala Arg Gly Ser Ala Gly Ile Lys Gly Leu Gly Arg Val Phe
        35                  40                  45
```

```
Arg Ile Met Asp Asp Asp Asn Asn Arg Thr Leu Asp Phe Lys Glu Phe
    50                  55                  60

Met Lys Gly Leu Asn Asp Tyr Ala Val Val Met Glu Lys Glu Glu Val
65                  70                  75                  80

Glu Glu Leu Phe Arg Arg Phe Asp Lys Asp Gly Asn Gly Thr Ile Asp
                85                  90                  95

Phe Asn Glu Phe Leu Leu Thr Leu Arg Pro Pro Met Ser Arg Ala Arg
            100                 105                 110

Lys Glu Val Ile Met Gln Ala Phe Arg Lys Leu Asp Lys Thr Gly Asp
        115                 120                 125

Gly Val Ile Thr Ile Glu Asp Leu Arg Glu Val Tyr Asn Ala Lys His
    130                 135                 140

His Pro Lys Tyr Gln Asn Gly Glu Trp Ser Glu Glu Gln Val Phe Arg
145                 150                 155                 160

Lys Phe Leu Asp Asn Phe Asp Ser Pro Tyr Asp Lys Asp Gly Leu Val
                165                 170                 175

Ser Lys Arg Ala
            180
```

<210> 10994
<211> 190
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2176; "

<220>
<221> source
<223> /note="Gene Symbol: CAPSL; "

<220>
<221> source
<223> /note="Gene Name: calcyphosine-like; "

<220>
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<223> /note="ENSP ID: ENSP00000424806"

<400> 10994
Met Ala Gly Thr Ala Arg His Asp Arg Glu Met Ala Ile Gln Ala Lys
1 5 10 15

Lys Lys Leu Thr Thr Ala Thr Asp Pro Ile Glu Arg Leu Arg Leu Gln
20 25 30

Cys Leu Ala Arg Gly Ser Ala Gly Ile Lys Gly Leu Gly Arg Val Phe
35 40 45

Arg Ile Met Asp Asp Asp Asn Asn Arg Thr Leu Asp Phe Lys Glu Phe
50 55 60

Met Lys Gly Leu Asn Asp Tyr Ala Val Val Met Glu Lys Glu Glu Val
65 70 75 80

Glu Glu Leu Phe Arg Arg Phe Asp Lys Asp Gly Asn Gly Thr Ile Asp
85 90 95

Phe Asn Glu Phe Leu Leu Thr Leu Arg Pro Pro Met Ser Arg Ala Arg
100 105 110

Lys Glu Val Ile Met Gln Ala Phe Arg Lys Leu Asp Lys Thr Gly Asp
115 120 125

Gly Val Ile Thr Ile Glu Asp Leu Arg Glu Val Tyr Asn Ala Lys His
130 135 140

His Pro Lys Tyr Gln Asn Gly Glu Trp Ser Glu Glu Gln Val Phe Arg
145 150 155 160

Lys Phe Leu Asp Asn Phe Asp Ser Pro Tyr Asp Lys Asp Gly Leu Val
165 170 175

Thr Pro Glu Glu Phe Met Asn Tyr Tyr Ala Gly Val Ser Ala
180 185 190

<210> 10995
<211> 538
<212> PRT
<213> Homo sapiens

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<221> source
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<220>
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<223> /note="Gene Symbol: CALD1; "

<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q05682; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354513"

<400> 10995

```
Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1               5                  10                  15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
            20                  25                  30

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
        35                  40                  45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
    50                  55                  60

Gln Val Glu Val Asn Ala Gln Asn Ser Val Pro Asp Glu Glu Ala Lys
65                  70                  75                  80

Thr Thr Thr Thr Asn Thr Gln Val Glu Gly Asp Asp Glu Ala Ala Phe
                85                  90                  95

Leu Glu Arg Leu Ala Arg Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln
            100                 105                 110

Glu Ala Leu Glu Arg Gln Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala
        115                 120                 125

Ser Leu Ser Leu Pro Ser Arg Arg Met Gln Asn Asp Thr Ala Glu Asn
    130                 135                 140

Glu Thr Thr Glu Lys Glu Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr
```

```
145                 150                 155                 160

Glu Ile Glu Glu Thr Glu Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp
                165                 170                 175

Trp Arg Asp Ala Glu Glu Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu
            180                 185                 190

Glu Glu Glu Glu Lys Pro Lys Arg Gly Ser Ile Gly Glu Asn Gln Ile
        195                 200                 205

Lys Asp Glu Lys Ile Lys Lys Asp Lys Glu Pro Lys Glu Glu Val Lys
    210                 215                 220

Ser Phe Met Asp Arg Lys Lys Gly Phe Thr Glu Val Lys Ser Gln Asn
225                 230                 235                 240

Gly Glu Phe Met Thr His Lys Leu Lys His Thr Glu Asn Thr Phe Ser
                245                 250                 255

Arg Pro Gly Gly Arg Ala Ser Val Asp Thr Lys Glu Ala Glu Gly Ala
            260                 265                 270

Pro Gln Val Glu Ala Gly Lys Arg Leu Glu Glu Leu Arg Arg Arg Arg
        275                 280                 285

Gly Glu Thr Glu Ser Glu Glu Phe Glu Lys Leu Lys Gln Lys Gln Gln
    290                 295                 300

Glu Ala Ala Leu Glu Leu Glu Glu Leu Lys Lys Lys Arg Glu Glu Arg
305                 310                 315                 320

Arg Lys Val Leu Glu Glu Glu Glu Gln Arg Arg Lys Gln Glu Glu Ala
                325                 330                 335

Asp Arg Lys Leu Arg Glu Glu Glu Glu Lys Arg Arg Leu Lys Glu Glu
            340                 345                 350

Ile Glu Arg Arg Arg Ala Glu Ala Ala Glu Lys Arg Gln Lys Met Pro
        355                 360                 365

Glu Asp Gly Leu Ser Asp Asp Lys Lys Pro Phe Lys Cys Phe Thr Pro
    370                 375                 380
```

```
Lys Gly Ser Ser Leu Lys Ile Glu Glu Arg Ala Glu Phe Leu Asn Lys
385                 390                 395                 400

Ser Val Gln Lys Ser Ser Gly Val Lys Ser Thr His Gln Ala Ala Ile
                405                 410                 415

Val Ser Lys Ile Asp Ser Arg Leu Glu Gln Tyr Thr Ser Ala Ile Glu
            420                 425                 430

Gly Thr Lys Ser Ala Lys Pro Thr Lys Pro Ala Ala Ser Asp Leu Pro
        435                 440                 445

Val Pro Ala Glu Gly Val Arg Asn Ile Lys Ser Met Trp Glu Lys Gly
    450                 455                 460

Asn Val Phe Ser Ser Pro Thr Ala Ala Gly Thr Pro Asn Lys Glu Thr
465                 470                 475                 480

Ala Gly Leu Lys Val Gly Val Ser Ser Arg Ile Asn Glu Trp Leu Thr
                485                 490                 495

Lys Thr Pro Asp Gly Asn Lys Ser Pro Ala Pro Lys Pro Ser Asp Leu
            500                 505                 510

Arg Pro Gly Asp Val Ser Ser Lys Arg Asn Leu Trp Glu Lys Gln Ser
        515                 520                 525

Val Asp Lys Val Thr Ser Pro Thr Lys Val
    530                 535


<210> 10996
<211> 793
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2177; "

<220>
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<223> /note="Gene Symbol: CALD1; "

<220>
<221> source
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<223> /note="Gene Name: caldesmon 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q05682; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000354826"

<400> 10996
Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1   5   10   15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
            20   25   30

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
        35   40   45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
    50   55   60

Gln Val Glu Val Asn Ala Gln Asn Ser Val Pro Asp Glu Glu Ala Lys
65   70   75   80

Thr Thr Thr Thr Asn Thr Gln Val Glu Gly Asp Asp Glu Ala Ala Phe
                85   90   95

Leu Glu Arg Leu Ala Arg Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln
            100   105   110

Glu Ala Leu Glu Arg Gln Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala
        115   120   125

Ser Leu Ser Leu Pro Ser Arg Arg Met Gln Asn Asp Thr Ala Glu Asn
    130   135   140

Glu Thr Thr Glu Lys Glu Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr
145   150   155   160

Glu Ile Glu Glu Thr Glu Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp
                165   170   175

Trp Arg Asp Ala Glu Glu Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu
            180   185   190

```
Glu Glu Glu Glu Lys Pro Lys Arg Gly Ser Ile Gly Glu Asn Gln Val
        195                 200                 205

Glu Val Met Val Glu Glu Lys Thr Thr Glu Ser Gln Glu Glu Thr Val
    210                 215                 220

Val Met Ser Leu Lys Asn Gly Gln Ile Ser Ser Glu Glu Pro Lys Gln
225                 230                 235                 240

Glu Glu Glu Arg Glu Gln Gly Ser Asp Glu Ile Ser His His Glu Lys
                245                 250                 255

Met Glu Glu Glu Asp Lys Glu Arg Ala Glu Ala Glu Arg Ala Arg Leu
            260                 265                 270

Glu Ala Glu Glu Arg Glu Arg Ile Lys Ala Glu Gln Asp Lys Lys Ile
        275                 280                 285

Ala Asp Glu Arg Ala Arg Ile Glu Ala Glu Glu Lys Ala Ala Ala Gln
    290                 295                 300

Glu Arg Glu Arg Arg Glu Ala Glu Glu Arg Glu Arg Met Arg Glu Glu
305                 310                 315                 320

Glu Lys Arg Ala Ala Glu Glu Arg Gln Arg Ile Lys Glu Glu Glu Lys
                325                 330                 335

Arg Ala Ala Glu Glu Arg Gln Arg Ile Lys Glu Glu Glu Lys Arg Ala
            340                 345                 350

Ala Glu Glu Arg Gln Arg Ile Lys Glu Glu Glu Lys Arg Ala Ala Glu
        355                 360                 365

Glu Arg Gln Arg Ala Arg Ala Glu Glu Glu Glu Lys Ala Lys Val Glu
    370                 375                 380

Glu Gln Lys Arg Asn Lys Gln Leu Glu Glu Lys Lys His Ala Met Gln
385                 390                 395                 400

Glu Thr Lys Ile Lys Gly Glu Lys Val Glu Gln Lys Ile Glu Gly Lys
                405                 410                 415
```

```
Trp Val Asn Glu Lys Lys Ala Gln Glu Asp Lys Leu Gln Thr Ala Val
            420                 425                 430

Leu Lys Lys Gln Gly Glu Glu Lys Gly Thr Lys Val Gln Ala Lys Arg
        435                 440                 445

Glu Lys Leu Gln Glu Asp Lys Pro Thr Phe Lys Lys Glu Glu Ile Lys
    450                 455                 460

Asp Glu Lys Ile Lys Lys Asp Lys Glu Pro Lys Glu Glu Val Lys Ser
465                 470                 475                 480

Phe Met Asp Arg Lys Lys Gly Phe Thr Glu Val Lys Ser Gln Asn Gly
                485                 490                 495

Glu Phe Met Thr His Lys Leu Lys His Thr Glu Asn Thr Phe Ser Arg
            500                 505                 510

Pro Gly Gly Arg Ala Ser Val Asp Thr Lys Glu Ala Glu Gly Ala Pro
        515                 520                 525

Gln Val Glu Ala Gly Lys Arg Leu Glu Glu Leu Arg Arg Arg Arg Gly
    530                 535                 540

Glu Thr Glu Ser Glu Glu Phe Glu Lys Leu Lys Gln Lys Gln Gln Glu
545                 550                 555                 560

Ala Ala Leu Glu Leu Glu Glu Leu Lys Lys Lys Arg Glu Glu Arg Arg
                565                 570                 575

Lys Val Leu Glu Glu Glu Glu Gln Arg Arg Lys Gln Glu Glu Ala Asp
            580                 585                 590

Arg Lys Leu Arg Glu Glu Glu Glu Lys Arg Arg Leu Lys Glu Glu Ile
        595                 600                 605

Glu Arg Arg Arg Ala Glu Ala Ala Glu Lys Arg Gln Lys Met Pro Glu
    610                 615                 620

Asp Gly Leu Ser Asp Asp Lys Lys Pro Phe Lys Cys Phe Thr Pro Lys
625                 630                 635                 640
```

```
Gly Ser Ser Leu Lys Ile Glu Glu Arg Ala Glu Phe Leu Asn Lys Ser
                645                 650                 655

Val Gln Lys Ser Ser Gly Val Lys Ser Thr His Gln Ala Ala Ile Val
            660                 665                 670

Ser Lys Ile Asp Ser Arg Leu Glu Gln Tyr Thr Ser Ala Ile Glu Gly
        675                 680                 685

Thr Lys Ser Ala Lys Pro Thr Lys Pro Ala Ala Ser Asp Leu Pro Val
    690                 695                 700

Pro Ala Glu Gly Val Arg Asn Ile Lys Ser Met Trp Glu Lys Gly Asn
705                 710                 715                 720

Val Phe Ser Ser Pro Thr Ala Ala Gly Thr Pro Asn Lys Glu Thr Ala
                725                 730                 735

Gly Leu Lys Val Gly Val Ser Ser Arg Ile Asn Glu Trp Leu Thr Lys
            740                 745                 750

Thr Pro Asp Gly Asn Lys Ser Pro Ala Pro Lys Pro Ser Asp Leu Arg
        755                 760                 765

Pro Gly Asp Val Ser Ser Lys Arg Asn Leu Trp Glu Lys Gln Ser Val
    770                 775                 780

Asp Lys Val Thr Ser Pro Thr Lys Val
785                 790


<210> 10997
<211> 558
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2177; "

<220>
<221> source
<223> /note="Gene Symbol: CALD1; "

<220>
<221> source
<223> /note="Gene Name: caldesmon 1; "
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<220>
<221> source
<223> /note="Uniprot ID: Q05682; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000376826"

<400> 10997
Met Leu Gly Gly Ser Gly Ser His Gly Arg Arg Ser Leu Ala Ala Leu
1   5   10   15

Ser Gln Ile Ala Tyr Gln Arg Asn Asp Asp Asp Glu Glu Glu Ala Ala
            20   25   30

Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu Arg Leu Arg Gln Lys Gln
        35   40   45

Glu Glu Glu Ser Leu Gly Gln Val Thr Asp Gln Val Glu Val Asn Ala
    50   55   60

Gln Asn Ser Val Pro Asp Glu Glu Ala Lys Thr Thr Thr Thr Asn Thr
65   70   75   80

Gln Val Glu Gly Asp Asp Glu Ala Ala Phe Leu Glu Arg Leu Ala Arg
                85   90   95

Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln Glu Ala Leu Glu Arg Gln
            100   105   110

Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala Ser Leu Ser Leu Pro Ser
        115   120   125

Arg Arg Met Gln Asn Asp Thr Ala Glu Asn Glu Thr Thr Glu Lys Glu
    130   135   140

Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr Glu Ile Glu Glu Thr Glu
145   150   155   160

Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp Trp Arg Asp Ala Glu Glu
                165   170   175

Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu Glu Glu Glu Glu Lys Pro
            180   185   190

```
Lys Arg Gly Ser Ile Gly Glu Asn Gln Gly Glu Glu Lys Gly Thr Lys
        195                 200                 205

Val Gln Ala Lys Arg Glu Lys Leu Gln Glu Asp Lys Pro Thr Phe Lys
    210                 215                 220

Lys Glu Glu Ile Lys Asp Glu Lys Ile Lys Lys Asp Lys Glu Pro Lys
225                 230                 235                 240

Glu Glu Val Lys Ser Phe Met Asp Arg Lys Lys Gly Phe Thr Glu Val
                245                 250                 255

Lys Ser Gln Asn Gly Glu Phe Met Thr His Lys Leu Lys His Thr Glu
            260                 265                 270

Asn Thr Phe Ser Arg Pro Gly Gly Arg Ala Ser Val Asp Thr Lys Glu
        275                 280                 285

Ala Glu Gly Ala Pro Gln Val Glu Ala Gly Lys Arg Leu Glu Glu Leu
    290                 295                 300

Arg Arg Arg Arg Gly Glu Thr Glu Ser Glu Glu Phe Glu Lys Leu Lys
305                 310                 315                 320

Gln Lys Gln Gln Glu Ala Ala Leu Glu Leu Glu Glu Leu Lys Lys Lys
                325                 330                 335

Arg Glu Glu Arg Arg Lys Val Leu Glu Glu Glu Glu Gln Arg Arg Lys
            340                 345                 350

Gln Glu Glu Ala Asp Arg Lys Leu Arg Glu Glu Glu Glu Lys Arg Arg
        355                 360                 365

Leu Lys Glu Glu Ile Glu Arg Arg Arg Ala Glu Ala Ala Glu Lys Arg
    370                 375                 380

Gln Lys Met Pro Glu Asp Gly Leu Ser Asp Asp Lys Lys Pro Phe Lys
385                 390                 395                 400

Cys Phe Thr Pro Lys Gly Ser Ser Leu Lys Ile Glu Glu Arg Ala Glu
                405                 410                 415

Phe Leu Asn Lys Ser Val Gln Lys Ser Ser Gly Val Lys Ser Thr His
```

```
            420                 425                 430

Gln Ala Ala Ile Val Ser Lys Ile Asp Ser Arg Leu Glu Gln Tyr Thr
        435                 440                 445

Ser Ala Ile Glu Gly Thr Lys Ser Ala Lys Pro Thr Lys Pro Ala Ala
    450                 455                 460

Ser Asp Leu Pro Val Pro Ala Glu Gly Val Arg Asn Ile Lys Ser Met
465                 470                 475                 480

Trp Glu Lys Gly Asn Val Phe Ser Ser Pro Thr Ala Ala Gly Thr Pro
                485                 490                 495

Asn Lys Glu Thr Ala Gly Leu Lys Val Gly Val Ser Ser Arg Ile Asn
            500                 505                 510

Glu Trp Leu Thr Lys Thr Pro Asp Gly Asn Lys Ser Pro Ala Pro Lys
        515                 520                 525

Pro Ser Asp Leu Arg Pro Gly Asp Val Ser Ser Lys Arg Asn Leu Trp
    530                 535                 540

Glu Lys Gln Ser Val Asp Lys Val Thr Ser Pro Thr Lys Val
545                 550                 555


<210> 10998
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2177; "

<220>
<221> source
<223> /note="Gene Symbol: CALD1; "

<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000390926"

<400> 10998
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Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1               5                   10                  15

Glu Met Arg Leu Glu Ala Glu Ser Val Tyr Thr Asn Asn Ser Cys Asn
            20                  25                  30

Met Leu Tyr Leu Leu Lys Ile Ala Tyr Gln Arg Asn Asp Asp Asp Glu
        35                  40                  45

Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu Arg Leu
    50                  55                  60

Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp Gln Val
65                  70                  75                  80

Glu Val Asn Ala Gln Asn Ser Val Pro Asp Glu Glu Ala Lys Thr Thr
                85                  90                  95

Thr Thr Asn Thr Gln Val Glu Gly Asp Asp Glu Ala Ala Phe Leu Glu
            100                 105                 110

Arg Leu Ala Arg Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln Glu Ala
        115                 120                 125

Leu Glu Arg Gln
    130


<210> 10999
<211> 532
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2177; "

<220>
<221> source
<223> /note="Gene Symbol: CALD1; "

<220>
<221> source
<223> /note="Gene Name: caldesmon 1; "

<220>
<221> source
<223> /note="Uniprot ID:  Q05682; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000393621"

<400> 10999
Met Leu Gly Gly Ser Gly Ser His Gly Arg Arg Ser Leu Ala Ala Leu
1   5   10   15

Ser Gln Ile Ala Tyr Gln Arg Asn Asp Asp Asp Glu Glu Glu Ala Ala
            20   25   30

Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu Arg Leu Arg Gln Lys Gln
        35   40   45

Glu Glu Glu Ser Leu Gly Gln Val Thr Asp Gln Val Glu Val Asn Ala
    50   55   60

Gln Asn Ser Val Pro Asp Glu Glu Ala Lys Thr Thr Thr Thr Asn Thr
65   70   75   80

Gln Val Glu Gly Asp Asp Glu Ala Ala Phe Leu Glu Arg Leu Ala Arg
                85   90   95

Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln Glu Ala Leu Glu Arg Gln
            100   105   110

Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala Ser Leu Ser Leu Pro Ser
        115   120   125

Arg Arg Met Gln Asn Asp Thr Ala Glu Asn Glu Thr Thr Glu Lys Glu
    130   135   140

Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr Glu Ile Glu Glu Thr Glu
145   150   155   160

Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp Trp Arg Asp Ala Glu Glu
                165   170   175

Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu Glu Glu Glu Glu Lys Pro
            180   185   190

Lys Arg Gly Ser Ile Gly Glu Asn Gln Ile Lys Asp Glu Lys Ile Lys
        195   200   205

```
Lys Asp Lys Glu Pro Lys Glu Glu Val Lys Ser Phe Met Asp Arg Lys
    210                 215                 220

Lys Gly Phe Thr Glu Val Lys Ser Gln Asn Gly Glu Phe Met Thr His
225                 230                 235                 240

Lys Leu Lys His Thr Glu Asn Thr Phe Ser Arg Pro Gly Gly Arg Ala
                245                 250                 255

Ser Val Asp Thr Lys Glu Ala Glu Gly Ala Pro Gln Val Glu Ala Gly
            260                 265                 270

Lys Arg Leu Glu Glu Leu Arg Arg Arg Arg Gly Glu Thr Glu Ser Glu
        275                 280                 285

Glu Phe Glu Lys Leu Lys Gln Lys Gln Gln Glu Ala Ala Leu Glu Leu
    290                 295                 300

Glu Glu Leu Lys Lys Lys Arg Glu Glu Arg Arg Lys Val Leu Glu Glu
305                 310                 315                 320

Glu Glu Gln Arg Arg Lys Gln Glu Glu Ala Asp Arg Lys Leu Arg Glu
                325                 330                 335

Glu Glu Glu Lys Arg Arg Leu Lys Glu Glu Ile Glu Arg Arg Arg Ala
            340                 345                 350

Glu Ala Ala Glu Lys Arg Gln Lys Met Pro Glu Asp Gly Leu Ser Asp
        355                 360                 365

Asp Lys Lys Pro Phe Lys Cys Phe Thr Pro Lys Gly Ser Ser Leu Lys
    370                 375                 380

Ile Glu Glu Arg Ala Glu Phe Leu Asn Lys Ser Val Gln Lys Ser Ser
385                 390                 395                 400

Gly Val Lys Ser Thr His Gln Ala Ala Ile Val Ser Lys Ile Asp Ser
                405                 410                 415

Arg Leu Glu Gln Tyr Thr Ser Ala Ile Glu Gly Thr Lys Ser Ala Lys
            420                 425                 430

Pro Thr Lys Pro Ala Ala Ser Asp Leu Pro Val Pro Ala Glu Gly Val
```

```
        435                 440                 445

Arg Asn Ile Lys Ser Met Trp Glu Lys Gly Asn Val Phe Ser Ser Pro
    450                 455                 460

Thr Ala Ala Gly Thr Pro Asn Lys Glu Thr Ala Gly Leu Lys Val Gly
465                 470                 475                 480

Val Ser Ser Arg Ile Asn Glu Trp Leu Thr Lys Thr Pro Asp Gly Asn
                485                 490                 495

Lys Ser Pro Ala Pro Lys Pro Ser Asp Leu Arg Pro Gly Asp Val Ser
            500                 505                 510

Ser Lys Arg Asn Leu Trp Glu Lys Gln Ser Val Asp Lys Val Thr Ser
        515                 520                 525

Pro Thr Lys Val
    530


<210> 11000
<211> 85
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
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<400> 11000
Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1               5                   10                  15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
            20                  25                  30
```

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
        35   40   45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
    50   55   60

Gln Gln Lys Met Lys Leu Pro Arg Arg Lys Lys Lys Val Lys Val Ala
65   70   75   80

Lys Lys Asp Thr Arg
                85

<210> 11001
<211> 563
<212> PRT
<213> Homo sapiens

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<220>
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<220>
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<223> /note="Uniprot ID: Q05682; "

<220>
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<400> 11001
Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1   5   10   15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
            20   25   30

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
        35   40   45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
    50   55   60

```
Gln Val Glu Val Asn Ala Gln Asn Ser Val Pro Asp Glu Glu Ala Lys
65                  70                  75                  80

Thr Thr Thr Thr Asn Thr Gln Val Glu Gly Asp Asp Glu Ala Ala Phe
                85                  90                  95

Leu Glu Arg Leu Ala Arg Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln
            100                 105                 110

Glu Ala Leu Glu Arg Gln Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala
        115                 120                 125

Ser Leu Ser Leu Pro Ser Arg Arg Met Gln Asn Asp Thr Ala Glu Asn
    130                 135                 140

Glu Thr Thr Glu Lys Glu Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr
145                 150                 155                 160

Glu Ile Glu Glu Thr Glu Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp
                165                 170                 175

Trp Arg Asp Ala Glu Glu Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu
            180                 185                 190

Glu Glu Glu Glu Lys Pro Lys Arg Gly Ser Ile Gly Glu Asn Gln Gly
        195                 200                 205

Glu Glu Lys Gly Thr Lys Val Gln Ala Lys Arg Glu Lys Leu Gln Glu
    210                 215                 220

Asp Lys Pro Thr Phe Lys Lys Glu Glu Ile Lys Asp Glu Lys Ile Lys
225                 230                 235                 240

Lys Asp Lys Glu Pro Lys Glu Glu Val Lys Ser Phe Met Asp Arg Lys
                245                 250                 255

Lys Gly Phe Thr Glu Val Lys Ser Gln Asn Gly Glu Phe Met Thr His
            260                 265                 270

Lys Leu Lys His Thr Glu Asn Thr Phe Ser Arg Pro Gly Gly Arg Ala
        275                 280                 285
```

```
Ser Val Asp Thr Lys Glu Ala Glu Gly Ala Pro Gln Val Glu Ala Gly
    290                 295                 300

Lys Arg Leu Glu Glu Leu Arg Arg Arg Arg Gly Glu Thr Glu Ser Glu
305                 310                 315                 320

Glu Phe Glu Lys Leu Lys Gln Lys Gln Gln Glu Ala Ala Leu Glu Leu
                325                 330                 335

Glu Glu Leu Lys Lys Lys Arg Glu Glu Arg Arg Lys Val Leu Glu Glu
            340                 345                 350

Glu Glu Gln Arg Arg Lys Gln Glu Glu Ala Asp Arg Lys Leu Arg Glu
        355                 360                 365

Glu Glu Glu Lys Arg Arg Leu Lys Glu Glu Ile Glu Arg Arg Arg Ala
    370                 375                 380

Glu Ala Ala Glu Lys Arg Gln Lys Met Pro Glu Asp Gly Leu Ser Asp
385                 390                 395                 400

Asp Lys Lys Pro Phe Lys Cys Phe Thr Pro Lys Gly Ser Ser Leu Lys
                405                 410                 415

Ile Glu Glu Arg Ala Glu Phe Leu Asn Lys Ser Val Gln Lys Ser Gly
            420                 425                 430

Val Lys Ser Thr His Gln Ala Ala Ile Val Ser Lys Ile Asp Ser Arg
        435                 440                 445

Leu Glu Gln Tyr Thr Ser Ala Ile Glu Gly Thr Lys Ser Ala Lys Pro
    450                 455                 460

Thr Lys Pro Ala Ala Ser Asp Leu Pro Val Pro Ala Glu Gly Val Arg
465                 470                 475                 480

Asn Ile Lys Ser Met Trp Glu Lys Gly Asn Val Phe Ser Ser Pro Thr
                485                 490                 495

Ala Ala Gly Thr Pro Asn Lys Glu Thr Ala Gly Leu Lys Val Gly Val
            500                 505                 510

Ser Ser Arg Ile Asn Glu Trp Leu Thr Lys Thr Pro Asp Gly Asn Lys
```

515 520 525

Ser Pro Ala Pro Lys Pro Ser Asp Leu Arg Pro Gly Asp Val Ser Ser
530 535 540

Lys Arg Asn Leu Trp Glu Lys Gln Ser Val Asp Lys Val Thr Ser Pro
545 550 555 560

Thr Lys Val

<210> 11002
<211> 538
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
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<223> /note="Uniprot ID: Q05682; "

<220>
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<223> /note="ENSP ID: ENSP00000398826"

<400> 11002
Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1 5 10 15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
20 25 30

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
35 40 45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
50 55 60

```
Gln Val Glu Val Asn Ala Gln Asn Ser Val Pro Asp Glu Glu Ala Lys
65                  70                  75                  80

Thr Thr Thr Thr Asn Thr Gln Val Glu Gly Asp Asp Glu Ala Ala Phe
                85                  90                  95

Leu Glu Arg Leu Ala Arg Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln
            100                 105                 110

Glu Ala Leu Glu Arg Gln Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala
        115                 120                 125

Ser Leu Ser Leu Pro Ser Arg Arg Met Gln Asn Asp Thr Ala Glu Asn
    130                 135                 140

Glu Thr Thr Glu Lys Glu Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr
145                 150                 155                 160

Glu Ile Glu Glu Thr Glu Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp
                165                 170                 175

Trp Arg Asp Ala Glu Glu Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu
            180                 185                 190

Glu Glu Glu Glu Lys Pro Lys Arg Gly Ser Ile Gly Glu Asn Gln Ile
        195                 200                 205

Lys Asp Glu Lys Ile Lys Lys Asp Lys Glu Pro Lys Glu Glu Val Lys
    210                 215                 220

Ser Phe Met Asp Arg Lys Lys Gly Phe Thr Glu Val Lys Ser Gln Asn
225                 230                 235                 240

Gly Glu Phe Met Thr His Lys Leu Lys His Thr Glu Asn Thr Phe Ser
                245                 250                 255

Arg Pro Gly Gly Arg Ala Ser Val Asp Thr Lys Glu Ala Glu Gly Ala
            260                 265                 270

Pro Gln Val Glu Ala Gly Lys Arg Leu Glu Glu Leu Arg Arg Arg Arg
        275                 280                 285

Gly Glu Thr Glu Ser Glu Glu Phe Glu Lys Leu Lys Gln Lys Gln Gln
```

```
    290                 295                 300

Glu Ala Ala Leu Glu Leu Glu Glu Leu Lys Lys Lys Arg Glu Glu Arg
305                 310                 315                 320

Arg Lys Val Leu Glu Glu Glu Glu Gln Arg Arg Lys Gln Glu Glu Ala
                325                 330                 335

Asp Arg Lys Leu Arg Glu Glu Glu Glu Lys Arg Arg Leu Lys Glu Glu
            340                 345                 350

Ile Glu Arg Arg Arg Ala Glu Ala Ala Glu Lys Arg Gln Lys Met Pro
        355                 360                 365

Glu Asp Gly Leu Ser Asp Asp Lys Lys Pro Phe Lys Cys Phe Thr Pro
    370                 375                 380

Lys Gly Ser Ser Leu Lys Ile Glu Glu Arg Ala Glu Phe Leu Asn Lys
385                 390                 395                 400

Ser Val Gln Lys Ser Ser Gly Val Lys Ser Thr His Gln Ala Ala Ile
                405                 410                 415

Val Ser Lys Ile Asp Ser Arg Leu Glu Gln Tyr Thr Ser Ala Ile Glu
            420                 425                 430

Gly Thr Lys Ser Ala Lys Pro Thr Lys Pro Ala Ala Ser Asp Leu Pro
        435                 440                 445

Val Pro Ala Glu Gly Val Arg Asn Ile Lys Ser Met Trp Glu Lys Gly
    450                 455                 460

Asn Val Phe Ser Ser Pro Thr Ala Ala Gly Thr Pro Asn Lys Glu Thr
465                 470                 475                 480

Ala Gly Leu Lys Val Gly Val Ser Ser Arg Ile Asn Glu Trp Leu Thr
                485                 490                 495

Lys Thr Pro Asp Gly Asn Lys Ser Pro Ala Pro Lys Pro Ser Asp Leu
            500                 505                 510

Arg Pro Gly Asp Val Ser Ser Lys Arg Asn Leu Trp Glu Lys Gln Ser
        515                 520                 525
```

Val Asp Lys Val Thr Ser Pro Thr Lys Val
530 535

<210> 11003
<211> 72
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2177; "

<220>
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<223> /note="Gene Symbol: CALD1; "

<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
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<223> /note="ENSP ID: ENSP00000401988"

<400> 11003
Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1 5 10 15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
20 25 30

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
35 40 45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
50 55 60

Gln Val Glu Val Asn Ala Gln Asn
65 70

<210> 11004
<211> 536
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
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<223> /note="ENSP ID: ENSP00000407522"

<400> 11004
Met Leu Gly Gly Ser Gly Ser His Gly Arg Arg Ser Leu Ala Ala Leu
1   5   10   15

Ser Gln Ile Ala Tyr Gln Arg Asn Asp Asp Asp Glu Glu Glu Ala Ala
            20   25   30

Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu Arg Leu Arg Gln Lys Gln
        35   40   45

Glu Glu Glu Ser Leu Gly Gln Val Thr Asp Gln Val Glu Val Asn Ala
    50   55   60

Gln Asn Ser Val Pro Asp Glu Glu Ala Lys Thr Thr Thr Thr Asn Thr
65   70   75   80

Gln Val Glu Gly Asp Asp Glu Ala Ala Phe Leu Glu Arg Leu Ala Arg
                85   90   95

Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln Glu Ala Leu Glu Arg Gln
            100   105   110

Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala Ser Leu Ser Leu Pro Ser
        115   120   125

Arg Arg Met Gln Asn Asp Thr Ala Glu Asn Glu Thr Thr Glu Lys Glu
    130   135   140

Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr Glu Ile Glu Glu Thr Glu
145   150   155   160

Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp Trp Arg Asp Ala Glu Glu
                165   170   175

```
Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu Glu Glu Glu Glu Lys Pro
            180                 185                 190

Lys Arg Gly Ser Ile Gly Glu Asn Gln Ile Lys Asp Glu Lys Ile Lys
        195                 200                 205

Lys Asp Lys Glu Pro Lys Glu Glu Val Lys Ser Phe Met Asp Arg Lys
    210                 215                 220

Lys Gly Phe Thr Glu Val Lys Ser Gln Asn Gly Glu Phe Met Thr His
225                 230                 235                 240

Lys Leu Lys His Thr Glu Asn Thr Phe Ser Arg Pro Gly Gly Arg Ala
                245                 250                 255

Ser Val Asp Thr Lys Glu Ala Glu Gly Ala Pro Gln Val Glu Ala Gly
            260                 265                 270

Lys Arg Leu Glu Glu Leu Arg Arg Arg Arg Gly Glu Thr Glu Ser Glu
        275                 280                 285

Glu Phe Glu Lys Leu Lys Gln Lys Gln Gln Glu Ala Ala Leu Glu Leu
    290                 295                 300

Glu Glu Leu Lys Lys Lys Arg Glu Glu Arg Arg Lys Val Leu Glu Glu
305                 310                 315                 320

Glu Glu Gln Arg Arg Lys Gln Glu Glu Ala Asp Arg Lys Leu Arg Glu
                325                 330                 335

Glu Glu Glu Lys Arg Arg Leu Lys Glu Glu Ile Glu Arg Arg Arg Ala
            340                 345                 350

Glu Ala Ala Glu Lys Arg Gln Lys Met Pro Glu Asp Gly Leu Ser Asp
        355                 360                 365

Asp Lys Lys Pro Phe Lys Cys Phe Thr Pro Lys Gly Ser Ser Leu Lys
    370                 375                 380

Ile Glu Glu Arg Ala Glu Phe Leu Asn Lys Ser Val Gln Lys Ser Ser
385                 390                 395                 400

Gly Val Lys Ser Thr His Gln Ala Ala Ile Val Ser Lys Ile Asp Ser
```

405 410 415

Arg Leu Glu Gln Tyr Thr Ser Ala Ile Glu Gly Thr Lys Ser Ala Lys
420 425 430

Pro Thr Lys Pro Ala Ala Ser Asp Leu Pro Val Pro Ala Glu Gly Val
435 440 445

Arg Asn Ile Lys Ser Met Trp Glu Lys Gly Asn Val Phe Ser Ser Pro
450 455 460

Thr Ala Ala Gly Thr Pro Asn Lys Glu Thr Ala Gly Leu Lys Val Gly
465 470 475 480

Val Ser Ser Arg Ile Asn Glu Trp Leu Thr Lys Thr Pro Asp Gly Asn
485 490 495

Lys Ser Pro Ala Pro Lys Pro Ser Leu Thr Phe Cys Ser Ser Leu Phe
500 505 510

Gly Leu Trp Leu Ile Gly Asn Leu Leu Leu Leu Pro Ser Phe Leu Pro
515 520 525

Leu Leu Pro Glu Trp Val Phe Leu
530 535

<210> 11005
<211> 459
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
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<223> /note="ENSP ID: ENSP00000411476"

<400> 11005

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Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1               5                  10                  15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
            20                  25                  30

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
        35                  40                  45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
    50                  55                  60

Gln Val Glu Val Asn Ala Gln Asn Ser Val Pro Asp Glu Glu Ala Lys
65                  70                  75                  80

Thr Thr Thr Thr Asn Thr Gln Val Glu Gly Asp Asp Glu Ala Ala Phe
                85                  90                  95

Leu Glu Arg Leu Ala Arg Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln
            100                 105                 110

Glu Ala Leu Glu Arg Gln Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala
        115                 120                 125

Ser Leu Ser Leu Pro Ser Arg Arg Met Gln Asn Asp Thr Ala Glu Asn
    130                 135                 140

Glu Thr Thr Glu Lys Glu Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr
145                 150                 155                 160

Glu Ile Glu Glu Thr Glu Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp
                165                 170                 175

Trp Arg Asp Ala Glu Glu Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu
            180                 185                 190

Glu Glu Glu Glu Lys Pro Lys Arg Gly Ser Ile Gly Glu Asn Gln Ile
        195                 200                 205

Lys Asp Glu Lys Ile Lys Lys Asp Lys Glu Pro Lys Glu Glu Val Lys
    210                 215                 220

Ser Phe Met Asp Arg Lys Lys Gly Phe Thr Glu Val Lys Ser Gln Asn
```

225 230 235 240

Gly Glu Phe Met Thr His Lys Leu Lys His Thr Glu Asn Thr Phe Ser
245 250 255

Arg Pro Gly Gly Arg Ala Ser Val Asp Thr Lys Glu Ala Glu Gly Ala
260 265 270

Pro Gln Val Glu Ala Gly Lys Arg Leu Glu Glu Leu Arg Arg Arg Arg
275 280 285

Gly Glu Thr Glu Ser Glu Glu Phe Glu Lys Leu Lys Gln Lys Gln Gln
290 295 300

Glu Ala Ala Leu Glu Leu Glu Glu Leu Lys Lys Lys Arg Glu Glu Arg
305 310 315 320

Arg Lys Val Leu Glu Glu Glu Glu Gln Arg Arg Lys Gln Glu Glu Ala
325 330 335

Asp Arg Lys Leu Arg Glu Glu Glu Glu Lys Arg Arg Leu Lys Glu Glu
340 345 350

Ile Glu Arg Arg Arg Ala Glu Ala Ala Glu Lys Arg Gln Lys Met Pro
355 360 365

Glu Asp Gly Leu Ser Asp Asp Lys Lys Pro Phe Lys Cys Phe Thr Pro
370 375 380

Lys Gly Ser Ser Leu Lys Ile Glu Glu Arg Ala Glu Phe Leu Asn Lys
385 390 395 400

Ser Val Gln Lys Ser Ser Gly Val Lys Ser Thr His Gln Ala Ala Ile
405 410 415

Val Ser Lys Ile Asp Ser Arg Leu Glu Gln Tyr Thr Ser Ala Ile Glu
420 425 430

Gly Thr Lys Ser Ala Lys Pro Thr Lys Pro Ala Ala Ser Asp Leu Pro
435 440 445

Val Pro Ala Glu Gly Val Arg Asn Ile Lys Ser
450 455

<210> 11006
<211> 72
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
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<400> 11006
Met Asp Asp Phe Glu Arg Arg Arg Glu Leu Arg Arg Gln Lys Arg Glu
1   5   10   15

Glu Met Arg Leu Glu Ala Glu Arg Ile Ala Tyr Gln Arg Asn Asp Asp
            20   25   30

Asp Glu Glu Glu Ala Ala Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu
        35   40   45

Arg Leu Arg Gln Lys Gln Glu Glu Glu Ser Leu Gly Gln Val Thr Asp
    50   55   60

Gln Val Glu Val Asn Ala Gln Asn
65   70

<210> 11007
<211> 557
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: caldesmon 1; "

<220>
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<223> /note="ENSP ID: ENSP00000419673"

<400> 11007
Met Leu Gly Gly Ser Gly Ser His Gly Arg Arg Ser Leu Ala Ala Leu
1 5 10 15

Ser Gln Ile Ala Tyr Gln Arg Asn Asp Asp Asp Glu Glu Glu Ala Ala
20 25 30

Arg Glu Arg Arg Arg Arg Ala Arg Gln Glu Arg Leu Arg Gln Lys Gln
35 40 45

Glu Glu Glu Ser Leu Gly Gln Val Thr Asp Gln Val Glu Val Asn Ala
50 55 60

Gln Asn Ser Val Pro Asp Glu Glu Ala Lys Thr Thr Thr Thr Asn Thr
65 70 75 80

Gln Val Glu Gly Asp Asp Glu Ala Ala Phe Leu Glu Arg Leu Ala Arg
85 90 95

Arg Glu Glu Arg Arg Gln Lys Arg Leu Gln Glu Ala Leu Glu Arg Gln
100 105 110

Lys Glu Phe Asp Pro Thr Ile Thr Asp Ala Ser Leu Ser Leu Pro Ser
115 120 125

Arg Arg Met Gln Asn Asp Thr Ala Glu Asn Glu Thr Thr Glu Lys Glu
130 135 140

Glu Lys Ser Glu Ser Arg Gln Glu Arg Tyr Glu Ile Glu Glu Thr Glu
145 150 155 160

Thr Val Thr Lys Ser Tyr Gln Lys Asn Asp Trp Arg Asp Ala Glu Glu
165 170 175

Asn Lys Lys Glu Asp Lys Glu Lys Glu Glu Glu Glu Glu Glu Lys Pro
180 185 190

```
Lys Arg Gly Ser Ile Gly Glu Asn Gln Gly Glu Glu Lys Gly Thr Lys
        195                 200                 205

Val Gln Ala Lys Arg Glu Lys Leu Gln Glu Asp Lys Pro Thr Phe Lys
    210                 215                 220

Lys Glu Glu Ile Lys Asp Glu Lys Ile Lys Lys Asp Lys Glu Pro Lys
225                 230                 235                 240

Glu Glu Val Lys Ser Phe Met Asp Arg Lys Lys Gly Phe Thr Glu Val
                245                 250                 255

Lys Ser Gln Asn Gly Glu Phe Met Thr His Lys Leu Lys His Thr Glu
            260                 265                 270

Asn Thr Phe Ser Arg Pro Gly Gly Arg Ala Ser Val Asp Thr Lys Glu
        275                 280                 285

Ala Glu Gly Ala Pro Gln Val Glu Ala Gly Lys Arg Leu Glu Glu Leu
    290                 295                 300

Arg Arg Arg Arg Gly Glu Thr Glu Ser Glu Glu Phe Glu Lys Leu Lys
305                 310                 315                 320

Gln Lys Gln Gln Glu Ala Ala Leu Glu Leu Glu Glu Leu Lys Lys Lys
                325                 330                 335

Arg Glu Glu Arg Arg Lys Val Leu Glu Glu Glu Glu Gln Arg Arg Lys
            340                 345                 350

Gln Glu Glu Ala Asp Arg Lys Leu Arg Glu Glu Glu Glu Lys Arg Arg
        355                 360                 365

Leu Lys Glu Glu Ile Glu Arg Arg Arg Ala Glu Ala Ala Glu Lys Arg
    370                 375                 380

Gln Lys Met Pro Glu Asp Gly Leu Ser Asp Asp Lys Lys Pro Phe Lys
385                 390                 395                 400

Cys Phe Thr Pro Lys Gly Ser Ser Leu Lys Ile Glu Glu Arg Ala Glu
                405                 410                 415

Phe Leu Asn Lys Ser Val Gln Lys Ser Gly Val Lys Ser Thr His Gln
```

```
            420                 425                 430

Ala Ala Ile Val Ser Lys Ile Asp Ser Arg Leu Glu Gln Tyr Thr Ser
        435                 440                 445

Ala Ile Glu Gly Thr Lys Ser Ala Lys Pro Thr Lys Pro Ala Ala Ser
    450                 455                 460

Asp Leu Pro Val Pro Ala Glu Gly Val Arg Asn Ile Lys Ser Met Trp
465                 470                 475                 480

Glu Lys Gly Asn Val Phe Ser Ser Pro Thr Ala Ala Gly Thr Pro Asn
                485                 490                 495

Lys Glu Thr Ala Gly Leu Lys Val Gly Val Ser Ser Arg Ile Asn Glu
            500                 505                 510

Trp Leu Thr Lys Thr Pro Asp Gly Asn Lys Ser Pro Ala Pro Lys Pro
        515                 520                 525

Ser Asp Leu Arg Pro Gly Asp Val Ser Ser Lys Arg Asn Leu Trp Glu
    530                 535                 540

Lys Gln Ser Val Asp Lys Val Thr Ser Pro Thr Lys Val
545                 550                 555


<210> 11008
<211> 588
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: calicin; "

<220>
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<223> /note="Uniprot ID:  Q13939; "

<220>
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<221> source
<223> /note="ENSP ID: ENSP00000334996"

<400> 11008
Met Lys Leu Glu Phe Thr Glu Lys Asn Tyr Asn Ser Phe Val Leu Gln
1 5 10 15

Asn Leu Asn Arg Gln Arg Lys Arg Lys Glu Tyr Trp Asp Met Ala Leu
20 25 30

Ser Val Asp Asn His Val Phe Phe Ala His Arg Asn Val Leu Ala Ala
35 40 45

Val Ser Pro Leu Val Arg Ser Leu Ile Ser Ser Asn Asp Met Lys Thr
50 55 60

Ala Asp Glu Leu Phe Ile Thr Ile Asp Thr Ser Tyr Leu Ser Pro Val
65 70 75 80

Thr Val Asp Gln Leu Leu Asp Tyr Phe Tyr Ser Gly Lys Val Val Ile
85 90 95

Ser Glu Gln Asn Val Glu Glu Leu Leu Arg Gly Ala Gln Tyr Phe Asn
100 105 110

Thr Pro Arg Leu Arg Val His Cys Asn Asp Phe Leu Ile Lys Ser Ile
115 120 125

Cys Arg Ala Asn Cys Leu Arg Tyr Leu Phe Leu Ala Glu Leu Phe Glu
130 135 140

Leu Lys Glu Val Ser Asp Val Ala Tyr Ser Gly Ile Arg Asp Asn Phe
145 150 155 160

His Tyr Trp Ala Ser Pro Glu Gly Ser Met His Phe Met Arg Cys Pro
165 170 175

Pro Val Ile Phe Gly Arg Leu Leu Arg Asp Glu Asn Leu His Val Leu
180 185 190

Asn Glu Asp Gln Ala Leu Ser Ala Leu Ile Asn Trp Val Tyr Phe Arg
195 200 205

Lys Glu Asp Arg Glu Lys Tyr Phe Lys Lys Phe Phe Asn Tyr Ile Asn

```
    210                 215                 220

Leu Asn Ala Val Ser Asn Lys Thr Leu Val Phe Ala Ser Asn Lys Leu
225                 230                 235                 240

Val Gly Met Glu Asn Thr Ser Ser His Thr Thr Leu Ile Glu Ser Val
                245                 250                 255

Leu Met Asp Arg Lys Gln Glu Arg Pro Cys Ser Leu Leu Val Tyr Gln
            260                 265                 270

Arg Lys Gly Ala Leu Leu Asp Ser Val Val Ile Leu Gly Gly Gln Lys
        275                 280                 285

Ala His Gly Gln Phe Asn Asp Gly Val Phe Ala Tyr Ile Ile Gln Glu
    290                 295                 300

Asn Leu Trp Met Lys Leu Ser Asp Met Pro Tyr Arg Ala Ala Ala Leu
305                 310                 315                 320

Ser Ala Thr Ser Ala Gly Arg Tyr Ile Tyr Ile Ser Gly Gly Thr Thr
                325                 330                 335

Glu Gln Ile Ser Gly Leu Lys Thr Ala Trp Arg Tyr Asp Met Asp Asp
            340                 345                 350

Asn Ser Trp Thr Lys Leu Pro Asp Leu Pro Ile Gly Leu Val Phe His
        355                 360                 365

Thr Met Val Thr Cys Gly Gly Thr Val Tyr Ser Val Gly Gly Ser Ile
    370                 375                 380

Ala Pro Arg Arg Tyr Val Ser Asn Ile Tyr Arg Tyr Asp Glu Arg Lys
385                 390                 395                 400

Glu Val Trp Cys Leu Ala Gly Lys Met Ser Ile Pro Met Asp Gly Thr
                405                 410                 415

Ala Val Ile Thr Lys Gly Asp Arg His Leu Tyr Ile Val Thr Gly Arg
            420                 425                 430

Cys Leu Val Lys Gly Tyr Ile Ser Arg Val Gly Val Val Asp Cys Phe
        435                 440                 445
```

```
Asp Thr Ser Thr Gly Asp Val Val Gln Cys Ile Thr Phe Pro Ile Glu
    450                 455                 460

Phe Asn His Arg Pro Leu Leu Ser Phe Gln Gln Asp Asn Ile Leu Cys
465                 470                 475                 480

Val His Ser His Arg Gln Ser Val Glu Ile Asn Leu Gln Lys Val Lys
                485                 490                 495

Ala Ser Lys Thr Thr Thr Ser Val Pro Val Leu Pro Asn Ser Cys Pro
            500                 505                 510

Leu Asp Val Ser His Ala Ile Cys Ser Ile Gly Asp Ser Lys Val Phe
        515                 520                 525

Val Cys Gly Gly Val Thr Thr Ala Ser Asp Val Gln Thr Lys Asp Tyr
    530                 535                 540

Thr Ile Asn Pro Asn Ala Phe Leu Leu Asp Gln Lys Thr Gly Lys Trp
545                 550                 555                 560

Lys Thr Leu Ala Pro Pro Pro Glu Ala Leu Asp Cys Pro Ala Cys Cys
                565                 570                 575

Leu Ala Lys Leu Pro Cys Lys Ile Leu Gln Arg Ile
            580                 585
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<210> 11009
<211> 610
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<223> /note="Uniprot ID: O14967; "

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<400> 11009

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Met His Phe Gln Ala Phe Trp Leu Cys Leu Gly Leu Leu Phe Ile Ser
1               5                  10                  15

Ile Asn Ala Glu Phe Met Asp Asp Asp Val Glu Thr Glu Asp Phe Glu
            20                  25                  30

Glu Asn Ser Glu Glu Ile Asp Val Asn Glu Ser Glu Leu Ser Ser Glu
        35                  40                  45

Ile Lys Tyr Lys Thr Pro Gln Pro Ile Gly Glu Val Tyr Phe Ala Glu
    50                  55                  60

Thr Phe Asp Ser Gly Arg Leu Ala Gly Trp Val Leu Ser Lys Ala Lys
65                  70                  75                  80

Lys Asp Asp Met Asp Glu Glu Ile Ser Ile Tyr Asp Gly Arg Trp Glu
                85                  90                  95

Ile Glu Glu Leu Lys Glu Asn Gln Val Pro Gly Asp Arg Gly Leu Val
            100                 105                 110

Leu Lys Ser Arg Ala Lys His His Ala Ile Ser Ala Val Leu Ala Lys
        115                 120                 125

Pro Phe Ile Phe Ala Asp Lys Pro Leu Ile Val Gln Tyr Glu Val Asn
    130                 135                 140

Phe Gln Asp Gly Ile Asp Cys Gly Gly Ala Tyr Ile Lys Leu Leu Ala
145                 150                 155                 160

Asp Thr Asp Asp Leu Ile Leu Glu Asn Phe Tyr Asp Lys Thr Ser Tyr
                165                 170                 175

Ile Ile Met Phe Gly Pro Asp Lys Cys Gly Glu Asp Tyr Lys Leu His
            180                 185                 190

Phe Ile Phe Arg His Lys His Pro Lys Thr Gly Val Phe Glu Glu Lys
        195                 200                 205
```

```
His Ala Lys Pro Pro Asp Val Asp Leu Lys Lys Phe Phe Thr Asp Arg
    210                 215                 220

Lys Thr His Leu Tyr Thr Leu Val Met Asn Pro Asp Asp Thr Phe Glu
225                 230                 235                 240

Val Leu Val Asp Gln Thr Val Val Asn Lys Gly Ser Leu Leu Glu Asp
                245                 250                 255

Val Val Pro Pro Ile Lys Pro Pro Lys Glu Ile Glu Asp Pro Asn Asp
            260                 265                 270

Lys Lys Pro Glu Glu Trp Asp Glu Arg Ala Lys Ile Pro Asp Pro Ser
        275                 280                 285

Ala Val Lys Pro Glu Asp Trp Asp Glu Ser Glu Pro Ala Gln Ile Glu
    290                 295                 300

Asp Ser Ser Val Val Lys Pro Ala Gly Trp Leu Asp Asp Glu Pro Lys
305                 310                 315                 320

Phe Ile Pro Asp Pro Asn Ala Glu Lys Pro Asp Asp Trp Asn Glu Asp
                325                 330                 335

Thr Asp Gly Glu Trp Glu Ala Pro Gln Ile Leu Asn Pro Ala Cys Arg
            340                 345                 350

Ile Gly Cys Gly Glu Trp Lys Pro Pro Met Ile Asp Asn Pro Lys Tyr
        355                 360                 365

Lys Gly Val Trp Arg Pro Pro Leu Val Asp Asn Pro Asn Tyr Gln Gly
    370                 375                 380

Ile Trp Ser Pro Arg Lys Ile Pro Asn Pro Asp Tyr Phe Glu Asp Asp
385                 390                 395                 400

His Pro Phe Leu Leu Thr Ser Phe Ser Ala Leu Gly Leu Glu Leu Trp
                405                 410                 415

Ser Met Thr Ser Asp Ile Tyr Phe Asp Asn Phe Ile Ile Cys Ser Glu
            420                 425                 430
```

```
Lys Glu Val Ala Asp His Trp Ala Ala Asp Gly Trp Arg Trp Lys Ile
        435                 440                 445

Met Ile Ala Asn Ala Asn Lys Pro Gly Val Leu Lys Gln Leu Met Ala
    450                 455                 460

Ala Ala Glu Gly His Pro Trp Leu Trp Leu Ile Tyr Leu Val Thr Ala
465                 470                 475                 480

Gly Val Pro Ile Ala Leu Ile Thr Ser Phe Cys Trp Pro Arg Lys Val
                485                 490                 495

Lys Lys Lys His Lys Asp Thr Glu Tyr Lys Lys Thr Asp Ile Cys Ile
            500                 505                 510

Pro Gln Thr Lys Gly Val Leu Glu Gln Glu Glu Lys Glu Glu Lys Ala
        515                 520                 525

Ala Leu Glu Lys Pro Met Asp Leu Glu Glu Glu Lys Lys Gln Asn Asp
    530                 535                 540

Gly Glu Met Leu Glu Lys Glu Glu Glu Ser Glu Pro Glu Glu Lys Ser
545                 550                 555                 560

Glu Glu Glu Ile Glu Ile Ile Glu Gly Gln Glu Glu Ser Asn Gln Ser
                565                 570                 575

Asn Lys Ser Gly Ser Glu Asp Glu Met Lys Glu Ala Asp Glu Ser Thr
            580                 585                 590

Gly Ser Gly Asp Gly Pro Ile Lys Ser Val Arg Lys Arg Arg Val Arg
        595                 600                 605

Lys Asp
    610


<210> 11010
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<400> 11010
Met His Phe Gln Ala Phe Trp Leu Cys Leu Gly Leu Leu Phe Ile Ser
1   5   10   15

Ile Asn Ala Glu Phe Met Asp Asp Asp Val Glu Thr Glu Asp Phe Glu
            20   25   30

Glu Asn Ser Glu Glu Ile Asp Val Asn Glu Ser Glu Leu Ser Ser Glu
        35   40   45

Ile Lys Tyr Lys Thr Pro Gln Pro Ile Gly Glu Val Tyr Phe Ala Glu
    50   55   60

Thr Phe Asp Ser Gly Arg Leu Ala Gly Trp Val Leu Ser Lys Ala Lys
65   70   75   80

Lys Asp Asp Met Asp Glu Glu Ile Ser Ile Tyr Asp Gly Arg Trp Glu
                85   90   95

Ile Glu Glu Leu Lys Glu Asn Gln Val Pro Gly Asp Arg Gly Leu Val
            100   105   110

Leu Lys Ser Arg Ala Lys His His Ala Ile Ser Ala Val Leu Ala Lys
        115   120   125

Pro Phe Ile Phe Ala Asp Lys Pro Leu Ile Val Gln Tyr Glu Val Asn
    130   135   140

Phe Gln Asp Gly Ile Asp Cys Gly Gly Ala Tyr Ile Lys Leu Leu Ala
145   150   155   160

```
Asp Thr Asp Asp Leu Ile Leu Glu Asn Phe Tyr Asp Lys Thr Ser Tyr
                165                 170                 175

Ile Ile Met Phe Gly Pro Asp Lys Cys Gly Glu Asp Tyr Lys Leu His
            180                 185                 190

Phe Ile Phe Arg His Lys His Pro Lys Thr Gly Val Phe Glu Glu Lys
        195                 200                 205

His Ala Lys Pro Pro Asp Val Asp Leu Lys Lys Phe Phe Thr Asp Arg
    210                 215                 220

Lys Thr His Leu Tyr Thr Leu Val Met Asn Pro Asp Asp Thr Phe Glu
225                 230                 235                 240

Val Leu Val Asp Gln Thr Val Val Asn Lys Gly Ser Leu Leu Glu Asp
                245                 250                 255

Val Val Pro Pro Ile Lys Pro Pro Lys Glu Ile Glu Asp Pro Asn Asp
            260                 265                 270

Lys Lys Pro Glu Glu Trp Asp Glu Arg Ala Lys Ile Pro Asp Pro Ser
        275                 280                 285

Ala Val Lys Pro Glu Asp Trp Asp Glu Ser Glu Pro Ala Gln Ile Glu
    290                 295                 300

Asp Ser Ser Val Val Lys Pro Ala Gly Trp Leu Asp Asp Glu Pro Lys
305                 310                 315                 320

Phe Ile Pro Asp Pro Asn Ala Glu Lys Pro Asp Asp Trp Asn Glu Asp
                325                 330                 335

Thr Asp Gly Glu Trp Glu Ala Pro Gln Ile Leu Asn Pro Ala Cys Arg
            340                 345                 350

Ile Gly Cys Gly Glu Trp Lys Pro Pro Met Ile Asp Asn Pro Lys Tyr
        355                 360                 365

Lys Gly Val Trp Arg Pro Pro Leu Val Asp Asn Pro Asn Tyr Gln Gly
    370                 375                 380
```

```
Ile Trp Ser Pro Arg Lys Ile Pro Asn Pro Asp Tyr Phe Glu Asp Asp
385                 390                 395                 400

His Pro Phe Leu Leu Thr Ser Phe Ser Ala Leu Gly Leu Glu Leu Trp
                405                 410                 415

Ser Met Thr Ser Asp Ile Tyr Phe Asp Asn Phe Ile Ile Cys Ser Glu
            420                 425                 430

Lys Glu Val Ala Asp His Trp Ala Ala Asp Gly Trp Arg Trp Lys Ile
        435                 440                 445

Met Ile Ala Asn Ala Asn Lys Pro Gly Val Leu Lys Gln Leu Met Ala
    450                 455                 460

Ala Ala Glu Gly His Pro Trp Leu Trp Leu Ile Tyr Leu Val Thr Ala
465                 470                 475                 480

Gly Val Pro Ile Ala Leu Ile Thr Ser Phe Cys Trp Pro Arg Lys Val
                485                 490                 495

Lys Lys Lys His Lys Asp Thr Glu Tyr Lys Lys Thr Asp Ile Cys Ile
            500                 505                 510

Pro Gln Thr Lys Gly Val Leu Glu Gln Glu Glu Lys Glu Glu Lys Ala
        515                 520                 525

Ala Leu Glu Lys Pro Met Asp Leu Glu Glu Glu Lys Lys Gln Asn Asp
    530                 535                 540

Gly Glu Met Leu Glu Lys Glu Glu Glu Ser Glu Pro Glu Glu Lys Ser
545                 550                 555                 560

Glu Glu Glu Ile Glu Ile Ile Glu Gly Gln Glu Glu Ser Asn Gln Ser
                565                 570                 575

Asn Lys Ser Gly Ser Glu Asp Glu Met Lys Glu Ala Asp Glu Ser Thr
            580                 585                 590

Gly Ser Gly Asp Gly Pro Ile Lys Ser Val Arg Lys Arg Arg Val Arg
        595                 600                 605

Lys Asp
```

610

<210> 11011
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<220>
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Met His Phe Gln Ala Phe Trp Leu Cys Leu Gly Leu Leu Phe Ile Ser
1 5 10 15

Ile Asn Ala Glu Phe Met Asp Asp Asp Val Glu Thr Glu Asp Phe Glu
20 25 30

Glu Asn Ser Glu Glu Ile Asp Val Asn Glu Ser Glu Leu Ser Ser Glu
35 40 45

Ile Lys Tyr Lys Thr Pro Gln Pro Ile Gly Glu Val Tyr Phe Ala Glu
50 55 60

Thr Phe Asp Ser Gly Arg Leu Ala Gly Trp Val Leu Ser Lys Ala Lys
65 70 75 80

Lys Asp Asp Met Asp Glu Glu Ile Ser Ile Tyr Asp Gly Arg Trp Glu
85 90 95

Ile Glu Glu Leu Lys Glu Asn Gln Val Pro Gly Asp Arg Gly Leu Val
100 105 110

Leu Lys Ser Arg Ala Lys His His Ala Ile Ser Ala Val Leu Ala Lys
115 120 125

```
Pro Phe Ile Phe Ala Asp Lys Pro Leu Ile Val Gln Tyr Glu Val Asn
    130                 135                 140

Phe Gln Asp Gly Ile Asp Cys Gly Gly Ala Tyr Ile Lys Leu Leu Ala
145                 150                 155                 160

Asp Thr Asp Asp Leu Ile Leu Glu Asn Phe Tyr Asp Lys Thr Ser Tyr
                165                 170                 175

Ile Ile Met
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<210> 11012
<211> 1002
<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name: calmin (calponin-like, transmembrane);
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<220>
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<400> 11012

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Met Ala Ala His Glu Trp Asp Trp Phe Gln Arg Glu Glu Leu Ile Gly
1               5                   10                  15

Gln Ile Ser Asp Ile Arg Val Gln Asn Leu Gln Val Glu Arg Glu Asn
            20                  25                  30

Val Gln Lys Arg Thr Phe Thr Arg Trp Ile Asn Leu His Leu Glu Lys
        35                  40                  45

Cys Asn Pro Pro Leu Glu Val Lys Asp Leu Phe Val Asp Ile Gln Asp
    50                  55                  60
```

```
Gly Lys Ile Leu Met Ala Leu Leu Glu Val Leu Ser Gly Arg Asn Leu
65                  70                  75                  80

Leu His Glu Tyr Lys Ser Ser Ser His Arg Ile Phe Arg Leu Asn Asn
                85                  90                  95

Ile Ala Lys Ala Leu Lys Phe Leu Glu Asp Ser Asn Val Lys Leu Val
            100                 105                 110

Ser Ile Asp Ala Ala Glu Ile Ala Asp Gly Asn Pro Ser Leu Val Leu
        115                 120                 125

Gly Leu Ile Trp Asn Ile Ile Leu Phe Phe Gln Ile Lys Glu Leu Thr
    130                 135                 140

Gly Asn Leu Ser Arg Asn Ser Pro Ser Ser Ser Leu Ser Pro Gly Ser
145                 150                 155                 160

Gly Gly Thr Asp Ser Asp Ser Ser Phe Pro Pro Thr Pro Thr Ala Glu
                165                 170                 175

Arg Ser Val Ala Ile Ser Val Lys Asp Gln Arg Lys Ala Ile Lys Ala
            180                 185                 190

Leu Leu Ala Trp Val Gln Arg Lys Thr Arg Lys Tyr Gly Val Ala Val
        195                 200                 205

Gln Asp Phe Ala Gly Ser Trp Arg Ser Gly Leu Ala Phe Leu Ala Val
    210                 215                 220

Ile Lys Ala Ile Asp Pro Ser Leu Val Asp Met Lys Gln Ala Leu Glu
225                 230                 235                 240

Asn Ser Thr Arg Glu Asn Leu Glu Lys Ala Phe Ser Ile Ala Gln Asp
                245                 250                 255

Ala Leu His Ile Pro Arg Leu Leu Glu Pro Glu Asp Ile Met Val Asp
            260                 265                 270

Thr Pro Asp Glu Gln Ser Ile Met Thr Tyr Val Ala Gln Phe Leu Glu
        275                 280                 285
```

```
Arg Phe Pro Glu Leu Glu Ala Glu Asp Ile Phe Asp Ser Asp Lys Glu
    290                 295                 300

Val Pro Ile Glu Ser Thr Phe Val Arg Ile Lys Glu Thr Pro Ser Glu
305                 310                 315                 320

Gln Glu Ser Lys Val Phe Val Leu Thr Glu Asn Gly Glu Arg Thr Tyr
                325                 330                 335

Thr Val Asn His Glu Thr Ser His Pro Pro Pro Ser Lys Val Phe Val
            340                 345                 350

Cys Asp Lys Pro Glu Ser Met Lys Glu Phe Arg Leu Asp Gly Val Ser
        355                 360                 365

Ser His Ala Leu Ser Asp Ser Ser Thr Glu Phe Met His Gln Ile Ile
    370                 375                 380

Asp Gln Val Leu Gln Gly Gly Pro Gly Lys Thr Ser Asp Ile Ser Glu
385                 390                 395                 400

Pro Ser Pro Glu Ser Ser Ile Leu Ser Ser Arg Lys Glu Asn Gly Arg
                405                 410                 415

Ser Asn Ser Leu Pro Ile Lys Lys Thr Val His Phe Glu Ala Asp Thr
            420                 425                 430

Tyr Lys Asp Pro Phe Cys Ser Lys Asn Leu Ser Leu Cys Phe Glu Gly
        435                 440                 445

Ser Pro Arg Val Ala Lys Glu Ser Leu Arg Gln Asp Gly His Val Leu
    450                 455                 460

Ala Val Glu Val Ala Glu Glu Lys Glu Gln Lys Gln Glu Ser Ser Lys
465                 470                 475                 480

Ile Pro Glu Ser Ser Ser Asp Lys Val Ala Gly Asp Ile Phe Leu Val
                485                 490                 495

Glu Gly Thr Asn Asn Asn Ser Gln Ser Ser Ser Cys Asn Gly Ala Leu
            500                 505                 510
```

```
Glu Ser Thr Ala Arg His Asp Glu Glu Ser His Ser Leu Ser Pro Pro
        515                 520                 525

Gly Glu Asn Thr Val Met Ala Asp Ser Phe Gln Ile Lys Val Asn Leu
    530                 535                 540

Met Thr Val Glu Ala Leu Glu Glu Gly Asp Tyr Phe Glu Ala Ile Pro
545                 550                 555                 560

Leu Lys Ala Ser Lys Phe Asn Ser Asp Leu Ile Asp Phe Ala Ser Thr
                565                 570                 575

Ser Gln Ala Phe Asn Lys Val Pro Ser Pro His Glu Thr Lys Pro Asp
            580                 585                 590

Glu Asp Ala Glu Ala Phe Glu Asn His Ala Glu Lys Leu Gly Lys Arg
        595                 600                 605

Ser Ile Lys Ser Ala His Lys Lys Lys Asp Ser Pro Glu Pro Gln Val
    610                 615                 620

Lys Met Asp Lys His Glu Pro His Gln Asp Ser Gly Glu Glu Ala Glu
625                 630                 635                 640

Gly Cys Pro Ser Ala Pro Glu Glu Thr Pro Val Asp Lys Lys Pro Glu
                645                 650                 655

Val His Glu Lys Ala Lys Arg Lys Ser Thr Arg Pro His Tyr Glu Glu
            660                 665                 670

Glu Gly Glu Asp Asp Asp Leu Gln Gly Val Gly Glu Glu Leu Ser Ser
        675                 680                 685

Ser Pro Pro Ser Ser Cys Val Ser Leu Glu Thr Leu Gly Ser His Ser
    690                 695                 700

Glu Glu Gly Leu Asp Phe Lys Pro Ser Pro Pro Leu Ser Lys Val Ser
705                 710                 715                 720

Val Ile Pro His Asp Leu Phe Tyr Phe Pro His Tyr Glu Val Pro Leu
                725                 730                 735

Ala Ala Val Leu Glu Ala Tyr Val Glu Asp Pro Glu Asp Leu Lys Asn
```

```
            740                 745                 750

Glu Glu Met Asp Leu Glu Glu Pro Glu Gly Tyr Met Pro Asp Leu Asp
        755                 760                 765

Ser Arg Glu Glu Glu Ala Asp Gly Ser Gln Ser Ser Ser Ser Ser Ser
    770                 775                 780

Val Pro Gly Glu Ser Leu Pro Ser Ala Ser Asp Gln Val Leu Tyr Leu
785                 790                 795                 800

Ser Arg Gly Gly Val Gly Thr Thr Pro Ala Ser Glu Pro Ala Pro Leu
                805                 810                 815

Ala Pro His Glu Asp His Gln Gln Arg Glu Thr Lys Glu Asn Asp Pro
            820                 825                 830

Met Asp Ser His Gln Ser Gln Glu Ser Pro Asn Leu Glu Asn Ile Ala
        835                 840                 845

Asn Pro Leu Glu Glu Asn Val Thr Lys Glu Ser Ile Ser Ser Lys Lys
    850                 855                 860

Lys Glu Lys Arg Lys His Val Asp His Val Glu Ser Ser Leu Phe Val
865                 870                 875                 880

Ala Pro Gly Ser Val Gln Ser Ser Asp Asp Leu Glu Glu Asp Ser Ser
                885                 890                 895

Asp Tyr Ser Ile Pro Ser Arg Thr Ser His Ser Asp Ser Ser Ile Tyr
            900                 905                 910

Leu Arg Arg His Thr His Arg Ser Ser Glu Ser Asp His Phe Ser Tyr
        915                 920                 925

Val Gln Leu Arg Asn Ala Ala Asp Leu Asp Asp Arg Arg Asn Arg Ile
    930                 935                 940

Leu Thr Arg Lys Ala Asn Ser Ser Gly Glu Ala Met Ser Leu Gly Ser
945                 950                 955                 960

His Ser Pro Gln Ser Asp Ser Leu Thr Gln Leu Val Gln Gln Pro Asp
                965                 970                 975
```

Met Met Tyr Phe Ile Leu Phe Leu Trp Leu Leu Val Tyr Cys Leu Leu
980 985 990

Leu Phe Pro Gln Leu Asp Val Ser Arg Leu
995 1000

<210> 11013
<211> 97
<212> PRT
<213> Homo sapiens

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<223> /note="Payload ID: 2180; "

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<223> /note="Gene Name: calmin (calponin-like, transmembrane);
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<220>
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<223> /note="ENSP ID: ENSP00000451189"

<400> 11013
Met Ala Ala His Glu Trp Asp Trp Phe Gln Arg Glu Glu Leu Ile Gly
1 5 10 15

Gln Ile Ser Asp Ile Arg Val Gln Asn Leu Gln Val Glu Arg Glu Asn
20 25 30

Val Gln Lys Arg Thr Phe Thr Arg Trp Ile Asn Leu His Leu Glu Lys
35 40 45

Cys Asn Pro Pro Leu Glu Val Lys Asp Leu Phe Val Asp Ile Gln Asp
50 55 60

Gly Lys Ile Leu Met Ala Leu Leu Glu Val Leu Ser Gly Arg Asn Leu
65 70 75 80

Ser Pro Gly His Gln Leu Leu Cys Pro Trp Trp Ala Ser Thr Gly Ser
85 90 95

Leu

<210> 11014
<211> 132
<212> PRT
<213> Homo sapiens

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<220>
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<400> 11014
Met Ala Leu Leu Glu Val Leu Ser Gly Arg Asn Leu Leu His Glu Tyr
1 5 10 15

Lys Ser Ser Ser His Arg Ile Phe Arg Leu Asn Asn Ile Ala Lys Ala
20 25 30

Leu Lys Phe Leu Glu Asp Ser Asn Val Lys Leu Val Ser Ile Asp Ala
35 40 45

Ala Glu Ile Ala Asp Gly Asn Pro Ser Leu Val Leu Gly Leu Ile Trp
50 55 60

Asn Ile Ile Leu Phe Phe Gln Ile Lys Glu Leu Thr Gly Asn Leu Ser
65 70 75 80

Arg Asn Ser Pro Ser Ser Ser Leu Ser Pro Gly Ser Gly Gly Thr Asp
85 90 95

Ser Asp Ser Ser Phe Pro Pro Thr Pro Thr Ala Glu Arg Ser Val Ala
100 105 110

Ile Ser Val Lys Asp Gln Arg Lys Ala Ile Lys Ala Leu Leu Ala Trp
115 120 125

Val Gln Arg Lys
    130

<210> 11015
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<212> PRT
<213> Homo sapiens

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<223> /note="Gene Name: calmin (calponin-like, transmembrane);
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<220>
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<400> 11015
Met Lys Arg Glu Ser Lys His Ala Arg Met Ser Met Lys Ala Asn Ser
1   5   10   15

Ser Gly Glu Ala Met Ser Leu Gly Ser His Ser Pro Gln Ser Asp Ser
            20   25   30

Leu Thr Gln Leu Val Gln Gln Pro Asp Met Met Tyr Phe Ile Leu Phe
        35   40   45

Leu Trp Leu Leu Val Tyr Cys Leu Leu Leu Phe Pro Gln Leu Asp Val
    50   55   60

Ser Arg Leu
65

<210> 11016
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<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: calmin (calponin-like, transmembrane);
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<220>
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<223> /note="ENSP ID: ENSP00000452525"

<400> 11016
Met Ala Leu Leu Glu Val Leu Ser Gly Arg Asn Leu Leu His Glu Tyr
1   5   10   15

Lys Ser Ser Ser His Arg Ile Phe Arg Leu Asn Asn Ile Ala Lys Ala
            20   25   30

Leu Lys Phe Leu Glu Asp Ser Asn Val Lys Leu Val Ser Ile Asp Ala
        35   40   45

Ala Glu Ile Ala Asp Gly Asn Pro Ser Leu Val Leu Gly Leu Ile Trp
    50   55   60

Asn Ile Ile Leu Phe Phe Gln Ile Lys Glu Leu Thr Gly Asn Leu Ser
65   70   75   80

Arg Asn Ser Pro Ser Ser Ser Leu Ser Pro Gly Ser Gly Gly Thr Asp
                85   90   95

Ser Asp Ser Ser Phe
            100

<210> 11017
<211> 149
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<213> Homo sapiens

<220>
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<223> /note="Gene Symbol: CALM1; "

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<221> source
<223> /note="Gene Name: calmodulin 1 (phosphorylase kinase, delta); "

<220>
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<223> /note="Uniprot ID: P62158; "

<220>
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<400> 11017
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1   5   10   15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
            20   25   30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
        35   40   45

Leu Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile
    50   55   60

Asp Phe Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr
65   70   75   80

Asp Ser Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp
                85   90   95

Gly Asn Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn
            100   105   110

Leu Gly Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu
        115   120   125

Ala Asp Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln
    130   135   140

Met Met Thr Ala Lys
145

<210> 11018
<211> 150
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: calmodulin 1 (phosphorylase kinase, delta); "

<220>
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<400> 11018
Met Gln Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu
1 5 10 15

Ala Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys
20 25 30

Glu Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala
35 40 45

Glu Leu Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr
50 55 60

Ile Asp Phe Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp
65 70 75 80

Thr Asp Ser Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys
85 90 95

Asp Gly Asn Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr
100 105 110

Asn Leu Gly Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg
115 120 125

Glu Ala Asp Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val
130 135 140

Gln Met Met Thr Ala Lys
145 150

<210> 11019
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<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: calmodulin 1 (phosphorylase kinase, delta); "

<220>
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<223> /note="ENSP ID: ENSP00000442853"

<400> 11019
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1 5 10 15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu
20 25 30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
35 40 45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr
50 55 60

Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly Glu Lys
65 70 75 80

Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp Ile Asp
85 90 95

Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met Thr Ala
100 105 110

Lys

<210> 11020
<211> 76
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<400> 11020
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1 5 10 15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu
20 25 30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
35 40 45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Cys Ser Arg Thr Thr
50 55 60

Ser Arg His Asp Lys Leu Arg Arg Lys Thr Asn Arg
65 70 75

<210> 11021
<211> 113
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Gene Name: calmodulin 1 (phosphorylase kinase, delta); "

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<400> 11021
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1 5 10 15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu
20 25 30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
35 40 45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr
50 55 60

Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly Glu Lys
65 70 75 80

Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp Ile Asp
85 90 95

Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met Thr Ala
100 105 110

Lys

<210> 11022
<211> 98
<212> PRT
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<220>
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delta); "

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<400> 11022
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1   5   10   15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu
            20   25   30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
        35   40   45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr
    50   55   60

Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly Glu Lys
65   70   75   80

Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp Ile Asp
                85   90   95

Gly Asp

<210> 11023
<211> 83
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2181; "

<220>
<221> source
<223> /note="Gene Symbol: CALM1; "

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<221> source
<223> /note="Gene Name: calmodulin 1 (phosphorylase kinase,
delta); "

<220>
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<400> 11023
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1 5 10 15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
20 25 30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
35 40 45

Leu Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Trp Gln Trp Leu
50 55 60

Tyr Gln Cys Ser Arg Thr Thr Ser Arg His Asp Lys Leu Arg Arg Lys
65 70 75 80

Thr Asn Arg

<210> 11024
<211> 83
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CALM1; "

<220>
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<223> /note="Gene Name: calmodulin 1 (phosphorylase kinase,
delta); "

<220>
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<223> /note="ENSP ID: ENSP00000486402"

<400> 11024
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1 5 10 15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
20 25 30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu

35 40 45

Leu Gln Asp Met Ile Asn Glu Val Asp Glu Met Ile Arg Glu Ala Asp
50 55 60

Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met
65 70 75 80

Thr Ala Lys

<210> 11025
<211> 149
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2182; "

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<223> /note="Gene Symbol: CALM2; "

<220>
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<223> /note="Gene Name: calmodulin 2 (phosphorylase kinase, delta); "

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<223> /note="Uniprot ID: P62158; "

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<223> /note="ENSP ID: ENSP00000272298"

<400> 11025
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1 5 10 15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
20 25 30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
35 40 45

Leu Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile
50 55 60

Asp Phe Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr
65 70 75 80

Asp Ser Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp
85 90 95

Gly Asn Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn
100 105 110

Leu Gly Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu
115 120 125

Ala Asp Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln
130 135 140

Met Met Thr Ala Lys
145

<210> 11026
<211> 196
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2182; "

<220>
<221> source
<223> /note="Gene Symbol: CALM2; "

<220>
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<223> /note="Gene Name: calmodulin 2 (phosphorylase kinase,
delta); "

<220>
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<223> /note="ENSP ID: ENSP00000387065"

<400> 11026
Met Ile Leu Ala His Cys Asn Leu Cys Cys Pro Thr Ser Ser Asn Ser
1 5 10 15

Pro Gly Ser Val Ser Gln Val Ala Gly Ile Thr Gly Val His His His
20 25 30

Thr Arg Leu Val Phe Val Phe Leu Gly Glu Met Gly Phe His His Val

```
        35                  40                  45

Gly Gln Ala Gly Leu Glu Leu Leu Thr Ser Glu Phe Lys Glu Ala Phe
    50                  55                  60

Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu Leu
65                  70                  75                  80

Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu
                85                  90                  95

Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp
            100                 105                 110

Phe Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp
        115                 120                 125

Ser Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly
    130                 135                 140

Asn Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu
145                 150                 155                 160

Gly Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala
                165                 170                 175

Asp Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met
            180                 185                 190

Met Thr Ala Lys
        195


<210> 11027
<211> 65
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2182; "

<220>
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<221> source
<223> /note="Gene Name: calmodulin 2 (phosphorylase kinase, delta); "

<220>
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<223> /note="ENSP ID: ENSP00000406112"

<400> 11027
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1 5 10 15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
20 25 30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
35 40 45

Leu Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Trp Gln Trp Leu
50 55 60

Tyr
65

<210> 11028
<211> 187
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2182; "

<220>
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<223> /note="Gene Symbol: CALM2; "

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<223> /note="Gene Name: calmodulin 2 (phosphorylase kinase, delta); "

<220>
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<223> /note="ENSP ID: ENSP00000411440"

<400> 11028
Ser Pro Ser Gly Glu Ser Glu Leu Ser Gly Cys Val Val Ala Ser Arg
1 5 10 15

Lys Pro Val Ala Leu Ala Ala Trp Leu Ala Leu Tyr Ile Ala Ser His

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            20                  25                  30

Phe Ala Gln Gln Pro Cys Lys Ala Asp Gln Leu Thr Glu Glu Gln Ile
        35                  40                  45

Ala Glu Phe Lys Glu Ala Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly
    50                  55                  60

Thr Ile Thr Thr Lys Glu Leu Gly Thr Val Met Arg Ser Leu Gly Gln
65                  70                  75                  80

Asn Pro Thr Glu Ala Glu Leu Gln Asp Met Ile Asn Glu Val Asp Ala
                85                  90                  95

Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu Phe Leu Thr Met Met Ala
            100                 105                 110

Arg Lys Met Lys Asp Thr Asp Ser Glu Glu Glu Ile Arg Glu Ala Phe
        115                 120                 125

Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr Ile Ser Ala Ala Glu Leu
    130                 135                 140

Arg His Val Met Thr Asn Leu Gly Glu Lys Leu Thr Asp Glu Glu Val
145                 150                 155                 160

Asp Glu Met Ile Arg Glu Ala Asp Ile Asp Gly Asp Gly Gln Val Asn
                165                 170                 175

Tyr Glu Glu Phe Val Gln Met Met Thr Ala Lys
            180                 185


<210> 11029
<211> 83
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2182; "

<220>
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<223> /note="Gene Symbol: CALM2; "

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<221> source
<223> /note="Gene Name: calmodulin 2 (phosphorylase kinase, delta); "

<220>
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<223> /note="ENSP ID: ENSP00000486952"

<400> 11029
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1 5 10 15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
20 25 30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
35 40 45

Leu Gln Asp Met Ile Asn Glu Val Asp Glu Met Ile Arg Glu Ala Asp
50 55 60

Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met
65 70 75 80

Thr Ala Lys

<210> 11030
<211> 149
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2183; "

<220>
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<223> /note="Gene Name: calmodulin 3 (phosphorylase kinase, delta); "

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<223> /note="Uniprot ID: P62158; "

<220>
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<223> /note="ENSP ID: ENSP00000291295"

<400> 11030
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1 5 10 15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
20 25 30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
35 40 45

Leu Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile
50 55 60

Asp Phe Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr
65 70 75 80

Asp Ser Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp
85 90 95

Gly Asn Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn
100 105 110

Leu Gly Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu
115 120 125

Ala Asp Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln
130 135 140

Met Met Thr Ala Lys
145

<210> 11031
<211> 113
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CALM3; "

<220>

<221> source
<223> /note="Gene Name: calmodulin 3 (phosphorylase kinase,
delta); "

<220>
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<223> /note="ENSP ID: ENSP00000375785"

<400> 11031
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1   5   10   15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu
            20   25   30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
        35   40   45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr
    50   55   60

Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly Glu Lys
65   70   75   80

Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp Ile Asp
                85   90   95

Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met Thr Ala
            100   105   110

Lys

<210> 11032
<211> 113
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2183; "

<220>
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<223> /note="Gene Symbol: CALM3; "

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<223> /note="Gene Name: calmodulin 3 (phosphorylase kinase,

delta); "

<220>
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<223> /note="ENSP ID: ENSP00000468877"

<400> 11032
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1   5   10   15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu
            20   25   30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
        35   40   45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr
    50   55   60

Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly Glu Lys
65   70   75   80

Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp Ile Asp
                85   90   95

Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met Thr Ala
            100   105   110

Lys

<210> 11033
<211> 83
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calmodulin 3 (phosphorylase kinase,
delta); "

<220>
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<223> /note="ENSP ID: ENSP00000470308"

<400> 11033
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1   5   10   15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu
            20   25   30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
        35   40   45

Leu Gln Asp Met Ile Asn Glu Val Asp Glu Met Ile Arg Glu Ala Asp
    50   55   60

Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met
65   70   75   80

Thr Ala Lys

<210> 11034
<211> 113
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CALM3; "

<220>
<221> source
<223> /note="Gene Name: calmodulin 3 (phosphorylase kinase,
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<220>
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<223> /note="ENSP ID: ENSP00000470502"

<400> 11034
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1   5   10   15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu

20 25 30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
35 40 45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr
50 55 60

Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly Glu Lys
65 70 75 80

Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp Ile Asp
85 90 95

Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met Thr Ala
100 105 110

Lys

<210> 11035
<211> 113
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2183; "

<220>
<221> source
<223> /note="Gene Symbol: CALM3; "

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<221> source
<223> /note="Gene Name: calmodulin 3 (phosphorylase kinase, delta); "

<220>
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<223> /note="ENSP ID: ENSP00000471225"

<400> 11035
Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln Asp Met
1 5 10 15

Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Asp Phe Pro Glu
20 25 30

Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser Glu Glu
        35   40   45

Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn Gly Tyr
    50   55   60

Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly Glu Lys
65   70   75   80

Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp Ile Asp
                85   90   95

Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met Thr Ala
            100   105   110

Lys

<210> 11036
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2183; "

<220>
<221> source
<223> /note="Gene Symbol: CALM3; "

<220>
<221> source
<223> /note="Gene Name: calmodulin 3 (phosphorylase kinase,
delta); "

<220>
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<223> /note="Uniprot ID: P62158; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000472141"

<400> 11036
Met Ala Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala
1   5   10   15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu

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            20                  25                  30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
        35                  40                  45

Leu Gln Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile
    50                  55                  60

Asp Phe Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr
65                  70                  75                  80

Asp Ser Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp
                85                  90                  95

Gly Asn Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn
            100                 105                 110

Leu Gly Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu
        115                 120                 125

Ala Asp Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln
    130                 135                 140

Met Met Thr Ala Lys
145


<210> 11037
<211> 1673
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: CAMTA1; "

<220>
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<223> /note="Gene Name: calmodulin binding transcription
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<220>
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<223> /note="Uniprot ID:  Q9Y6Y1; "
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<220>
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<223> /note="ENSP ID: ENSP00000306522"

<400> 11037
Met Trp Arg Ala Glu Gly Lys Trp Leu Pro Lys Thr Ser Arg Lys Ser
1 5 10 15

Val Ser Gln Ser Val Phe Cys Gly Thr Ser Thr Tyr Cys Val Leu Asn
20 25 30

Thr Val Pro Pro Ile Glu Asp Asp His Gly Asn Ser Asn Ser Ser His
35 40 45

Val Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Lys Cys
50 55 60

Ser Ser Leu Pro Lys Glu Arg His Arg Trp Asn Thr Asn Glu Glu Ile
65 70 75 80

Ala Ala Tyr Leu Ile Thr Phe Glu Lys His Glu Glu Trp Leu Thr Thr
85 90 95

Ser Pro Lys Thr Arg Pro Gln Asn Gly Ser Met Ile Leu Tyr Asn Arg
100 105 110

Lys Lys Val Lys Tyr Arg Lys Asp Gly Tyr Cys Trp Lys Lys Arg Lys
115 120 125

Asp Gly Lys Thr Thr Arg Glu Asp His Met Lys Leu Lys Val Gln Gly
130 135 140

Val Glu Cys Leu Tyr Gly Cys Tyr Val His Ser Ser Ile Ile Pro Thr
145 150 155 160

Phe His Arg Arg Cys Tyr Trp Leu Leu Gln Asn Pro Asp Ile Val Leu
165 170 175

Val His Tyr Leu Asn Val Pro Ala Ile Glu Asp Cys Gly Lys Pro Cys
180 185 190

Gly Pro Ile Leu Cys Ser Ile Asn Thr Asp Lys Lys Glu Trp Ala Lys
195 200 205

```
Trp Thr Lys Glu Glu Leu Ile Gly Gln Leu Lys Pro Met Phe His Gly
    210                 215                 220

Ile Lys Trp Thr Cys Ser Asn Gly Asn Ser Ser Ser Gly Phe Ser Val
225                 230                 235                 240

Glu Gln Leu Val Gln Gln Ile Leu Asp Ser His Gln Thr Lys Pro Gln
                245                 250                 255

Pro Arg Thr His Asn Cys Leu Cys Thr Gly Ser Leu Gly Ala Gly Gly
            260                 265                 270

Ser Val His His Lys Cys Asn Ser Ala Lys His Arg Ile Ile Ser Pro
        275                 280                 285

Lys Val Glu Pro Arg Thr Gly Gly Tyr Gly Ser His Ser Glu Val Gln
    290                 295                 300

His Asn Asp Val Ser Glu Gly Lys His Glu His Ser His Ser Lys Gly
305                 310                 315                 320

Ser Ser Arg Glu Lys Arg Asn Gly Lys Val Ala Lys Pro Val Leu Leu
                325                 330                 335

His Gln Ser Ser Thr Glu Val Ser Ser Thr Asn Gln Val Glu Val Pro
            340                 345                 350

Asp Thr Thr Gln Ser Ser Pro Val Ser Ile Ser Ser Gly Leu Asn Ser
        355                 360                 365

Asp Pro Asp Met Val Asp Ser Pro Val Val Thr Gly Val Ser Gly Met
    370                 375                 380

Ala Val Ala Ser Val Met Gly Ser Leu Ser Gln Ser Ala Thr Val Phe
385                 390                 395                 400

Met Ser Glu Val Thr Asn Glu Ala Val Tyr Thr Met Ser Pro Thr Ala
                405                 410                 415

Gly Pro Asn His His Leu Leu Ser Pro Asp Ala Ser Gln Gly Leu Val
            420                 425                 430

Leu Ala Val Ser Ser Asp Gly His Lys Phe Ala Phe Pro Thr Thr Gly
```

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        435                 440                 445

Ser Ser Glu Ser Leu Ser Met Leu Pro Thr Asn Val Ser Glu Glu Leu
    450                 455                 460

Val Leu Ser Thr Thr Leu Asp Gly Gly Arg Lys Ile Pro Glu Thr Thr
465                 470                 475                 480

Met Asn Phe Asp Pro Asp Cys Phe Leu Asn Asn Pro Lys Gln Gly Gln
                485                 490                 495

Thr Tyr Gly Gly Gly Gly Leu Lys Ala Glu Met Val Ser Ser Asn Ile
            500                 505                 510

Arg His Ser Pro Pro Gly Glu Arg Ser Phe Ser Phe Thr Thr Val Leu
        515                 520                 525

Thr Lys Glu Ile Lys Thr Glu Asp Thr Ser Phe Glu Gln Gln Met Ala
    530                 535                 540

Lys Glu Ala Tyr Ser Ser Ser Ala Ala Ala Val Ala Ala Ser Ser Leu
545                 550                 555                 560

Thr Leu Thr Ala Gly Ser Ser Leu Leu Pro Ser Gly Gly Gly Leu Ser
                565                 570                 575

Pro Ser Thr Thr Leu Glu Gln Met Asp Phe Ser Ala Ile Asp Ser Asn
            580                 585                 590

Lys Asp Tyr Thr Ser Ser Phe Ser Gln Thr Gly His Ser Pro His Ile
        595                 600                 605

His Gln Thr Pro Ser Pro Ser Phe Phe Leu Gln Asp Ala Ser Lys Pro
    610                 615                 620

Leu Pro Val Glu Gln Asn Thr His Ser Ser Leu Ser Asp Ser Gly Gly
625                 630                 635                 640

Thr Phe Val Met Pro Thr Val Lys Thr Glu Ala Ser Ser Gln Thr Ser
                645                 650                 655

Ser Cys Ser Gly His Val Glu Thr Arg Ile Glu Ser Thr Ser Ser Leu
            660                 665                 670
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His Leu Met Gln Phe Gln Ala Asn Phe Gln Ala Met Thr Ala Glu Gly
        675                 680                 685

Glu Val Thr Met Glu Thr Ser Gln Ala Ala Glu Gly Ser Glu Val Leu
    690                 695                 700

Leu Lys Ser Gly Glu Leu Gln Ala Cys Ser Ser Glu His Tyr Leu Gln
705                 710                 715                 720

Pro Glu Thr Asn Gly Val Ile Arg Ser Ala Gly Gly Val Pro Ile Leu
                725                 730                 735

Pro Gly Asn Val Val Gln Gly Leu Tyr Pro Val Ala Gln Pro Ser Leu
            740                 745                 750

Gly Asn Ala Ser Asn Met Glu Leu Ser Leu Asp His Phe Asp Ile Ser
        755                 760                 765

Phe Ser Asn Gln Phe Ser Asp Leu Ile Asn Asp Phe Ile Ser Val Glu
    770                 775                 780

Gly Gly Ser Ser Thr Ile Tyr Gly His Gln Leu Val Ser Gly Asp Ser
785                 790                 795                 800

Thr Ala Leu Ser Gln Ser Glu Asp Gly Ala Arg Ala Pro Phe Thr Gln
                805                 810                 815

Ala Glu Met Cys Leu Pro Cys Cys Ser Pro Gln Gln Gly Ser Leu Gln
            820                 825                 830

Leu Ser Ser Ser Glu Gly Gly Ala Ser Thr Met Ala Tyr Met His Val
        835                 840                 845

Ala Glu Val Val Ser Ala Ala Ser Ala Gln Gly Thr Leu Gly Met Leu
    850                 855                 860

Gln Gln Ser Gly Arg Val Phe Met Val Thr Asp Tyr Ser Pro Glu Trp
865                 870                 875                 880

Ser Tyr Pro Glu Gly Gly Val Lys Val Leu Ile Thr Gly Pro Trp Gln
                885                 890                 895
```

```
Glu Ala Ser Asn Asn Tyr Ser Cys Leu Phe Asp Gln Ile Ser Val Pro
            900                 905                 910

Ala Ser Leu Ile Gln Pro Gly Val Leu Arg Cys Tyr Cys Pro Ala His
        915                 920                 925

Asp Thr Gly Leu Val Thr Leu Gln Val Ala Phe Asn Asn Gln Ile Ile
    930                 935                 940

Ser Asn Ser Val Val Phe Glu Tyr Lys Ala Arg Ala Leu Pro Thr Leu
945                 950                 955                 960

Pro Ser Ser Gln His Asp Trp Leu Ser Leu Asp Asp Asn Gln Phe Arg
                965                 970                 975

Met Ser Ile Leu Glu Arg Leu Glu Gln Met Glu Arg Arg Met Ala Glu
            980                 985                 990

Met Thr Gly Ser Gln Gln His Lys  Gln Ala Ser Gly Gly  Gly Ser
Ser
        995                 1000                1005

Gly Gly  Gly Ser Gly Ser Gly  Asn Gly Gly Ser Gln  Ala Gln Cys
    1010                1015                1020

Ala Ser  Gly Thr Gly Ala Leu  Gly Ser Cys Phe Glu  Ser Arg Val
    1025                1030                1035

Val Val  Val Cys Glu Lys Met  Met Ser Arg Ala Cys  Trp Ala Lys
    1040                1045                1050

Ser Lys  His Leu Ile His Ser  Lys Thr Phe Arg Gly  Met Thr Leu
    1055                1060                1065

Leu His  Leu Ala Ala Ala Gln  Gly Tyr Ala Thr Leu  Ile Gln Thr
    1070                1075                1080

Leu Ile  Lys Trp Arg Thr Lys  His Ala Asp Ser Ile  Asp Leu Glu
    1085                1090                1095

Leu Glu  Val Asp Pro Leu Asn  Val Asp His Phe Ser  Cys Thr Pro
    1100                1105                1110
```

```
Leu Met  Trp Ala Cys Ala Leu  Gly His Leu Glu Ala  Ala Val Val
    1115                1120                1125

Leu Tyr  Lys Trp Asp Arg Arg  Ala Ile Ser Ile Pro  Asp Ser Leu
    1130                1135                1140

Gly Arg  Leu Pro Leu Gly Ile  Ala Arg Ser Arg Gly  His Val Lys
    1145                1150                1155

Leu Ala  Glu Cys Leu Glu His  Leu Gln Arg Asp Glu  Gln Ala Gln
    1160                1165                1170

Leu Gly  Gln Asn Pro Arg Ile  His Cys Pro Ala Ser  Glu Glu Pro
    1175                1180                1185

Ser Thr  Glu Ser Trp Met Ala  Gln Trp His Ser Glu  Ala Ile Ser
    1190                1195                1200

Ser Pro  Glu Ile Pro Lys Gly  Val Thr Val Ile Ala  Ser Thr Asn
    1205                1210                1215

Pro Glu  Leu Arg Arg Pro Arg  Ser Glu Pro Ser Asn  Tyr Tyr Ser
    1220                1225                1230

Ser Glu  Ser His Lys Asp Tyr  Pro Ala Pro Lys Lys  His Lys Leu
    1235                1240                1245

Asn Pro  Glu Tyr Phe Gln Thr  Arg Gln Glu Lys Leu  Leu Pro Thr
    1250                1255                1260

Ala Leu  Ser Leu Glu Glu Pro  Asn Ile Arg Lys Gln  Ser Pro Ser
    1265                1270                1275

Ser Lys  Gln Ser Val Pro Glu  Thr Leu Ser Pro Ser  Glu Gly Val
    1280                1285                1290

Arg Asp  Phe Ser Arg Glu Leu  Ser Pro Pro Thr Pro  Glu Thr Ala
    1295                1300                1305

Ala Phe  Gln Ala Ser Gly Ser  Gln Pro Val Gly Lys  Trp Asn Ser
    1310                1315                1320
```

Lys Asp Leu Tyr Ile Gly Val Ser Thr Val Gln Val Thr Gly Asn
1325 1330 1335

Pro Lys Gly Thr Ser Val Gly Lys Glu Ala Ala Pro Ser Gln Val
1340 1345 1350

Arg Pro Arg Glu Pro Met Ser Val Leu Met Met Ala Asn Arg Glu
1355 1360 1365

Val Val Asn Thr Glu Leu Gly Ser Tyr Arg Asp Ser Ala Glu Asn
1370 1375 1380

Glu Glu Cys Gly Gln Pro Met Asp Asp Ile Gln Val Asn Met Met
1385 1390 1395

Thr Leu Ala Glu His Ile Ile Glu Ala Thr Pro Asp Arg Ile Lys
1400 1405 1410

Gln Glu Asn Phe Val Pro Met Glu Ser Ser Gly Leu Glu Arg Thr
1415 1420 1425

Asp Pro Ala Thr Ile Ser Ser Thr Met Ser Trp Leu Ala Ser Tyr
1430 1435 1440

Leu Ala Asp Ala Asp Cys Leu Pro Ser Ala Ala Gln Ile Arg Ser
1445 1450 1455

Ala Tyr Asn Glu Pro Leu Thr Pro Ser Ser Asn Thr Ser Leu Ser
1460 1465 1470

Pro Val Gly Ser Pro Val Ser Glu Ile Ala Phe Glu Lys Pro Asn
1475 1480 1485

Leu Pro Ser Ala Ala Asp Trp Ser Glu Phe Leu Ser Ala Ser Thr
1490 1495 1500

Ser Glu Lys Val Glu Asn Glu Phe Ala Gln Leu Thr Leu Ser Asp
1505 1510 1515

His Glu Gln Arg Glu Leu Tyr Glu Ala Ala Arg Leu Val Gln Thr
1520 1525 1530

Ala Phe Arg Lys Tyr Lys Gly Arg Pro Leu Arg Glu Gln Gln Glu

```
    1535                1540                1545

Val Ala  Ala Ala Val Ile Gln  Arg Cys Tyr Arg Lys  Tyr Lys Gln
    1550                1555                1560

Tyr Ala  Leu Tyr Lys Lys Met  Thr Gln Ala Ala Ile  Leu Ile Gln
    1565                1570                1575

Ser Lys  Phe Arg Ser Tyr Tyr  Glu Gln Lys Lys Phe  Gln Gln Ser
    1580                1585                1590

Arg Arg  Ala Ala Val Leu Ile  Gln Lys Tyr Tyr Arg  Ser Tyr Lys
    1595                1600                1605

Lys Cys  Gly Lys Arg Arg Gln  Ala Arg Arg Thr Ala  Val Ile Val
    1610                1615                1620

Gln Gln  Lys Leu Arg Ser Ser  Leu Leu Thr Lys Lys  Gln Asp Gln
    1625                1630                1635

Ala Ala  Arg Lys Ile Met Arg  Phe Leu Arg Arg Cys  Arg His Ser
    1640                1645                1650

Pro Leu  Val Asp His Arg Leu  Tyr Lys Arg Ser Glu  Arg Ile Glu
    1655                1660                1665

Lys Gly  Gln Gly Thr
    1670


<210> 11038
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
      activator 1; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000450530"

<400> 11038
Met Trp Arg Ala Glu Gly Lys Trp Leu Pro Lys Thr Ser Arg Lys Ala
1   5   10   15

Gln Gly Arg Thr Asp Pro Val Ser Val Leu Met Glu Leu Arg Gly Arg
            20   25   30

Arg Thr Leu Ile Lys Met Pro Tyr Glu Ile Ser Ala Gly Thr Gln Cys
        35   40   45

Cys Glu Asp Asp His Gly Asn Ser Asn Ser Ser His Val Lys Ile Phe
    50   55   60

Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Lys Cys Ser Ser Leu Pro
65   70   75   80

Lys Glu Arg His Arg Trp Asn Thr Asn Glu Arg Ser
                85   90

<210> 11039
<211> 80
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
      activator 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y6Y1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451388"

<400> 11039
Met Trp Arg Ala Glu Gly Lys Trp Leu Pro Lys Thr Ser Arg Lys Ser

1 5 10 15

Val Ser Gln Ser Val Phe Cys Gly Thr Ser Thr Tyr Cys Val Leu Asn
20 25 30

Thr Val Pro Pro Ile Glu Asp Asp His Gly Asn Ser Asn Ser Ser His
35 40 45

Val Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Lys Cys
50 55 60

Ser Ser Leu Pro Lys Glu Arg His Arg Trp Asn Thr Asn Glu Arg Ser
65 70 75 80

<210> 11040
<211> 39
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
activator 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451443"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11040
Xaa Ser Ser His Val Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys
1 5 10 15

Leu Pro Lys Cys Ser Ser Leu Pro Lys Glu Arg His Arg Trp Asn Thr
20 25 30

Asn Glu Val Leu Lys Phe Trp

35

<210> 11041
<211> 101
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription activator 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9Y6Y1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451510"

<400> 11041
Met Trp Arg Ala Glu Gly Lys Trp Leu Pro Lys Thr Ser Arg Lys Ser
1   5   10   15

Val Ser Gln Ser Val Phe Cys Gly Thr Ser Thr Tyr Cys Val Leu Asn
            20   25   30

Thr Val Pro Pro Ile Glu Asp Asp His Gly Asn Ser Asn Ser Ser His
        35   40   45

Val Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Lys Cys
    50   55   60

Ser Ser Leu Pro Lys Glu Arg His Arg Trp Asn Thr Asn Glu Ala Leu
65   70   75   80

Thr Thr His Leu Phe Met Gly Ala Ala Lys Lys Arg Asp Pro Gln Ser
                85   90   95

Trp Ser His Glu Gly
            100

<210> 11042
<211> 637
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
activator 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000451720"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11042
Xaa Met Met Ser Arg Ala Cys Trp Ala Lys Ser Lys His Leu Ile His
1 5 10 15

Ser Lys Thr Phe Arg Gly Met Thr Leu Leu His Leu Ala Ala Ala Gln
20 25 30

Gly Tyr Ala Thr Leu Ile Gln Thr Leu Ile Lys Trp Arg Thr Lys His
35 40 45

Ala Asp Ser Ile Asp Leu Glu Leu Glu Val Asp Pro Leu Asn Val Asp
50 55 60

His Phe Ser Cys Thr Pro Leu Met Trp Ala Cys Ala Leu Gly His Leu
65 70 75 80

Glu Ala Ala Val Val Leu Tyr Lys Trp Asp Arg Arg Ala Ile Ser Ile
85 90 95

Pro Asp Ser Leu Gly Arg Leu Pro Leu Gly Ile Ala Arg Ser Arg Gly
100 105 110

```
His Val Lys Leu Ala Glu Cys Leu Glu His Leu Gln Arg Asp Glu Gln
        115                 120                 125

Ala Gln Leu Gly Gln Asn Pro Arg Ile His Cys Pro Ala Ser Glu Glu
    130                 135                 140

Pro Ser Thr Glu Ser Trp Met Ala Gln Trp His Ser Glu Ala Ile Ser
145                 150                 155                 160

Ser Pro Glu Ile Pro Lys Gly Val Thr Val Ile Ala Ser Thr Asn Pro
                165                 170                 175

Glu Leu Arg Arg Pro Arg Ser Glu Pro Ser Asn Tyr Tyr Ser Ser Glu
            180                 185                 190

Ser His Lys Asp Tyr Pro Ala Pro Lys Lys His Lys Leu Asn Pro Glu
        195                 200                 205

Tyr Phe Gln Thr Arg Gln Glu Lys Leu Leu Pro Thr Ala Leu Ser Leu
    210                 215                 220

Glu Glu Pro Asn Ile Arg Lys Gln Ser Pro Ser Ser Lys Gln Ser Val
225                 230                 235                 240

Pro Glu Thr Leu Ser Pro Ser Glu Gly Val Arg Asp Phe Ser Arg Glu
                245                 250                 255

Leu Ser Pro Pro Thr Pro Glu Thr Ala Ala Phe Gln Ala Ser Gly Ser
            260                 265                 270

Gln Pro Val Gly Lys Trp Asn Ser Lys Asp Leu Tyr Ile Gly Val Ser
        275                 280                 285

Thr Val Gln Val Thr Gly Asn Pro Lys Gly Thr Ser Val Gly Lys Glu
    290                 295                 300

Ala Ala Pro Ser Gln Val Arg Pro Arg Glu Pro Met Ser Val Leu Met
305                 310                 315                 320

Met Ala Asn Arg Glu Val Val Asn Thr Glu Leu Gly Ser Tyr Arg Asp
                325                 330                 335
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Ser Ala Glu Asn Glu Glu Cys Gly Gln Pro Met Asp Asp Ile Gln Val
            340                 345                 350

Asn Met Met Thr Leu Ala Glu His Ile Ile Glu Ala Thr Pro Asp Arg
        355                 360                 365

Ile Lys Gln Glu Asn Phe Val Pro Met Glu Ser Ser Gly Leu Glu Arg
    370                 375                 380

Thr Asp Pro Ala Thr Ile Ser Ser Thr Met Ser Trp Leu Ala Ser Tyr
385                 390                 395                 400

Leu Ala Asp Ala Asp Cys Leu Pro Ser Ala Ala Gln Ile Arg Ser Ala
                405                 410                 415

Tyr Asn Glu Pro Leu Thr Pro Ser Ser Asn Thr Ser Leu Ser Pro Val
            420                 425                 430

Gly Ser Pro Val Ser Glu Ile Ala Phe Glu Lys Pro Asn Leu Pro Ser
        435                 440                 445

Ala Ala Asp Trp Ser Glu Phe Leu Ser Ala Ser Thr Ser Glu Lys Val
    450                 455                 460

Glu Asn Glu Phe Ala Gln Leu Thr Leu Ser Asp His Glu Gln Arg Glu
465                 470                 475                 480

Leu Tyr Glu Ala Ala Arg Leu Val Gln Thr Ala Phe Arg Lys Tyr Lys
                485                 490                 495

Gly Arg Pro Leu Arg Glu Gln Gln Glu Val Ala Ala Ala Val Ile Gln
            500                 505                 510

Arg Cys Tyr Arg Lys Tyr Lys Gln Leu Thr Trp Ile Ala Leu Lys Tyr
        515                 520                 525

Ala Leu Tyr Lys Lys Met Thr Gln Ala Ala Ile Leu Ile Gln Ser Lys
    530                 535                 540

Phe Arg Ser Tyr Tyr Glu Gln Lys Lys Phe Gln Gln Ser Arg Arg Ala
545                 550                 555                 560

Ala Val Leu Ile Gln Lys Tyr Tyr Arg Ser Tyr Lys Lys Cys Gly Lys
```

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                565                 570                 575

Arg Arg Gln Ala Arg Arg Thr Ala Val Ile Val Gln Gln Lys Leu Arg
            580                 585                 590

Ser Ser Leu Leu Thr Lys Lys Gln Asp Gln Ala Ala Arg Lys Ile Met
        595                 600                 605

Arg Phe Leu Arg Arg Cys Arg His Arg Val Lys Glu Leu Lys Lys Ala
    610                 615                 620

Lys Glu Leu Glu Asp Ile Gln Gln His Pro Leu Ala Met
625                 630                 635


<210> 11043
<211> 239
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
      activator 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452024"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11043
Xaa Ser Ser Gly Leu Glu Arg Thr Asp Pro Ala Thr Ile Ser Ser Thr
1               5                   10                  15

Met Ser Trp Leu Ala Ser Tyr Leu Ala Asp Ala Asp Cys Leu Pro Ser
            20                  25                  30

Ala Ala Gln Ile Arg Leu Ser Pro Val Gly Ser Pro Val Ser Glu Ile
```

```
        35                  40                  45

Ala Phe Glu Lys Pro Asn Leu Pro Ser Ala Ala Asp Trp Ser Glu Phe
    50                  55                  60

Leu Ser Ala Ser Thr Ser Glu Lys Val Glu Asn Glu Phe Ala Gln Leu
65                  70                  75                  80

Thr Leu Ser Asp His Glu Gln Arg Glu Leu Tyr Glu Ala Ala Arg Leu
                85                  90                  95

Val Gln Thr Ala Phe Arg Lys Tyr Lys Gly Arg Pro Leu Arg Glu Gln
            100                 105                 110

Gln Glu Val Ala Ala Ala Val Ile Gln Arg Cys Tyr Arg Lys Tyr Lys
        115                 120                 125

Gln Tyr Ala Leu Tyr Lys Lys Met Thr Gln Ala Ala Ile Leu Ile Gln
    130                 135                 140

Ser Lys Phe Arg Ser Tyr Tyr Glu Gln Lys Lys Phe Gln Gln Ser Arg
145                 150                 155                 160

Arg Ala Ala Val Leu Ile Gln Lys Tyr Tyr Arg Ser Tyr Lys Lys Cys
                165                 170                 175

Gly Lys Arg Arg Gln Ala Arg Arg Thr Ala Val Ile Val Gln Gln Lys
            180                 185                 190

Leu Arg Ser Ser Leu Leu Thr Lys Lys Gln Asp Gln Ala Ala Arg Lys
        195                 200                 205

Ile Met Arg Phe Leu Arg Arg Cys Arg His Arg Val Lys Glu Leu Lys
    210                 215                 220

Lys Ala Lys Glu Leu Glu Asp Ile Gln Gln His Pro Leu Ala Met
225                 230                 235
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<210> 11044
<211> 73
<212> PRT
<213> Homo sapiens

<220>

<221> source
<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
activator 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452184"

<400> 11044
Trp Leu Pro Lys Thr Ser Arg Lys Ser Val Ser Gln Ser Val Phe Cys
1 5 10 15

Gly Thr Ser Thr Tyr Cys Val Leu Asn Thr Val Pro Pro Ile Glu Asp
20 25 30

Asp His Gly Asn Ser Asn Ser Ser His Val Lys Ile Phe Leu Pro Lys
35 40 45

Lys Leu Leu Glu Cys Leu Pro Lys Cys Ser Ser Leu Pro Lys Glu Arg
50 55 60

His Arg Trp Asn Thr Asn Glu Arg Ser
65 70

<210> 11045
<211> 237
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
activator 1; "

<220>
<221> source

<223> /note="ENSP ID: ENSP00000452319"

<400> 11045

```
Met Ser Trp Leu Ala Ser Tyr Leu Ala Asp Ala Asp Cys Leu Pro Ser
1               5                  10                  15

Ala Ala Gln Ile Arg Ser Ala Tyr Asn Glu Pro Leu Thr Pro Ser Ser
            20                  25                  30

Asn Thr Ser Leu Ser Pro Val Gly Ser Pro Val Ser Glu Ile Ala Phe
        35                  40                  45

Glu Lys Pro Asn Leu Pro Ser Ala Ala Asp Trp Ser Glu Phe Leu Ser
    50                  55                  60

Ala Ser Thr Ser Glu Lys Val Glu Asn Glu Phe Ala Gln Leu Thr Leu
65                  70                  75                  80

Ser Asp His Glu Gln Arg Glu Leu Tyr Glu Ala Ala Arg Leu Val Gln
                85                  90                  95

Thr Ala Phe Arg Lys Tyr Lys Gly Arg Pro Leu Arg Glu Gln Gln Glu
            100                 105                 110

Val Ala Ala Ala Val Ile Gln Arg Cys Tyr Arg Lys Tyr Lys Gln Tyr
        115                 120                 125

Ala Leu Tyr Lys Lys Met Thr Gln Ala Ala Ile Leu Ile Gln Ser Lys
    130                 135                 140

Phe Arg Ser Tyr Tyr Glu Gln Lys Lys Phe Gln Gln Ser Arg Arg Ala
145                 150                 155                 160

Ala Val Leu Ile Gln Lys Tyr Tyr Arg Ser Tyr Lys Lys Cys Gly Lys
                165                 170                 175

Arg Arg Gln Ala Arg Arg Thr Ala Val Ile Val Gln Gln Lys Leu Arg
            180                 185                 190

Ser Ser Leu Leu Thr Lys Lys Gln Asp Gln Ala Ala Arg Lys Ile Met
        195                 200                 205

Arg Phe Leu Arg Arg Cys Arg His Arg Val Lys Glu Leu Lys Lys Ala
    210                 215                 220
```

Lys Glu Leu Glu Asp Ile Gln Gln His Pro Leu Ala Met
225 230 235

<210> 11046
<211> 44
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2184; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
activator 1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000452505"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11046
Xaa Gly Arg Thr Asp Pro Val Ser Val Leu Met Glu Leu Arg Gly Arg
1 5 10 15

Arg Thr Leu Ile Lys Met Pro Tyr Glu Ile Ser Ala Gly Thr Gln Cys
20 25 30

Cys Glu Glu Arg Phe Pro Lys Cys Ile Leu Arg Asn
35 40

<210> 11047
<211> 1202
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2185; "

<220>

<221> source
<223> /note="Gene Symbol: CAMTA2; "

<220>
<221> source
<223> /note="Gene Name: calmodulin binding transcription
activator 2; "

<220>
<221> source
<223> /note="Uniprot ID: O94983; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000321813"

<400> 11047
Met Asn Thr Lys Asp Thr Thr Glu Val Ala Glu Asn Ser His His Leu
1   5   10   15

Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Arg Cys Pro
            20   25   30

Leu Leu Pro Pro Glu Arg Leu Arg Trp Asn Thr Asn Glu Glu Ile Ala
        35   40   45

Ser Tyr Leu Ile Thr Phe Glu Lys His Asp Glu Trp Leu Ser Cys Ala
    50   55   60

Pro Lys Thr Arg Pro Gln Asn Gly Ser Ile Ile Leu Tyr Asn Arg Lys
65   70   75   80

Lys Val Lys Tyr Arg Lys Asp Gly Tyr Leu Trp Lys Lys Arg Lys Asp
                85   90   95

Gly Lys Thr Thr Arg Glu Asp His Met Lys Leu Lys Val Gln Gly Met
            100   105   110

Glu Cys Leu Tyr Gly Cys Tyr Val His Ser Ser Ile Val Pro Thr Phe
        115   120   125

His Arg Arg Cys Tyr Trp Leu Leu Gln Asn Pro Asp Ile Val Leu Val
    130   135   140

His Tyr Leu Asn Val Pro Ala Leu Glu Asp Cys Gly Lys Gly Cys Ser
145   150   155   160

```
Pro Ile Phe Cys Ser Ile Ser Ser Asp Arg Arg Glu Trp Leu Lys Trp
                165                 170                 175

Ser Arg Glu Glu Leu Leu Gly Gln Leu Lys Pro Met Phe His Gly Ile
            180                 185                 190

Lys Trp Ser Cys Gly Asn Gly Thr Glu Glu Phe Ser Val Glu His Leu
        195                 200                 205

Val Gln Gln Ile Leu Asp Thr His Pro Thr Lys Pro Ala Pro Arg Thr
    210                 215                 220

His Ala Cys Leu Cys Ser Gly Gly Leu Gly Ser Gly Ser Leu Thr His
225                 230                 235                 240

Lys Cys Ser Ser Thr Lys His Arg Ile Ile Ser Pro Lys Val Glu Pro
                245                 250                 255

Arg Ala Leu Thr Leu Thr Ser Ile Pro His Ala His Pro Pro Glu Pro
            260                 265                 270

Pro Pro Leu Ile Ala Pro Leu Pro Pro Glu Leu Pro Lys Ala His Thr
        275                 280                 285

Ser Pro Ser Ser Ser Ser Ser Ser Ser Ser Ser Gly Phe Ala Glu Pro
    290                 295                 300

Leu Glu Ile Arg Pro Ser Pro Pro Thr Ser Arg Gly Gly Ser Ser Arg
305                 310                 315                 320

Gly Gly Thr Ala Ile Leu Leu Leu Thr Gly Leu Glu Gln Arg Ala Gly
                325                 330                 335

Gly Leu Thr Pro Thr Arg His Leu Ala Pro Gln Ala Asp Pro Arg Pro
            340                 345                 350

Ser Met Ser Leu Ala Val Val Val Gly Thr Glu Pro Ser Ala Pro Pro
        355                 360                 365

Ala Pro Pro Ser Pro Ala Phe Asp Pro Asp Arg Phe Leu Asn Ser Pro
    370                 375                 380

Gln Arg Gly Gln Thr Tyr Gly Gly Gly Gln Gly Val Ser Pro Asp Phe
```

385 390 395 400

Pro Glu Ala Glu Ala Ala His Thr Pro Cys Ser Ala Leu Glu Pro Ala
405 410 415

Ala Ala Leu Glu Pro Gln Ala Ala Ala Arg Gly Pro Pro Pro Gln Ser
420 425 430

Val Ala Gly Gly Arg Arg Gly Asn Cys Phe Phe Ile Gln Asp Asp Asp
435 440 445

Ser Gly Glu Glu Leu Lys Gly His Gly Ala Ala Pro Pro Ile Pro Ser
450 455 460

Pro Pro Pro Ser Pro Pro Pro Ser Pro Ala Pro Leu Glu Pro Ser Ser
465 470 475 480

Arg Val Gly Arg Gly Glu Ala Leu Phe Gly Gly Pro Val Gly Ala Ser
485 490 495

Glu Leu Glu Pro Phe Ser Leu Ser Ser Phe Pro Asp Leu Met Gly Glu
500 505 510

Leu Ile Ser Asp Glu Ala Pro Ser Ile Pro Ala Pro Thr Pro Gln Leu
515 520 525

Ser Pro Ala Leu Ser Thr Ile Thr Asp Phe Ser Pro Glu Trp Ser Tyr
530 535 540

Pro Glu Gly Gly Val Lys Val Leu Ile Thr Gly Pro Trp Thr Glu Ala
545 550 555 560

Ala Glu His Tyr Ser Cys Val Phe Asp His Ile Ala Val Pro Ala Ser
565 570 575

Leu Val Gln Pro Gly Val Leu Arg Cys Tyr Cys Pro Ala His Glu Val
580 585 590

Gly Leu Val Ser Leu Gln Val Ala Gly Arg Glu Gly Pro Leu Ser Ala
595 600 605

Ser Val Leu Phe Glu Tyr Arg Ala Arg Arg Phe Leu Ser Leu Pro Ser
610 615 620

```
Thr Gln Leu Asp Trp Leu Ser Leu Asp Asp Asn Gln Phe Arg Met Ser
625                 630                 635                 640

Ile Leu Glu Arg Leu Glu Gln Met Glu Lys Arg Met Ala Glu Ile Ala
                645                 650                 655

Ala Ala Gly Gln Val Pro Cys Gln Gly Pro Asp Ala Pro Pro Val Gln
            660                 665                 670

Asp Glu Gly Gln Gly Pro Gly Phe Glu Ala Arg Val Val Val Leu Val
        675                 680                 685

Glu Ser Met Ile Pro Arg Ser Thr Trp Lys Gly Pro Glu Arg Leu Ala
    690                 695                 700

His Gly Ser Pro Phe Arg Gly Met Ser Leu Leu His Leu Ala Ala Ala
705                 710                 715                 720

Gln Gly Tyr Ala Arg Leu Ile Glu Thr Leu Ser Gln Trp Arg Ser Val
                725                 730                 735

Glu Thr Gly Ser Leu Asp Leu Glu Gln Glu Val Asp Pro Leu Asn Val
            740                 745                 750

Asp His Phe Ser Cys Thr Pro Leu Met Trp Ala Cys Ala Leu Gly His
        755                 760                 765

Leu Glu Ala Ala Val Leu Leu Phe Arg Trp Asn Arg Gln Ala Leu Ser
    770                 775                 780

Ile Pro Asp Ser Leu Gly Arg Leu Pro Leu Ser Val Ala His Ser Arg
785                 790                 795                 800

Gly His Val Arg Leu Ala Arg Cys Leu Glu Glu Leu Gln Arg Gln Glu
                805                 810                 815

Pro Ser Val Glu Pro Pro Phe Ala Leu Ser Pro Pro Ser Ser Ser Pro
            820                 825                 830

Asp Thr Gly Leu Ser Ser Val Ser Ser Pro Ser Glu Leu Ser Asp Gly
        835                 840                 845
```

```
Thr Phe Ser Val Thr Ser Ala Tyr Ser Ser Ala Pro Asp Gly Ser Pro
    850                 855                 860

Pro Pro Ala Pro Leu Pro Ala Ser Glu Met Thr Met Glu Asp Met Ala
865                 870                 875                 880

Pro Gly Gln Leu Ser Ser Gly Val Pro Glu Ala Pro Leu Leu Leu Met
                885                 890                 895

Asp Tyr Glu Ala Thr Asn Ser Lys Gly Pro Leu Ser Ser Leu Pro Ala
            900                 905                 910

Leu Pro Pro Ala Ser Asp Asp Gly Ala Ala Pro Glu Asp Ala Asp Ser
        915                 920                 925

Pro Gln Ala Val Asp Val Ile Pro Val Asp Met Ile Ser Leu Ala Lys
    930                 935                 940

Gln Ile Ile Glu Ala Thr Pro Glu Arg Ile Lys Arg Glu Asp Phe Val
945                 950                 955                 960

Gly Leu Pro Glu Ala Gly Ala Ser Met Arg Glu Arg Thr Gly Ala Val
                965                 970                 975

Gly Leu Ser Glu Thr Met Ser Trp Leu Ala Ser Tyr Leu Glu Asn Val
            980                 985                 990

Asp His Phe Pro Ser Ser Thr Pro  Pro Ser Glu Leu Pro  Phe Glu
Arg
        995                 1000                1005

Gly Arg  Leu Ala Val Pro Ser  Ala Pro Ser Trp Ala  Glu Phe Leu
    1010                1015                1020

Ser Ala  Ser Thr Ser Gly Lys  Met Glu Ser Asp Phe  Ala Leu Leu
    1025                1030                1035

Thr Leu  Ser Asp His Glu Gln  Arg Glu Leu Tyr Glu  Ala Ala Arg
    1040                1045                1050

Val Ile  Gln Thr Ala Phe Arg  Lys Tyr Lys Gly Arg  Arg Leu Lys
    1055                1060                1065
```

```
Glu Gln  Gln Glu Val Ala Ala  Ala Val Ile Gln Arg  Cys Tyr Arg
    1070                1075                1080

Lys Tyr  Lys Gln Leu Thr Trp  Ile Ala Leu Lys Phe  Ala Leu Tyr
    1085                1090                1095

Lys Lys  Met Thr Gln Ala Ala  Ile Leu Ile Gln Ser  Lys Phe Arg
    1100                1105                1110

Ser Tyr  Tyr Glu Gln Lys Arg  Phe Gln Gln Ser Arg  Arg Ala Ala
    1115                1120                1125

Val Leu  Ile Gln Gln His Tyr  Arg Ser Tyr Arg Arg  Arg Pro Gly
    1130                1135                1140

Pro Pro  His Arg Thr Ser Ala  Thr Leu Pro Ala Arg  Asn Lys Gly
    1145                1150                1155

Ser Phe  Leu Thr Lys Lys Gln  Asp Gln Ala Ala Arg  Lys Ile Met
    1160                1165                1170

Arg Phe  Leu Arg Arg Cys Arg  His Arg Met Arg Glu  Leu Lys Gln
    1175                1180                1185

Asn Gln  Glu Leu Glu Gly Leu  Pro Gln Pro Gly Leu  Ala Thr
    1190                1195                1200


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<223> /note="Uniprot ID: O94983; "

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<400> 11048

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Met Gly Thr Asp Ser Pro Ser Pro Arg Pro Leu Arg Pro Gly Val Thr
1               5                  10                  15

Leu Pro Pro Gly Ala Leu Thr Met Asn Thr Lys Asp Thr Thr Glu Val
            20                  25                  30

Ala Glu Asn Ser His His Leu Lys Ile Phe Leu Pro Lys Lys Leu Leu
        35                  40                  45

Glu Cys Leu Pro Arg Cys Pro Leu Leu Pro Pro Glu Arg Leu Arg Trp
    50                  55                  60

Asn Thr Asn Glu Glu Ile Ala Ser Tyr Leu Ile Thr Phe Glu Lys His
65                  70                  75                  80

Asp Glu Trp Leu Ser Cys Ala Pro Lys Thr Arg Pro Gln Asn Gly Ser
                85                  90                  95

Ile Ile Leu Tyr Asn Arg Lys Lys Val Lys Tyr Arg Lys Asp Gly Tyr
            100                 105                 110

Leu Trp Lys Lys Arg Lys Asp Gly Lys Thr Thr Arg Glu Asp His Met
        115                 120                 125

Lys Leu Lys Val Gln Gly Met Glu Asn Pro Asp Ile Val Leu Val His
    130                 135                 140

Tyr Leu Asn Val Pro Ala Leu Glu Asp Cys Gly Lys Gly Cys Ser Pro
145                 150                 155                 160

Ile Phe Cys Ser Ile Ser Ser Asp Arg Arg Glu Trp Leu Lys Trp Ser
                165                 170                 175

Arg Glu Glu Leu Leu Gly Gln Leu Lys Pro Met Phe His Gly Ile Lys
            180                 185                 190

Trp Ser Cys Gly Asn Gly Thr Glu Glu Phe Ser Val Glu His Leu Val
        195                 200                 205
```

```
Gln Gln Ile Leu Asp Thr His Pro Thr Lys Pro Ala Pro Arg Thr His
    210                 215                 220

Ala Cys Leu Cys Ser Gly Gly Leu Gly Ser Gly Ser Leu Thr His Lys
225                 230                 235                 240

Cys Ser Ser Thr Lys His Arg Ile Ile Ser Pro Lys Val Glu Pro Arg
                245                 250                 255

Ala Leu Thr Leu Thr Ser Ile Pro His Ala His Pro Pro Glu Pro Pro
            260                 265                 270

Pro Leu Ile Ala Pro Leu Pro Pro Glu Leu Pro Lys Ala His Thr Ser
        275                 280                 285

Pro Ser Ser Ser Ser Ser Ser Ser Ser Ser Gly Phe Ala Glu Pro Leu
    290                 295                 300

Glu Ile Arg Pro Ser Pro Pro Thr Ser Arg Gly Gly Ser Ser Arg Gly
305                 310                 315                 320

Gly Thr Ala Ile Leu Leu Leu Thr Gly Leu Glu Gln Arg Ala Gly Gly
                325                 330                 335

Leu Thr Pro Thr Arg His Leu Ala Pro Gln Ala Asp Pro Arg Pro Ser
            340                 345                 350

Met Ser Leu Ala Val Val Val Gly Thr Glu Pro Ser Ala Pro Pro Ala
        355                 360                 365

Pro Pro Ser Pro Ala Phe Asp Pro Asp Arg Phe Leu Asn Ser Pro Gln
    370                 375                 380

Arg Gly Gln Thr Tyr Gly Gly Gly Gln Gly Val Ser Pro Asp Phe Pro
385                 390                 395                 400

Glu Ala Glu Ala Ala His Thr Pro Cys Ser Ala Leu Glu Pro Ala Ala
                405                 410                 415

Ala Leu Glu Pro Gln Ala Ala Ala Arg Gly Pro Pro Pro Gln Ser Val
            420                 425                 430
```

```
Ala Gly Gly Arg Arg Gly Asn Cys Phe Phe Ile Gln Asp Asp Asp Ser
        435                 440                 445

Gly Glu Glu Leu Lys Gly His Gly Ala Ala Pro Pro Ile Pro Ser Pro
    450                 455                 460

Pro Pro Ser Pro Pro Pro Ser Pro Ala Pro Leu Glu Pro Ser Ser Arg
465                 470                 475                 480

Val Gly Arg Gly Glu Ala Leu Phe Gly Gly Pro Val Gly Ala Ser Glu
                485                 490                 495

Leu Glu Pro Phe Ser Leu Ser Ser Phe Pro Asp Leu Met Gly Glu Leu
            500                 505                 510

Ile Ser Asp Glu Ala Pro Ser Ile Pro Ala Pro Thr Pro Gln Leu Ser
        515                 520                 525

Pro Ala Leu Ser Thr Ile Thr Asp Phe Ser Pro Glu Trp Ser Tyr Pro
    530                 535                 540

Glu Gly Gly Val Lys Val Leu Ile Thr Gly Pro Trp Thr Glu Ala Ala
545                 550                 555                 560

Glu His Tyr Ser Cys Val Phe Asp His Ile Ala Val Pro Ala Ser Leu
                565                 570                 575

Val Gln Pro Gly Val Leu Arg Cys Tyr Cys Pro Ala His Glu Val Gly
            580                 585                 590

Leu Val Ser Leu Gln Val Ala Gly Arg Glu Gly Pro Leu Ser Ala Ser
        595                 600                 605

Val Leu Phe Glu Tyr Arg Ala Arg Arg Phe Leu Ser Leu Pro Ser Thr
    610                 615                 620

Gln Leu Asp Trp Leu Ser Leu Asp Asp Asn Gln Phe Arg Met Ser Ile
625                 630                 635                 640

Leu Glu Arg Leu Glu Gln Met Glu Lys Arg Met Ala Glu Ile Ala Ala
                645                 650                 655
```

```
Ala Gly Gln Val Pro Cys Gln Gly Pro Asp Ala Pro Pro Val Gln Asp
            660                 665                 670

Glu Gly Gln Gly Pro Gly Phe Glu Ala Arg Val Val Val Leu Val Glu
        675                 680                 685

Ser Met Ile Pro Arg Ser Thr Trp Lys Gly Pro Glu Arg Leu Ala His
    690                 695                 700

Gly Ser Pro Phe Arg Gly Met Ser Leu Leu His Leu Ala Ala Ala Gln
705                 710                 715                 720

Gly Tyr Ala Arg Leu Ile Glu Thr Leu Ser Gln Trp Arg Ser Val Glu
                725                 730                 735

Thr Gly Ser Leu Asp Leu Glu Gln Glu Val Asp Pro Leu Asn Val Asp
            740                 745                 750

His Phe Ser Cys Thr Pro Leu Met Trp Ala Cys Ala Leu Gly His Leu
        755                 760                 765

Glu Ala Ala Val Leu Leu Phe Arg Trp Asn Arg Gln Ala Leu Ser Ile
    770                 775                 780

Pro Asp Ser Leu Gly Arg Leu Pro Leu Ser Val Ala His Ser Arg Gly
785                 790                 795                 800

His Val Arg Leu Ala Arg Cys Leu Glu Glu Leu Gln Arg Gln Glu Pro
                805                 810                 815

Ser Val Glu Pro Pro Phe Ala Leu Ser Pro Pro Ser Ser Ser Pro Asp
            820                 825                 830

Thr Gly Leu Ser Ser Val Ser Ser Pro Ser Glu Leu Ser Asp Gly Thr
        835                 840                 845

Phe Ser Val Thr Ser Ala Tyr Ser Ser Ala Pro Asp Gly Ser Pro Pro
    850                 855                 860

Pro Ala Pro Leu Pro Ala Ser Glu Met Thr Met Glu Asp Met Ala Pro
865                 870                 875                 880

Gly Gln Leu Ser Ser Gly Val Pro Glu Ala Pro Leu Leu Leu Met Asp
```

885 890 895

Tyr Glu Ala Thr Asn Ser Lys Gly Pro Leu Ser Ser Leu Pro Ala Leu
900 905 910

Pro Pro Ala Ser Asp Asp Gly Ala Ala Pro Glu Asp Ala Asp Ser Pro
915 920 925

Gln Ala Val Asp Val Ile Pro Val Asp Met Ile Ser Leu Ala Lys Gln
930 935 940

Ile Ile Glu Ala Thr Pro Glu Arg Ile Lys Arg Glu Asp Phe Val Gly
945 950 955 960

Leu Pro Glu Ala Gly Ala Ser Met Arg Glu Arg Thr Gly Ala Val Gly
965 970 975

Leu Ser Glu Thr Met Ser Trp Leu Ala Ser Tyr Leu Glu Asn Val Asp
980 985 990

His Phe Pro Ser Ser Thr Pro Pro Ser Glu Leu Pro Phe Glu Arg
Gly
995 1000 1005

Arg Leu Ala Val Pro Ser Ala Pro Ser Trp Ala Glu Phe Leu Ser
1010 1015 1020

Ala Ser Thr Ser Gly Lys Met Glu Ser Asp Phe Ala Leu Leu Thr
1025 1030 1035

Leu Ser Asp His Glu Gln Arg Glu Leu Tyr Glu Ala Ala Arg Val
1040 1045 1050

Ile Gln Thr Ala Phe Arg Lys Tyr Lys Gly Arg Arg Leu Lys Glu
1055 1060 1065

Gln Gln Glu Val Ala Ala Ala Val Ile Gln Arg Cys Tyr Arg Lys
1070 1075 1080

Tyr Lys Gln Leu Thr Trp Ile Ala Leu Lys Phe Ala Leu Tyr Lys
1085 1090 1095

Lys Met Thr Gln Ala Ala Ile Leu Ile Gln Ser Lys Phe Arg Ser

```
    1100                1105                1110

Tyr Tyr  Glu Gln Lys Arg Phe  Gln Gln Ser Arg Arg  Ala Ala Val
    1115                1120                1125

Leu Ile  Gln Gln His Tyr Arg  Ser Tyr Arg Arg Arg  Pro Gly Pro
    1130                1135                1140

Pro His  Arg Thr Ser Ala Thr  Leu Pro Ala Arg Asn  Lys Gly Ser
    1145                1150                1155

Phe Leu  Thr Lys Lys Gln Asp  Gln Ala Ala Arg Lys  Ile Met Arg
    1160                1165                1170

Phe Leu  Arg Arg Cys Arg His  Arg Met Arg Glu Leu  Lys Gln Asn
    1175                1180                1185

Gln Glu  Leu Glu Gly Leu Pro  Gln Pro Gly Leu Ala  Thr
    1190                1195                1200


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Met Ala Ala Ala Ala Val Thr Arg Gly Thr Pro Gly Glu Asn Ser His
1               5                  10                  15
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His Leu Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Arg
            20                  25                  30

Cys Pro Leu Leu Pro Pro Glu Arg Leu Arg Trp Asn Thr Asn Glu Glu
        35                  40                  45

Ile Ala Ser Tyr Leu Ile Thr Phe Glu Lys His Asp Glu Trp Leu Ser
    50                  55                  60

Cys Ala Pro Lys Thr Arg Pro Gln Asn Gly Ser Ile Ile Leu Tyr Asn
65                  70                  75                  80

Arg Lys Lys Val Lys Tyr Arg Lys Asp Gly Tyr Leu Trp Lys Lys Arg
                85                  90                  95

Lys Asp Gly Lys Thr Thr Arg Glu Asp His Met Lys Leu Lys Val Gln
            100                 105                 110

Gly Met Glu Cys Leu Tyr Gly Cys Tyr Val His Ser Ser Ile Val Pro
        115                 120                 125

Thr Phe His Arg Arg Cys Tyr Trp Leu Leu Gln Asn Pro Asp Ile Val
    130                 135                 140

Leu Val His Tyr Leu Asn Val Pro Ala Leu Glu Asp Cys Gly Lys Gly
145                 150                 155                 160

Cys Ser Pro Ile Phe Cys Ser Ile Ser Ser Asp Arg Arg Glu Trp Leu
                165                 170                 175

Lys Trp Ser Arg Glu Glu Leu Leu Gly Gln Leu Lys Pro Met Phe His
            180                 185                 190

Gly Ile Lys Trp Ser Cys Gly Asn Gly Thr Glu Glu Phe Ser Val Glu
        195                 200                 205

His Leu Val Gln Gln Ile Leu Asp Thr His Pro Thr Lys Pro Ala Pro
    210                 215                 220

Arg Thr His Ala Cys Leu Cys Ser Gly Gly Leu Gly Ser Gly Ser Leu
225                 230                 235                 240
```

```
Thr His Lys Cys Ser Ser Thr Lys His Arg Ile Ile Ser Pro Lys Val
                245                 250                 255

Glu Pro Arg Ala Leu Thr Leu Thr Ser Ile Pro His Ala His Pro Pro
            260                 265                 270

Glu Pro Pro Pro Leu Ile Ala Pro Leu Pro Pro Glu Leu Pro Lys Ala
        275                 280                 285

His Thr Ser Pro Ser Ser Ser Ser Ser Ser Ser Ser Ser Gly Phe Ala
    290                 295                 300

Glu Pro Leu Glu Ile Arg Pro Ser Pro Pro Thr Ser Arg Gly Gly Ser
305                 310                 315                 320

Ser Arg Gly Gly Thr Ala Ile Leu Leu Leu Thr Gly Leu Glu Gln Arg
                325                 330                 335

Ala Gly Gly Leu Thr Pro Thr Arg His Leu Ala Pro Gln Ala Asp Pro
            340                 345                 350

Arg Pro Ser Met Ser Leu Ala Val Val Val Gly Thr Glu Pro Ser Ala
        355                 360                 365

Pro Pro Ala Pro Pro Ser Pro Ala Phe Asp Pro Asp Arg Phe Leu Asn
    370                 375                 380

Ser Pro Gln Arg Gly Gln Thr Tyr Gly Gly Gly Gln Gly Val Ser Pro
385                 390                 395                 400

Asp Phe Pro Glu Ala Glu Ala Ala His Thr Pro Cys Ser Ala Leu Glu
                405                 410                 415

Pro Ala Ala Ala Leu Glu Pro Gln Ala Ala Ala Arg Gly Pro Pro Pro
            420                 425                 430

Gln Ser Val Ala Gly Gly Arg Arg Gly Asn Cys Phe Phe Ile Gln Asp
        435                 440                 445

Asp Asp Ser Gly Glu Glu Leu Lys Gly His Gly Ala Ala Pro Pro Ile
    450                 455                 460

Pro Ser Pro Pro Pro Ser Pro Pro Pro Ser Pro Ala Pro Leu Glu Pro
```

```
465                 470                 475                 480

Ser Ser Arg Val Gly Arg Gly Glu Ala Leu Phe Gly Gly Pro Val Gly
                485                 490                 495

Ala Ser Glu Leu Glu Pro Phe Ser Leu Ser Ser Phe Pro Asp Leu Met
            500                 505                 510

Gly Glu Leu Ile Ser Asp Glu Ala Pro Ser Ile Pro Ala Pro Thr Pro
        515                 520                 525

Gln Leu Ser Pro Ala Leu Ser Thr Ile Thr Asp Phe Ser Pro Glu Trp
    530                 535                 540

Ser Tyr Pro Glu Gly Gly Val Lys Val Leu Ile Thr Gly Pro Trp Thr
545                 550                 555                 560

Glu Ala Ala Glu His Tyr Ser Cys Val Phe Asp His Ile Ala Val Pro
                565                 570                 575

Ala Ser Leu Val Gln Pro Gly Val Leu Arg Cys Tyr Cys Pro Ala His
            580                 585                 590

Glu Val Gly Leu Val Ser Leu Gln Val Ala Gly Arg Glu Gly Pro Leu
        595                 600                 605

Ser Ala Ser Val Leu Phe Glu Tyr Arg Ala Arg Arg Phe Leu Ser Leu
    610                 615                 620

Pro Ser Thr Gln Leu Asp Trp Leu Ser Leu Asp Asp Asn Gln Phe Arg
625                 630                 635                 640

Met Ser Ile Leu Glu Arg Leu Glu Gln Met Glu Lys Arg Met Ala Glu
                645                 650                 655

Ile Ala Ala Ala Gly Gln Val Pro Cys Gln Gly Pro Asp Ala Pro Pro
            660                 665                 670

Val Gln Asp Glu Gly Gln Gly Pro Gly Phe Glu Ala Arg Val Val Val
        675                 680                 685

Leu Val Glu Ser Met Ile Pro Arg Ser Thr Trp Lys Gly Pro Glu Arg
    690                 695                 700
```

```
Leu Ala His Gly Ser Pro Phe Arg Gly Met Ser Leu Leu His Leu Ala
705                 710                 715                 720

Ala Ala Gln Gly Tyr Ala Arg Leu Ile Glu Thr Leu Ser Gln Trp Arg
                725                 730                 735

Ser Val Glu Thr Gly Ser Leu Asp Leu Glu Gln Glu Val Asp Pro Leu
            740                 745                 750

Asn Val Asp His Phe Ser Cys Thr Pro Leu Met Trp Ala Cys Ala Leu
        755                 760                 765

Gly His Leu Glu Ala Ala Val Leu Leu Phe Arg Trp Asn Arg Gln Ala
    770                 775                 780

Leu Ser Ile Pro Asp Ser Leu Gly Arg Leu Pro Leu Ser Val Ala His
785                 790                 795                 800

Ser Arg Gly His Val Arg Leu Ala Arg Cys Leu Glu Glu Leu Gln Arg
                805                 810                 815

Gln Glu Pro Ser Val Glu Pro Pro Phe Ala Leu Ser Pro Pro Ser Ser
            820                 825                 830

Ser Pro Asp Thr Gly Leu Ser Ser Val Ser Ser Pro Ser Glu Leu Ser
        835                 840                 845

Asp Gly Thr Phe Ser Val Thr Ser Ala Tyr Ser Ser Ala Pro Asp Gly
    850                 855                 860

Ser Pro Pro Pro Ala Pro Leu Pro Ala Ser Glu Met Thr Met Glu Asp
865                 870                 875                 880

Met Ala Pro Gly Gln Leu Ser Ser Gly Val Pro Glu Ala Pro Leu Leu
                885                 890                 895

Leu Met Asp Tyr Glu Ala Thr Asn Ser Lys Gly Pro Leu Ser Ser Leu
            900                 905                 910

Pro Ala Leu Pro Pro Ala Ser Asp Asp Gly Ala Ala Pro Glu Asp Ala
        915                 920                 925
```

```
Asp Ser Pro Gln Ala Val Asp Val Ile Pro Val Asp Met Ile Ser Leu
    930                 935                 940

Ala Lys Gln Ile Ile Glu Ala Thr Pro Glu Arg Ile Lys Arg Glu Asp
945                 950                 955                 960

Phe Val Gly Leu Pro Glu Ala Gly Ala Ser Met Arg Glu Arg Thr Gly
                965                 970                 975

Ala Val Gly Leu Ser Glu Thr Met Ser Trp Leu Ala Ser Tyr Leu Glu
            980                 985                 990

Asn Val Asp His Phe Pro Ser Ser  Thr Pro Pro Ser Glu  Leu Pro
Phe
        995                 1000                1005

Glu Arg  Gly Arg Leu Ala Val  Pro Ser Ala Pro Ser  Trp Ala Glu
    1010                1015                1020

Phe Leu  Ser Ala Ser Thr Ser  Gly Lys Met Glu Ser  Asp Phe Ala
    1025                1030                1035

Leu Leu  Thr Leu Ser Asp His  Glu Gln Arg Glu Leu  Tyr Glu Ala
    1040                1045                1050

Ala Arg  Val Ile Gln Thr Ala  Phe Arg Lys Tyr Lys  Gly Arg Arg
    1055                1060                1065

Leu Lys  Glu Gln Gln Glu Val  Ala Ala Ala Val Ile  Gln Arg Cys
    1070                1075                1080

Tyr Arg  Lys Tyr Lys Gln Phe  Ala Leu Tyr Lys Lys  Met Thr Gln
    1085                1090                1095

Ala Ala  Ile Leu Ile Gln Ser  Lys Phe Arg Ser Tyr  Tyr Glu Gln
    1100                1105                1110

Lys Arg  Phe Gln Gln Ser Arg  Arg Ala Ala Val Leu  Ile Gln Gln
    1115                1120                1125

His Tyr  Arg Ser Tyr Arg Arg  Arg Pro Gly Pro Pro  His Arg Thr
    1130                1135                1140
```

```
Ser Ala  Thr Leu Pro Ala Arg  Asn Lys Gly Ser Phe  Leu Thr Lys
    1145                1150                1155


Lys Gln  Asp Gln Ala Ala Arg  Lys Ile Met Arg Phe  Leu Arg Arg
    1160                1165                1170


Cys Arg  His Arg Met Arg Glu  Leu Lys Gln Asn Gln  Glu Leu Glu
    1175                1180                1185


Gly Leu  Pro Gln Pro Gly Leu  Ala Thr
    1190                1195


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Met Gly Thr Asp Ser Pro Ser Pro Arg Pro Leu Arg Pro Gly Val Thr
1               5                  10                  15


Leu Pro Pro Gly Ala Leu Thr Met Asn Thr Lys Asp Thr Thr Glu Val
            20                  25                  30


Ala Glu Asn Ser His His Leu Lys Ile Phe Leu Pro Lys Lys Leu Leu
        35                  40                  45


Glu Cys Leu Pro Arg Cys Pro Leu Leu Pro Pro Glu Arg Leu Arg Trp
```

```
    50                  55                  60

Asn Thr Asn Glu Glu Ile Ala Ser Tyr Leu Ile Thr Phe Glu Lys His
65                  70                  75                  80

Asp Glu Trp Leu Ser Cys Ala Pro Lys Thr Arg Pro Gln Asn Gly Ser
                85                  90                  95

Ile Ile Leu Tyr Asn Arg Lys Lys Val Lys Tyr Arg Lys Asp Gly Tyr
            100                 105                 110

Leu Trp Lys Lys Arg Lys Asp Gly Lys Thr Thr Arg Glu Asp His Met
        115                 120                 125

Lys Leu Lys Val Gln Gly Met Glu Cys Leu Tyr Gly Cys Tyr Val His
    130                 135                 140

Ser Ser Ile Val Pro Thr Phe His Arg Arg Cys Tyr Trp Leu Leu Gln
145                 150                 155                 160

Asn Pro Asp Ile Val Leu Val His Tyr Leu Asn Val Pro Ala Leu Glu
                165                 170                 175

Asp Cys Gly Lys Gly Cys Ser Pro Ile Phe Cys Ser Ile Ser Ser Asp
            180                 185                 190

Arg Arg Glu Trp Leu Lys Trp Ser Arg Glu Glu Leu Leu Gly Gln Leu
        195                 200                 205

Lys Pro Met Phe His Gly Ile Lys Trp Ser Cys Gly Asn Gly Thr Glu
    210                 215                 220

Glu Phe Ser Val Glu His Leu Val Gln Gln Ile Leu Asp Thr His Pro
225                 230                 235                 240

Thr Lys Pro Ala Pro Arg Thr His Ala Cys Leu Cys Ser Gly Gly Leu
                245                 250                 255

Gly Ser Gly Ser Leu Thr His Lys Cys Ser Ser Thr Lys His Arg Ile
            260                 265                 270

Ile Ser Pro Lys Val Glu Pro Arg Ala Leu Thr Leu Thr Ser Ile Pro
        275                 280                 285
```

```
His Ala His Pro Pro Glu Pro Pro Pro Leu Ile Ala Pro Leu Pro Pro
    290                 295                 300

Glu Leu Pro Lys Ala His Thr Ser Pro Ser Ser Ser Ser Ser Ser Ser
305                 310                 315                 320

Ser Ser Gly Phe Ala Glu Pro Leu Glu Ile Arg Pro Ser Pro Pro Thr
                325                 330                 335

Ser Arg Gly Gly Ser Ser Arg Gly Gly Thr Ala Ile Leu Leu Leu Thr
            340                 345                 350

Gly Leu Glu Gln Arg Ala Gly Gly Leu Thr Pro Thr Arg His Leu Ala
        355                 360                 365

Pro Gln Ala Asp Pro Arg Pro Ser Met Ser Leu Ala Val Val Val Gly
    370                 375                 380

Thr Glu Pro Ser Ala Pro Pro Ala Pro Pro Ser Pro Ala Phe Asp Pro
385                 390                 395                 400

Asp Arg Phe Leu Asn Ser Pro Gln Arg Gly Gln Thr Tyr Gly Gly Gly
                405                 410                 415

Gln Gly Val Ser Pro Asp Phe Pro Glu Ala Glu Ala Ala His Thr Pro
            420                 425                 430

Cys Ser Ala Leu Glu Pro Ala Ala Ala Leu Glu Pro Gln Ala Ala Ala
        435                 440                 445

Arg Gly Pro Pro Pro Gln Ser Val Ala Gly Gly Arg Arg Gly Asn Cys
    450                 455                 460

Phe Phe Ile Gln Asp Asp Asp Ser Gly Glu Glu Leu Lys Gly His Gly
465                 470                 475                 480

Ala Ala Pro Pro Ile Pro Ser Pro Pro Pro Ser Pro Pro Pro Ser Pro
                485                 490                 495

Ala Pro Leu Glu Pro Ser Ser Arg Val Gly Arg Gly Glu Ala Leu Phe
            500                 505                 510
```

```
Gly Gly Pro Val Gly Ala Ser Glu Leu Glu Pro Phe Ser Leu Ser Ser
        515                 520                 525

Phe Pro Asp Leu Met Gly Glu Leu Ile Ser Asp Glu Ala Pro Ser Ile
    530                 535                 540

Pro Ala Pro Thr Pro Gln Leu Ser Pro Ala Leu Ser Thr Ile Thr Asp
545                 550                 555                 560

Phe Ser Pro Glu Trp Ser Tyr Pro Glu Gly Gly Val Lys Val Leu Ile
                565                 570                 575

Thr Gly Pro Trp Thr Glu Ala Ala Glu His Tyr Ser Cys Val Phe Asp
            580                 585                 590

His Ile Ala Val Pro Ala Ser Leu Val Gln Pro Gly Val Leu Arg Cys
        595                 600                 605

Tyr Cys Pro Ala His Glu Val Gly Leu Val Ser Leu Gln Val Ala Gly
    610                 615                 620

Arg Glu Gly Pro Leu Ser Ala Ser Val Leu Phe Glu Tyr Arg Ala Arg
625                 630                 635                 640

Arg Phe Leu Ser Leu Pro Ser Thr Gln Leu Asp Trp Leu Ser Leu Asp
                645                 650                 655

Asp Asn Gln Phe Arg Met Ser Ile Leu Glu Arg Leu Glu Gln Met Glu
            660                 665                 670

Lys Arg Met Ala Glu Ile Ala Ala Ala Gly Gln Val Pro Cys Gln Gly
        675                 680                 685

Pro Asp Ala Pro Pro Val Gln Asp Glu Gly Gln Gly Pro Gly Phe Glu
    690                 695                 700

Ala Arg Val Val Val Leu Val Glu Ser Met Ile Pro Arg Ser Thr Trp
705                 710                 715                 720

Lys Gly Pro Glu Arg Leu Ala His Gly Ser Pro Phe Arg Gly Met Ser
                725                 730                 735
```

```
Leu Leu His Leu Ala Ala Ala Gln Gly Tyr Ala Arg Leu Ile Glu Thr
            740                 745                 750

Leu Ser Gln Trp Arg Ser Val Glu Thr Gly Ser Leu Asp Leu Glu Gln
        755                 760                 765

Glu Val Asp Pro Leu Asn Val Asp His Phe Ser Cys Thr Pro Leu Met
    770                 775                 780

Trp Ala Cys Ala Leu Gly His Leu Glu Ala Ala Val Leu Leu Phe Arg
785                 790                 795                 800

Trp Asn Arg Gln Ala Leu Ser Ile Pro Asp Ser Leu Gly Arg Leu Pro
                805                 810                 815

Leu Ser Val Ala His Ser Arg Gly His Val Arg Leu Ala Arg Cys Leu
            820                 825                 830

Glu Glu Leu Gln Arg Gln Glu Pro Ser Val Glu Pro Pro Phe Ala Leu
        835                 840                 845

Ser Pro Pro Ser Ser Ser Pro Asp Thr Gly Leu Ser Ser Val Ser Ser
    850                 855                 860

Pro Ser Glu Leu Ser Asp Gly Thr Phe Ser Val Thr Ser Ala Tyr Ser
865                 870                 875                 880

Ser Ala Pro Asp Gly Ser Pro Pro Pro Ala Pro Leu Pro Ala Ser Glu
                885                 890                 895

Met Thr Met Glu Asp Met Ala Pro Gly Gln Leu Ser Ser Gly Val Pro
            900                 905                 910

Glu Ala Pro Leu Leu Leu Met Asp Tyr Glu Ala Thr Asn Ser Lys Gly
        915                 920                 925

Pro Leu Ser Ser Leu Pro Ala Leu Pro Pro Ala Ser Asp Asp Gly Ala
    930                 935                 940

Ala Pro Glu Asp Ala Asp Ser Pro Gln Ala Val Asp Val Ile Pro Val
945                 950                 955                 960

Asp Met Ile Ser Leu Ala Lys Gln Ile Ile Glu Ala Thr Pro Glu Arg
```

965 970 975

Ile Lys Arg Glu Asp Phe Val Gly Leu Pro Glu Ala Gly Ala Ser Met
980 985 990

Arg Glu Arg Thr Gly Ala Val Gly Leu Ser Glu Thr Met Ser Trp
Leu
995 1000 1005

Ala Ser Tyr Leu Glu Asn Val Asp His Phe Pro Ser Ser Thr Pro
1010 1015 1020

Pro Ser Glu Leu Pro Phe Glu Arg Gly Arg Leu Ala Val Pro Ser
1025 1030 1035

Ala Pro Ser Trp Ala Glu Phe Leu Ser Ala Ser Thr Ser Gly Lys
1040 1045 1050

Met Glu Ser Asp Phe Ala Leu Leu Thr Leu Ser Asp His Glu Gln
1055 1060 1065

Arg Glu Leu Tyr Glu Ala Ala Arg Val Ile Gln Thr Ala Phe Arg
1070 1075 1080

Lys Tyr Lys Gly Arg Arg Leu Lys Glu Gln Gln Glu Val Ala Ala
1085 1090 1095

Ala Val Ile Gln Arg Cys Tyr Arg Lys Tyr Lys Gln Leu Thr Trp
1100 1105 1110

Ile Ala Leu Lys Phe Ala Leu Tyr Lys Lys Met Thr Gln Ala Ala
1115 1120 1125

Ile Leu Ile Gln Ser Lys Phe Arg Ser Tyr Tyr Glu Gln Lys Arg
1130 1135 1140

Phe Gln Gln Ser Arg Arg Ala Ala Val Leu Ile Gln Gln His Tyr
1145 1150 1155

Arg Ser Tyr Arg Arg Arg Pro Gly Pro Pro His Arg Thr Ser Ala
1160 1165 1170

Thr Leu Pro Ala Arg Asn Lys Leu Leu Ser His Gln Glu Ala Gly

```
    1175                1180                1185

Pro Gly  Ser Pro Glu Asp His  Glu Ile Pro Ala Ala  Leu Pro Thr
    1190                1195                1200

Gln Asp  Glu Gly Thr Glu Ala  Glu Pro Gly Ala Gly  Arg Ala Ser
    1205                1210                1215

Pro Ala  Gly Thr Gly His Met  Thr Trp Pro Pro Pro  Phe Ser Pro
    1220                1225                1230

Pro Trp  Gly Arg Leu Val Gln  Ser
    1235                1240


<210> 11051
<211> 161
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2185; "

<220>
<221> source
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<220>
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<223> /note="Gene Name: calmodulin binding transcription
      activator 2; "

<220>
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<223> /note="ENSP ID: ENSP00000458560"

<400> 11051
Met Asn Thr Lys Asp Thr Thr Glu Val Ala Glu Asn Ser His His Leu
1               5                  10                  15

Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Arg Cys Pro
            20                  25                  30

Leu Leu Pro Pro Glu Arg Leu Arg Trp Asn Thr Asn Glu Glu Ile Ala
        35                  40                  45

Ser Tyr Leu Ile Thr Phe Glu Lys His Asp Glu Trp Leu Ser Cys Ala
    50                  55                  60
```

```
Pro Lys Thr Arg Pro Gln Asn Gly Ser Ile Ile Leu Tyr Asn Arg Lys
65                  70                  75                  80

Lys Val Lys Tyr Arg Lys Asp Gly Tyr Leu Trp Lys Lys Arg Lys Asp
                85                  90                  95

Gly Lys Thr Thr Arg Glu Asp His Met Lys Leu Lys Val Gln Gly Met
            100                 105                 110

Glu Gly Leu Asn Arg Gly Arg Val Gly Glu Gln Thr Ser Pro Pro Pro
        115                 120                 125

Thr Pro Ala Cys Leu Leu Ala Val Ser Leu Trp Leu Leu Arg Ser Leu
    130                 135                 140

Phe His Arg Pro His Ile Pro Ser Ala Leu Leu Leu Ala Ala Pro Glu
145                 150                 155                 160

Pro
```

<210> 11052
<211> 178
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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activator 2; "

<220>
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<223> /note="ENSP ID: ENSP00000459519"

<400> 11052

```
Lys Asp Thr Thr Glu Val Ala Glu Asn Ser His His Leu Lys Ile Phe
1               5                   10                  15

Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Arg Cys Pro Leu Leu Pro
```

```
            20                  25                  30

Pro Glu Arg Leu Arg Trp Asn Thr Asn Glu Glu Ile Ala Ser Tyr Leu
        35                  40                  45

Ile Thr Phe Glu Lys His Asp Glu Trp Leu Ser Cys Ala Pro Lys Thr
    50                  55                  60

Arg Pro Gln Asn Gly Ser Ile Ile Leu Tyr Asn Arg Lys Lys Val Lys
65                  70                  75                  80

Tyr Arg Lys Asp Gly Tyr Leu Trp Lys Lys Arg Lys Asp Gly Lys Thr
                85                  90                  95

Thr Arg Glu Asp His Met Lys Leu Lys Val Gln Gly Met Glu Gln Arg
            100                 105                 110

Pro Ser Arg Val Ala Glu Val Val Pro Gly Gly Val Val Gly Thr Ala
        115                 120                 125

Glu Ala His Val Ser Trp His Gln Val Glu Leu Arg Glu Trp Asn Arg
    130                 135                 140

Arg Val Leu Cys Arg Thr Pro Gly Ala Ala Asp Phe Gly His Pro Pro
145                 150                 155                 160

Asn Gln Ala Cys Ser Pro Asn Pro Arg Leu Ser Leu Gln Trp Gly Ala
                165                 170                 175

Trp Phe
```

<210> 11053
<211> 163
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>

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<223> /note="Gene Name: calmodulin binding transcription
activator 2; "

<220>
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<223> /note="ENSP ID: ENSP00000460751"

<400> 11053
Met Ala Ala Ala Ala Val Thr Arg Gly Thr Pro Gly Glu Asn Ser His
1 5 10 15

His Leu Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Arg
20 25 30

Cys Pro Leu Leu Pro Pro Glu Arg Leu Arg Trp Asn Thr Asn Glu Glu
35 40 45

Ile Ala Ser Tyr Leu Ile Thr Phe Glu Lys His Asp Glu Trp Leu Ser
50 55 60

Cys Ala Pro Lys Thr Arg Pro Gln Asn Gly Ser Ile Ile Leu Tyr Asn
65 70 75 80

Arg Lys Lys Val Lys Tyr Arg Lys Asp Gly Tyr Leu Trp Lys Lys Arg
85 90 95

Lys Asp Gly Lys Thr Thr Arg Glu Asp His Met Lys Leu Lys Val Gln
100 105 110

Gly Met Glu Gly Leu Asn Arg Gly Arg Val Gly Glu Gln Thr Ser Pro
115 120 125

Pro Pro Thr Pro Ala Cys Leu Leu Ala Val Ser Leu Trp Leu Leu Arg
130 135 140

Ser Leu Phe His Arg Pro His Ile Pro Ser Ala Leu Leu Leu Ala Ala
145 150 155 160

Pro Glu Pro

<210> 11054
<211> 1207
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2185; "

<220>
<221> source
<223> /note="Gene Symbol: CAMTA2; "

<220>
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<223> /note="Gene Name: calmodulin binding transcription
activator 2; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000460779"

<400> 11054
Met Asn Thr Lys Asp Thr Thr Glu Val Ala Glu Asn Ser His His Leu
1 5 10 15

Lys Ile Phe Leu Pro Lys Lys Leu Leu Glu Cys Leu Pro Arg Cys Pro
20 25 30

Leu Leu Pro Pro Glu Arg Leu Arg Trp Asn Thr Asn Glu Glu Ile Ala
35 40 45

Ser Tyr Leu Ile Thr Phe Glu Lys His Asp Glu Trp Leu Ser Cys Ala
50 55 60

Pro Lys Thr Arg Pro Gln Asn Gly Ser Ile Ile Leu Tyr Asn Arg Lys
65 70 75 80

Lys Val Lys Tyr Arg Lys Asp Gly Tyr Leu Trp Lys Lys Arg Lys Asp
85 90 95

Gly Lys Thr Thr Arg Glu Asp His Met Lys Leu Lys Val Gln Gly Met
100 105 110

Glu Pro Val Ser Trp Gln Cys Leu Tyr Gly Cys Tyr Val His Ser Ser
115 120 125

Ile Val Pro Thr Phe His Arg Arg Cys Tyr Trp Leu Leu Gln Asn Pro
130 135 140

Asp Ile Val Leu Val His Tyr Leu Asn Val Pro Ala Leu Glu Asp Cys
145 150 155 160

```
Gly Lys Gly Cys Ser Pro Ile Phe Cys Ser Ile Ser Ser Asp Arg Arg
                165                 170                 175

Glu Trp Leu Lys Trp Ser Arg Glu Glu Leu Leu Gly Gln Leu Lys Pro
            180                 185                 190

Met Phe His Gly Ile Lys Trp Ser Cys Gly Asn Gly Thr Glu Glu Phe
        195                 200                 205

Ser Val Glu His Leu Val Gln Gln Ile Leu Asp Thr His Pro Thr Lys
    210                 215                 220

Pro Ala Pro Arg Thr His Ala Cys Leu Cys Ser Gly Gly Leu Gly Ser
225                 230                 235                 240

Gly Ser Leu Thr His Lys Cys Ser Ser Thr Lys His Arg Ile Ile Ser
                245                 250                 255

Pro Lys Val Glu Pro Arg Ala Leu Thr Leu Thr Ser Ile Pro His Ala
            260                 265                 270

His Pro Pro Glu Pro Pro Pro Leu Ile Ala Pro Leu Pro Pro Glu Leu
        275                 280                 285

Pro Lys Ala His Thr Ser Pro Ser Ser Ser Ser Ser Ser Ser Ser Ser
    290                 295                 300

Gly Phe Ala Glu Pro Leu Glu Ile Arg Pro Ser Pro Pro Thr Ser Arg
305                 310                 315                 320

Gly Gly Ser Ser Arg Gly Gly Thr Ala Ile Leu Leu Leu Thr Gly Leu
                325                 330                 335

Glu Gln Arg Ala Gly Gly Leu Thr Pro Thr Arg His Leu Ala Pro Gln
            340                 345                 350

Ala Asp Pro Arg Pro Ser Met Ser Leu Ala Val Val Val Gly Thr Glu
        355                 360                 365

Pro Ser Ala Pro Pro Ala Pro Pro Ser Pro Ala Phe Asp Pro Asp Arg
    370                 375                 380
```

```
Phe Leu Asn Ser Pro Gln Arg Gly Gln Thr Tyr Gly Gly Gly Gln Gly
385                 390                 395                 400

Val Ser Pro Asp Phe Pro Glu Ala Glu Ala Ala His Thr Pro Cys Ser
                405                 410                 415

Ala Leu Glu Pro Ala Ala Ala Leu Glu Pro Gln Ala Ala Ala Arg Gly
            420                 425                 430

Pro Pro Pro Gln Ser Val Ala Gly Gly Arg Arg Gly Asn Cys Phe Phe
        435                 440                 445

Ile Gln Asp Asp Asp Ser Gly Glu Glu Leu Lys Gly His Gly Ala Ala
    450                 455                 460

Pro Pro Ile Pro Ser Pro Pro Pro Ser Pro Pro Pro Ser Pro Ala Pro
465                 470                 475                 480

Leu Glu Pro Ser Ser Arg Val Gly Arg Gly Glu Ala Leu Phe Gly Gly
                485                 490                 495

Pro Val Gly Ala Ser Glu Leu Glu Pro Phe Ser Leu Ser Ser Phe Pro
            500                 505                 510

Asp Leu Met Gly Glu Leu Ile Ser Asp Glu Ala Pro Ser Ile Pro Ala
        515                 520                 525

Pro Thr Pro Gln Leu Ser Pro Ala Leu Ser Thr Ile Thr Asp Phe Ser
    530                 535                 540

Pro Glu Trp Ser Tyr Pro Glu Gly Gly Val Lys Val Leu Ile Thr Gly
545                 550                 555                 560

Pro Trp Thr Glu Ala Ala Glu His Tyr Ser Cys Val Phe Asp His Ile
                565                 570                 575

Ala Val Pro Ala Ser Leu Val Gln Pro Gly Val Leu Arg Cys Tyr Cys
            580                 585                 590

Pro Ala His Glu Val Gly Leu Val Ser Leu Gln Val Ala Gly Arg Glu
        595                 600                 605
```

```
Gly Pro Leu Ser Ala Ser Val Leu Phe Glu Tyr Arg Ala Arg Arg Phe
    610                 615                 620

Leu Ser Leu Pro Ser Thr Gln Leu Asp Trp Leu Ser Leu Asp Asp Asn
625                 630                 635                 640

Gln Phe Arg Met Ser Ile Leu Glu Arg Leu Glu Gln Met Glu Lys Arg
                645                 650                 655

Met Ala Glu Ile Ala Ala Ala Gly Gln Val Pro Cys Gln Gly Pro Asp
            660                 665                 670

Ala Pro Pro Val Gln Asp Glu Gly Gln Gly Pro Gly Phe Glu Ala Arg
        675                 680                 685

Val Val Val Leu Val Glu Ser Met Ile Pro Arg Ser Thr Trp Lys Gly
    690                 695                 700

Pro Glu Arg Leu Ala His Gly Ser Pro Phe Arg Gly Met Ser Leu Leu
705                 710                 715                 720

His Leu Ala Ala Ala Gln Gly Tyr Ala Arg Leu Ile Glu Thr Leu Ser
                725                 730                 735

Gln Trp Arg Ser Val Glu Thr Gly Ser Leu Asp Leu Glu Gln Glu Val
            740                 745                 750

Asp Pro Leu Asn Val Asp His Phe Ser Cys Thr Pro Leu Met Trp Ala
        755                 760                 765

Cys Ala Leu Gly His Leu Glu Ala Ala Val Leu Leu Phe Arg Trp Asn
    770                 775                 780

Arg Gln Ala Leu Ser Ile Pro Asp Ser Leu Gly Arg Leu Pro Leu Ser
785                 790                 795                 800

Val Ala His Ser Arg Gly His Val Arg Leu Ala Arg Cys Leu Glu Glu
                805                 810                 815

Leu Gln Arg Gln Glu Pro Ser Val Glu Pro Pro Phe Ala Leu Ser Pro
            820                 825                 830

Pro Ser Ser Ser Pro Asp Thr Gly Leu Ser Ser Val Ser Ser Pro Ser
```

```
        835                 840                 845

Glu Leu Ser Asp Gly Thr Phe Ser Val Thr Ser Ala Tyr Ser Ser Ala
    850                 855                 860

Pro Asp Gly Ser Pro Pro Pro Ala Pro Leu Pro Ala Ser Glu Met Thr
865                 870                 875                 880

Met Glu Asp Met Ala Pro Gly Gln Leu Ser Ser Gly Val Pro Glu Ala
                885                 890                 895

Pro Leu Leu Leu Met Asp Tyr Glu Ala Thr Asn Ser Lys Gly Pro Leu
            900                 905                 910

Ser Ser Leu Pro Ala Leu Pro Pro Ala Ser Asp Asp Gly Ala Ala Pro
        915                 920                 925

Glu Asp Ala Asp Ser Pro Gln Ala Val Asp Val Ile Pro Val Asp Met
    930                 935                 940

Ile Ser Leu Ala Lys Gln Ile Ile Glu Ala Thr Pro Glu Arg Ile Lys
945                 950                 955                 960

Arg Glu Asp Phe Val Gly Leu Pro Glu Ala Gly Ala Ser Met Arg Glu
                965                 970                 975

Arg Thr Gly Ala Val Gly Leu Ser Glu Thr Met Ser Trp Leu Ala Ser
            980                 985                 990

Tyr Leu Glu Asn Val Asp His Phe  Pro Ser Ser Thr Pro  Pro Ser
Glu
        995                 1000                1005

Leu Pro  Phe Glu Arg Gly Arg  Leu Ala Val Pro Ser  Ala Pro Ser
    1010                1015                1020

Trp Ala  Glu Phe Leu Ser Ala  Ser Thr Ser Gly Lys  Met Glu Ser
    1025                1030                1035

Asp Phe  Ala Leu Leu Thr Leu  Ser Asp His Glu Gln  Arg Glu Leu
    1040                1045                1050

Tyr Glu  Ala Ala Arg Val Ile  Gln Thr Ala Phe Arg  Lys Tyr Lys
```

```
    1055                1060                1065

Gly Arg  Arg Leu Lys Glu Gln  Gln Glu Val Ala Ala  Ala Val Ile
    1070                1075                1080

Gln Arg  Cys Tyr Arg Lys Tyr  Lys Gln Leu Thr Trp  Ile Ala Leu
    1085                1090                1095

Lys Phe  Ala Leu Tyr Lys Lys  Met Thr Gln Ala Ala  Ile Leu Ile
    1100                1105                1110

Gln Ser  Lys Phe Arg Ser Tyr  Tyr Glu Gln Lys Arg  Phe Gln Gln
    1115                1120                1125

Ser Arg  Arg Ala Ala Val Leu  Ile Gln Gln His Tyr  Arg Ser Tyr
    1130                1135                1140

Arg Arg  Arg Pro Gly Pro Pro  His Arg Thr Ser Ala  Thr Leu Pro
    1145                1150                1155

Ala Arg  Asn Lys Gly Ser Phe  Leu Thr Lys Lys Gln  Asp Gln Ala
    1160                1165                1170

Ala Arg  Lys Ile Met Arg Phe  Leu Arg Arg Cys Arg  His Arg Met
    1175                1180                1185

Arg Glu  Leu Lys Gln Asn Gln  Glu Leu Glu Gly Leu  Pro Gln Pro
    1190                1195                1200

Gly Leu  Ala Thr
    1205


<210> 11055
<211> 1324
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2186; "

<220>
<221> source
<223> /note="Gene Symbol: CAMSAP1; "

<220>
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<221> source
<223> /note="Gene Name: calmodulin regulated spectrin-associated
prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5T5Y3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000312463"

<400> 11055
Met Ala Asp Ser Leu Tyr Asn Ile Arg Leu Leu Arg Glu Phe Ser Asn
1 5 10 15

Glu Tyr Leu Asn Lys Cys Phe Tyr Leu Thr Leu Glu Asp Met Leu Tyr
20 25 30

Ala Pro Leu Val Leu Lys Pro Asn Val Met Val Phe Ile Ala Glu Leu
35 40 45

Phe Trp Trp Phe Glu Asn Val Lys Pro Asp Phe Val Gln Pro Arg Asp
50 55 60

Val Gln Glu Leu Lys Asp Ala Lys Thr Val Leu His Gln Lys Ser Ser
65 70 75 80

Arg Pro Pro Val Pro Ile Ser Asn Ala Thr Lys Arg Ser Phe Leu Gly
85 90 95

Ser Pro Ala Ala Gly Thr Leu Ala Glu Leu Gln Pro Pro Val Gln Leu
100 105 110

Pro Ala Glu Gly Cys His Arg His Tyr Leu His Pro Glu Glu Pro Glu
115 120 125

Tyr Leu Gly Lys Gly Thr Ala Ala Phe Ser Pro Ser His Pro Leu Leu
130 135 140

Pro Leu Arg Gln Lys Gln Gln Lys Ser Ile Gln Gly Glu Asp Ile Pro
145 150 155 160

Asp Gln Arg His Arg Ser Asn Ser Leu Thr Arg Val Asp Gly Gln Pro
165 170 175

```
Arg Gly Ala Ala Ile Ala Trp Pro Glu Lys Lys Thr Arg Pro Ala Ser
            180                 185                 190

Gln Pro Thr Pro Phe Ala Leu His His Ala Ala Ser Cys Glu Val Asp
        195                 200                 205

Pro Ser Ser Gly Asp Ser Ile Ser Leu Ala Arg Ser Ile Ser Lys Asp
    210                 215                 220

Ser Leu Ala Ser Asn Ile Val Asn Leu Thr Pro Gln Asn Gln Pro His
225                 230                 235                 240

Pro Thr Ala Thr Lys Ser His Gly Lys Ser Leu Leu Ser Asn Val Ser
                245                 250                 255

Ile Glu Asp Glu Glu Glu Glu Leu Val Ala Ile Val Arg Ala Asp Val
            260                 265                 270

Val Pro Gln Gln Ala Asp Pro Glu Phe Pro Arg Ala Ser Pro Arg Ala
        275                 280                 285

Leu Gly Leu Thr Ala Asn Ala Arg Ser Pro Gln Gly Gln Leu Asp Thr
    290                 295                 300

Ser Glu Ser Lys Pro Asp Ser Phe Phe Leu Glu Pro Leu Met Pro Ala
305                 310                 315                 320

Val Leu Lys Pro Ala Lys Glu Lys Gln Val Ile Thr Lys Glu Asp Glu
                325                 330                 335

Arg Gly Glu Gly Arg Pro Arg Ser Ile Val Ser Arg Arg Pro Ser Glu
            340                 345                 350

Gly Pro Gln Pro Leu Val Arg Arg Lys Met Thr Gly Ser Arg Asp Leu
        355                 360                 365

Asn Arg Thr Phe Thr Pro Ile Pro Cys Ser Glu Phe Pro Met Gly Ile
    370                 375                 380

Asp Pro Thr Glu Thr Gly Pro Leu Ser Val Glu Thr Ala Gly Glu Val
385                 390                 395                 400
```

```
Cys Gly Gly Pro Leu Ala Leu Gly Gly Phe Asp Pro Phe Pro Gln Gly
                405                 410                 415

Pro Ser Thr Asp Gly Phe Phe Leu His Val Gly Arg Ala Asp Glu Asp
            420                 425                 430

Thr Glu Gly Arg Leu Tyr Val Ser Cys Ser Lys Ser Pro Asn Ser His
        435                 440                 445

Asp Ser Glu Pro Trp Thr Leu Leu Arg Gln Asp Ser Asp Ser Asp Val
    450                 455                 460

Val Asp Ile Glu Glu Ala Glu His Asp Phe Met Gly Glu Ala His Pro
465                 470                 475                 480

Val Val Phe Ser Arg Tyr Ile Gly Glu Glu Glu Ser Ala Lys Leu Gln
                485                 490                 495

Glu Asp Met Lys Val Lys Glu His Glu Asp Lys Asp Asp Ala Ser Gly
            500                 505                 510

Arg Ser Ser Pro Cys Leu Ser Thr Ala Ser Gln Met Ser Ser Val Ser
        515                 520                 525

Met Ala Ser Gly Ser Val Lys Met Thr Ser Phe Ala Glu Arg Lys Leu
    530                 535                 540

Gln Arg Leu Asn Ser Cys Glu Thr Lys Ser Ser Thr Ser Ser Ser Gln
545                 550                 555                 560

Lys Thr Thr Pro Asp Ala Ser Glu Ser Cys Pro Ala Pro Leu Thr Thr
                565                 570                 575

Trp Arg Gln Lys Arg Glu Gln Ser Pro Ser Gln His Gly Lys Asp Pro
            580                 585                 590

Ala Ser Leu Leu Ala Ser Glu Leu Val Gln Leu His Met Gln Leu Glu
        595                 600                 605

Glu Lys Arg Arg Ala Ile Glu Ala Gln Lys Lys Lys Met Glu Ala Leu
    610                 615                 620

Ser Ala Arg Gln Arg Leu Lys Leu Gly Lys Ala Ala Phe Leu His Val
```

625 630 635 640

Val Lys Lys Gly Lys Ala Glu Ala Ala Pro Pro Leu Arg Pro Glu His
645 650 655

Phe Ala Lys Glu Tyr Ser Gln His Asn Gly Glu Asp Cys Gly Asp Ala
660 665 670

Val Ser Lys Thr Glu Asp Phe Leu Val Lys Glu Glu Gln Arg Glu Glu
675 680 685

Leu Leu His Glu Pro Gln Asp Val Asp Lys Glu Ser Leu Ala Phe Ala
690 695 700

Gln Gln His Lys Ala Lys Asp Pro Val Ala Leu His Glu Leu Glu Arg
705 710 715 720

Asn Lys Val Ile Ser Ala Ala Leu Leu Glu Asp Thr Val Gly Glu Val
725 730 735

Val Asp Val Asn Glu Cys Asp Leu Ser Ile Glu Lys Leu Asn Glu Thr
740 745 750

Ile Ser Thr Leu Gln Gln Ala Ile Leu Lys Ile Ser Gln Gln Gln Glu
755 760 765

Gln Leu Leu Met Lys Ser Pro Thr Val Pro Val Pro Gly Ser Lys Asn
770 775 780

Asn Ser Gln Asp His Lys Val Lys Ala Pro Val His Phe Val Glu Pro
785 790 795 800

Leu Ser Pro Thr Gly Val Ala Gly His Arg Lys Ala Pro Arg Leu Gly
805 810 815

Gln Gly Arg Asn Ser Arg Ser Gly Arg Pro Ala Glu Leu Lys Val Pro
820 825 830

Lys Asp Arg Pro Gln Gly Ser Ser Arg Ser Lys Thr Pro Thr Pro Ser
835 840 845

Val Glu Thr Leu Pro His Leu Arg Pro Phe Pro Ala Ser Ser His Pro
850 855 860

```
Arg Thr Pro Thr Asp Pro Gly Leu Asp Ser Ala Leu Glu Pro Ser Gly
865                 870                 875                 880

Asp Pro His Gly Lys Cys Leu Phe Asp Ser Tyr Arg Leu His Asp Glu
                885                 890                 895

Ser Asn Gln Arg Thr Leu Thr Leu Ser Ser Ser Lys Asp Ala Asn Ile
            900                 905                 910

Leu Ser Glu Gln Met Ser Leu Lys Glu Val Leu Asp Ala Ser Val Lys
        915                 920                 925

Glu Val Gly Ser Ser Ser Ser Asp Val Ser Gly Lys Glu Ser Val Pro
    930                 935                 940

Val Glu Glu Pro Leu Arg Ser Arg Ala Ser Leu Ile Glu Val Asp Leu
945                 950                 955                 960

Ser Asp Leu Lys Ala Pro Asp Glu Asp Gly Glu Leu Val Ser Leu Asp
                965                 970                 975

Gly Ser Ala Asp Leu Val Ser Glu Gly Asp Gln Lys Pro Gly Val Gly
            980                 985                 990

Phe Phe Phe Lys Asp Glu Gln Lys  Ala Glu Asp Glu Leu  Ala Lys
Lys
        995                 1000                1005

Arg Ala  Ala Phe Leu Leu Lys  Gln Gln Arg Lys Ala  Glu Glu Ala
    1010                1015                1020

Arg Val  Arg Lys Gln Gln Leu  Glu Ala Glu Val Glu  Leu Lys Arg
    1025                1030                1035

Asp Glu  Ala Arg Arg Lys Ala  Glu Glu Asp Arg Val  Arg Lys Glu
    1040                1045                1050

Glu Glu  Lys Ala Arg Arg Glu  Leu Ile Lys Gln Glu  Tyr Leu Arg
    1055                1060                1065

Arg Lys  Gln Gln Gln Ile Leu  Glu Glu Gln Gly Leu  Gly Lys Pro
    1070                1075                1080
```

```
Lys Ser  Lys Pro Lys Lys Pro  Arg Pro Lys Ser Val  His Arg Glu
    1085                1090                1095

Glu Ser  Cys Ser Asp Ser Gly  Thr Lys Cys Ser Ser  Thr Pro Asp
    1100                1105                1110

Asn Leu  Ser Arg Thr Gln Ser  Gly Ser Ser Leu Ser  Leu Ala Ser
    1115                1120                1125

Ala Ala  Thr Thr Glu Pro Glu  Ser Val His Ser Gly  Gly Thr Pro
    1130                1135                1140

Ser Gln  Arg Val Glu Ser Met  Glu Ala Leu Pro Ile  Leu Ser Arg
    1145                1150                1155

Asn Pro  Ser Arg Ser Thr Asp  Arg Asp Trp Glu Thr  Ala Ser Ala
    1160                1165                1170

Ala Ser  Ser Leu Ala Ser Val  Ala Glu Tyr Thr Gly  Pro Lys Leu
    1175                1180                1185

Phe Lys  Glu Pro Ser Ser Lys  Ser Asn Lys Pro Ile  Ile His Asn
    1190                1195                1200

Ala Ile  Ser His Cys Cys Leu  Ala Gly Lys Val Asn  Glu Pro His
    1205                1210                1215

Lys Asn  Ser Ile Leu Glu Glu  Leu Glu Lys Cys Asp  Ala Asn His
    1220                1225                1230

Tyr Ile  Ile Leu Phe Arg Asp  Ala Gly Cys Gln Phe  Arg Ala Leu
    1235                1240                1245

Tyr Cys  Tyr Tyr Pro Asp Thr  Glu Glu Ile Tyr Lys  Leu Thr Gly
    1250                1255                1260

Thr Gly  Pro Lys Asn Ile Thr  Lys Lys Met Ile Asp  Lys Leu Tyr
    1265                1270                1275

Lys Tyr  Ser Ser Asp Arg Lys  Gln Phe Asn Leu Ile  Pro Ala Lys
    1280                1285                1290
```

Thr Met Ser Val Ser Val Asp Ala Leu Thr Ile His Asn His Leu
1295 1300 1305

Trp Gln Pro Lys Arg Pro Ala Val Pro Lys Lys Ala Gln Thr Arg
1310 1315 1320

Lys

<210> 11056
<211> 1602
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2186; "

<220>
<221> source
<223> /note="Gene Symbol: CAMSAP1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin regulated spectrin-associated
prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5T5Y3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000374183"

<400> 11056
Met Val Asp Ala Ser Gly Arg Ala Ala Ala Glu Gly Trp Arg Lys Met
1 5 10 15

Glu Ala Pro Pro Asp Gly Ala Ala Asp Leu Val Pro Leu Asp Arg Tyr
20 25 30

Asp Ala Ala Arg Ala Lys Ile Ala Ala Asn Leu Gln Trp Ile Cys Ala
35 40 45

Lys Ala Tyr Gly Arg Asp Asn Ile Pro Glu Asp Leu Arg Asp Pro Phe
50 55 60

```
Tyr Val Asp Gln Tyr Glu Gln Glu His Ile Lys Pro Pro Val Ile Lys
65                  70                  75                  80

Leu Leu Leu Ser Ser Glu Leu Tyr Cys Arg Val Cys Ser Leu Ile Leu
                85                  90                  95

Lys Gly Asp Gln Val Ala Ala Leu Gln Gly His Gln Ser Val Ile Gln
            100                 105                 110

Ala Leu Ser Arg Lys Gly Ile Tyr Val Met Glu Ser Asp Asp Thr Pro
        115                 120                 125

Val Thr Glu Ser Asp Leu Ser Arg Ala Pro Ile Lys Met Ser Ala His
    130                 135                 140

Met Ala Met Val Asp Ala Leu Met Met Ala Tyr Thr Val Glu Met Ile
145                 150                 155                 160

Ser Ile Glu Lys Val Val Ala Ser Val Lys Arg Phe Ser Thr Phe Ser
                165                 170                 175

Ala Ser Lys Glu Leu Pro Tyr Asp Leu Glu Asp Ala Met Val Phe Trp
            180                 185                 190

Ile Asn Lys Val Asn Leu Lys Met Arg Glu Ile Thr Glu Lys Glu Val
        195                 200                 205

Lys Leu Lys Gln Gln Leu Leu Glu Ser Pro Ala His Gln Lys Val Arg
    210                 215                 220

Tyr Arg Arg Glu His Leu Ser Ala Arg Gln Ser Pro Tyr Phe Pro Leu
225                 230                 235                 240

Leu Glu Asp Leu Met Arg Asp Gly Ser Asp Gly Ala Ala Leu Leu Ala
                245                 250                 255

Val Ile His Tyr Tyr Cys Pro Glu Gln Met Lys Leu Asp Asp Ile Cys
            260                 265                 270

Leu Lys Glu Val Thr Ser Met Ala Asp Ser Leu Tyr Asn Ile Arg Leu
        275                 280                 285

Leu Arg Glu Phe Ser Asn Glu Tyr Leu Asn Lys Cys Phe Tyr Leu Thr
```

```
    290                 295                 300

Leu Glu Asp Met Leu Tyr Ala Pro Leu Val Leu Lys Pro Asn Val Met
305                 310                 315                 320

Val Phe Ile Ala Glu Leu Phe Trp Trp Phe Glu Asn Val Lys Pro Asp
                325                 330                 335

Phe Val Gln Pro Arg Asp Val Gln Glu Leu Lys Asp Ala Lys Thr Val
            340                 345                 350

Leu His Gln Lys Ser Ser Arg Pro Pro Val Pro Ile Ser Asn Ala Thr
        355                 360                 365

Lys Arg Ser Phe Leu Gly Ser Pro Ala Ala Gly Thr Leu Ala Glu Leu
    370                 375                 380

Gln Pro Pro Val Gln Leu Pro Ala Glu Gly Cys His Arg His Tyr Leu
385                 390                 395                 400

His Pro Glu Glu Pro Glu Tyr Leu Gly Lys Gly Thr Ala Ala Phe Ser
                405                 410                 415

Pro Ser His Pro Leu Leu Pro Leu Arg Gln Lys Gln Gln Lys Ser Ile
            420                 425                 430

Gln Gly Glu Asp Ile Pro Asp Gln Arg His Arg Ser Asn Ser Leu Thr
        435                 440                 445

Arg Val Asp Gly Gln Pro Arg Gly Ala Ala Ile Ala Trp Pro Glu Lys
    450                 455                 460

Lys Thr Arg Pro Ala Ser Gln Pro Thr Pro Phe Ala Leu His His Ala
465                 470                 475                 480

Ala Ser Cys Glu Val Asp Pro Ser Ser Gly Asp Ser Ile Ser Leu Ala
                485                 490                 495

Arg Ser Ile Ser Lys Asp Ser Leu Ala Ser Asn Ile Val Asn Leu Thr
            500                 505                 510

Pro Gln Asn Gln Pro His Pro Thr Ala Thr Lys Ser His Gly Lys Ser
        515                 520                 525
```

```
Leu Leu Ser Asn Val Ser Ile Glu Asp Glu Glu Glu Glu Leu Val Ala
    530                 535                 540

Ile Val Arg Ala Asp Val Val Pro Gln Gln Ala Asp Pro Glu Phe Pro
545                 550                 555                 560

Arg Ala Ser Pro Arg Ala Leu Gly Leu Thr Ala Asn Ala Arg Ser Pro
                565                 570                 575

Gln Gly Gln Leu Asp Thr Ser Glu Ser Lys Pro Asp Ser Phe Phe Leu
            580                 585                 590

Glu Pro Leu Met Pro Ala Val Leu Lys Pro Ala Lys Glu Lys Gln Val
        595                 600                 605

Ile Thr Lys Glu Asp Glu Arg Gly Glu Gly Arg Pro Arg Ser Ile Val
    610                 615                 620

Ser Arg Arg Pro Ser Glu Gly Pro Gln Pro Leu Val Arg Arg Lys Met
625                 630                 635                 640

Thr Gly Ser Arg Asp Leu Asn Arg Thr Phe Thr Pro Ile Pro Cys Ser
                645                 650                 655

Glu Phe Pro Met Gly Ile Asp Pro Thr Glu Thr Gly Pro Leu Ser Val
            660                 665                 670

Glu Thr Ala Gly Glu Val Cys Gly Gly Pro Leu Ala Leu Gly Gly Phe
        675                 680                 685

Asp Pro Phe Pro Gln Gly Pro Ser Thr Asp Gly Phe Phe Leu His Val
    690                 695                 700

Gly Arg Ala Asp Glu Asp Thr Glu Gly Arg Leu Tyr Val Ser Cys Ser
705                 710                 715                 720

Lys Ser Pro Asn Ser His Asp Ser Glu Pro Trp Thr Leu Leu Arg Gln
                725                 730                 735

Asp Ser Asp Ser Asp Val Val Asp Ile Glu Glu Ala Glu His Asp Phe
            740                 745                 750
```

```
Met Gly Glu Ala His Pro Val Val Phe Ser Arg Tyr Ile Gly Glu Glu
        755                 760                 765

Glu Ser Ala Lys Leu Gln Glu Asp Met Lys Val Lys Glu His Glu Asp
    770                 775                 780

Lys Asp Asp Ala Ser Gly Arg Ser Ser Pro Cys Leu Ser Thr Ala Ser
785                 790                 795                 800

Gln Met Ser Ser Val Ser Met Ala Ser Gly Ser Val Lys Met Thr Ser
                805                 810                 815

Phe Ala Glu Arg Lys Leu Gln Arg Leu Asn Ser Cys Glu Thr Lys Ser
            820                 825                 830

Ser Thr Ser Ser Ser Gln Lys Thr Thr Pro Asp Ala Ser Glu Ser Cys
        835                 840                 845

Pro Ala Pro Leu Thr Thr Trp Arg Gln Lys Arg Glu Gln Ser Pro Ser
    850                 855                 860

Gln His Gly Lys Asp Pro Ala Ser Leu Leu Ala Ser Glu Leu Val Gln
865                 870                 875                 880

Leu His Met Gln Leu Glu Glu Lys Arg Arg Ala Ile Glu Ala Gln Lys
                885                 890                 895

Lys Lys Met Glu Ala Leu Ser Ala Arg Gln Arg Leu Lys Leu Gly Lys
            900                 905                 910

Ala Ala Phe Leu His Val Val Lys Lys Gly Lys Ala Glu Ala Ala Pro
        915                 920                 925

Pro Leu Arg Pro Glu His Phe Ala Lys Glu Tyr Ser Gln His Asn Gly
    930                 935                 940

Glu Asp Cys Gly Asp Ala Val Ser Lys Thr Glu Asp Phe Leu Val Lys
945                 950                 955                 960

Glu Glu Gln Arg Glu Glu Leu Leu His Glu Pro Gln Asp Val Asp Lys
                965                 970                 975
```

```
Glu Ser Leu Ala Phe Ala Gln Gln His Lys Ala Lys Asp Pro Val Ala
            980                 985                 990

Leu His Glu Leu Glu Arg Asn Lys  Val Ile Ser Ala Ala  Leu Leu
Glu
        995                1000                1005

Asp Thr  Val Gly Glu Val Val  Asp Val Asn Glu Cys  Asp Leu Ser
    1010                1015                1020

Ile Glu  Lys Leu Asn Glu Thr  Ile Ser Thr Leu Gln  Gln Ala Ile
    1025                1030                1035

Leu Lys  Ile Ser Gln Gln Gln  Glu Gln Leu Leu Met  Lys Ser Pro
    1040                1045                1050

Thr Val  Pro Val Pro Gly Ser  Lys Asn Asn Ser Gln  Asp His Lys
    1055                1060                1065

Val Lys  Ala Pro Val His Phe  Val Glu Pro Leu Ser  Pro Thr Gly
    1070                1075                1080

Val Ala  Gly His Arg Lys Ala  Pro Arg Leu Gly Gln  Gly Arg Asn
    1085                1090                1095

Ser Arg  Ser Gly Arg Pro Ala  Glu Leu Lys Val Pro  Lys Asp Arg
    1100                1105                1110

Pro Gln  Gly Ser Ser Arg Ser  Lys Thr Pro Thr Pro  Ser Val Glu
    1115                1120                1125

Thr Leu  Pro His Leu Arg Pro  Phe Pro Ala Ser Ser  His Pro Arg
    1130                1135                1140

Thr Pro  Thr Asp Pro Gly Leu  Asp Ser Ala Leu Glu  Pro Ser Gly
    1145                1150                1155

Asp Pro  His Gly Lys Cys Leu  Phe Asp Ser Tyr Arg  Leu His Asp
    1160                1165                1170

Glu Ser  Asn Gln Arg Thr Leu  Thr Leu Ser Ser Ser  Lys Asp Ala
    1175                1180                1185
```

```
Asn Ile  Leu Ser Glu Gln Met  Ser Leu Lys Glu Val  Leu Asp Ala
    1190                 1195                 1200

Ser Val  Lys Glu Val Gly Ser  Ser Ser Ser Asp Val  Ser Gly Lys
    1205                 1210                 1215

Glu Ser  Val Pro Val Glu Glu  Pro Leu Arg Ser Arg  Ala Ser Leu
    1220                 1225                 1230

Ile Glu  Val Asp Leu Ser Asp  Leu Lys Ala Pro Asp  Glu Asp Gly
    1235                 1240                 1245

Glu Leu  Val Ser Leu Asp Gly  Ser Ala Asp Leu Val  Ser Glu Gly
    1250                 1255                 1260

Asp Gln  Lys Pro Gly Val Gly  Phe Phe Phe Lys Asp  Glu Gln Lys
    1265                 1270                 1275

Ala Glu  Asp Glu Leu Ala Lys  Lys Arg Ala Ala Phe  Leu Leu Lys
    1280                 1285                 1290

Gln Gln  Arg Lys Ala Glu Glu  Ala Arg Val Arg Lys  Gln Gln Leu
    1295                 1300                 1305

Glu Ala  Glu Val Glu Leu Lys  Arg Asp Glu Ala Arg  Arg Lys Ala
    1310                 1315                 1320

Glu Glu  Asp Arg Val Arg Lys  Glu Glu Glu Lys Ala  Arg Arg Glu
    1325                 1330                 1335

Leu Ile  Lys Gln Glu Tyr Leu  Arg Arg Lys Gln Gln  Gln Ile Leu
    1340                 1345                 1350

Glu Glu  Gln Gly Leu Gly Lys  Pro Lys Ser Lys Pro  Lys Lys Pro
    1355                 1360                 1365

Arg Pro  Lys Ser Val His Arg  Glu Glu Ser Cys Ser  Asp Ser Gly
    1370                 1375                 1380

Thr Lys  Cys Ser Ser Thr Pro  Asp Asn Leu Ser Arg  Thr Gln Ser
    1385                 1390                 1395

Gly Ser  Ser Leu Ser Leu Ala  Ser Ala Ala Thr Thr  Glu Pro Glu
```

1400 1405 1410

Ser Val His Ser Gly Gly Thr Pro Ser Gln Arg Val Glu Ser Met
1415 1420 1425

Glu Ala Leu Pro Ile Leu Ser Arg Asn Pro Ser Arg Ser Thr Asp
1430 1435 1440

Arg Asp Trp Glu Thr Ala Ser Ala Ala Ser Ser Leu Ala Ser Val
1445 1450 1455

Ala Glu Tyr Thr Gly Pro Lys Leu Phe Lys Glu Pro Ser Ser Lys
1460 1465 1470

Ser Asn Lys Pro Ile Ile His Asn Ala Ile Ser His Cys Cys Leu
1475 1480 1485

Ala Gly Lys Val Asn Glu Pro His Lys Asn Ser Ile Leu Glu Glu
1490 1495 1500

Leu Glu Lys Cys Asp Ala Asn His Tyr Ile Ile Leu Phe Arg Asp
1505 1510 1515

Ala Gly Cys Gln Phe Arg Ala Leu Tyr Cys Tyr Tyr Pro Asp Thr
1520 1525 1530

Glu Glu Ile Tyr Lys Leu Thr Gly Thr Gly Pro Lys Asn Ile Thr
1535 1540 1545

Lys Lys Met Ile Asp Lys Leu Tyr Lys Tyr Ser Ser Asp Arg Lys
1550 1555 1560

Gln Phe Asn Leu Ile Pro Ala Lys Thr Met Ser Val Ser Val Asp
1565 1570 1575

Ala Leu Thr Ile His Asn His Leu Trp Gln Pro Lys Arg Pro Ala
1580 1585 1590

Val Pro Lys Lys Ala Gln Thr Arg Lys
1595 1600

<210> 11057
<211> 1613

<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2186; "

<220>
<221> source
<223> /note="Gene Symbol: CAMSAP1; "

<220>
<221> source
<223> /note="Gene Name: calmodulin regulated spectrin-
associated
prt 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q5T5Y3; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000386420"

<400> 11057
Met Val Asp Ala Ser Gly Arg Ala Ala Ala Glu Gly Trp Arg Lys Met
1 5 10 15

Glu Ala Pro Pro Asp Gly Ala Ala Asp Leu Val Pro Leu Asp Arg Tyr
20 25 30

Asp Ala Ala Arg Ala Lys Ile Ala Ala Asn Leu Gln Trp Ile Cys Ala
35 40 45

Lys Ala Tyr Gly Arg Asp Asn Ile Pro Glu Asp Leu Arg Asp Pro Phe
50 55 60

Tyr Val Asp Gln Tyr Glu Gln Glu His Ile Lys Pro Pro Val Ile Lys
65 70 75 80

Leu Leu Leu Ser Ser Glu Leu Tyr Cys Arg Val Cys Ser Leu Ile Leu
85 90 95

Lys Gly Asp Gln Val Ala Ala Leu Gln Gly His Gln Ser Val Ile Gln
100 105 110

Ala Leu Ser Arg Lys Gly Ile Tyr Val Met Glu Ser Asp Asp Thr Pro
115 120 125

```
Val Thr Glu Ser Asp Leu Ser Arg Ala Pro Ile Lys Met Ser Ala His
    130                 135                 140

Met Ala Met Val Asp Ala Leu Met Met Ala Tyr Thr Val Glu Met Ile
145                 150                 155                 160

Ser Ile Glu Lys Val Val Ala Ser Val Lys Arg Phe Ser Thr Phe Ser
                165                 170                 175

Ala Ser Lys Glu Leu Pro Tyr Asp Leu Glu Asp Ala Met Val Phe Trp
            180                 185                 190

Ile Asn Lys Val Asn Leu Lys Met Arg Glu Ile Thr Glu Lys Glu Val
        195                 200                 205

Lys Leu Lys Gln Gln Leu Leu Glu Ser Pro Ala His Gln Lys Ser Pro
    210                 215                 220

Ser Lys Trp Tyr Trp Lys Leu Val Pro Val Arg Tyr Arg Arg Glu His
225                 230                 235                 240

Leu Ser Ala Arg Gln Ser Pro Tyr Phe Pro Leu Leu Glu Asp Leu Met
                245                 250                 255

Arg Asp Gly Ser Asp Gly Ala Ala Leu Leu Ala Val Ile His Tyr Tyr
            260                 265                 270

Cys Pro Glu Gln Met Lys Leu Asp Asp Ile Cys Leu Lys Glu Val Thr
        275                 280                 285

Ser Met Ala Asp Ser Leu Tyr Asn Ile Arg Leu Leu Arg Glu Phe Ser
    290                 295                 300

Asn Glu Tyr Leu Asn Lys Cys Phe Tyr Leu Thr Leu Glu Asp Met Leu
305                 310                 315                 320

Tyr Ala Pro Leu Val Leu Lys Pro Asn Val Met Val Phe Ile Ala Glu
                325                 330                 335

Leu Phe Trp Trp Phe Glu Asn Val Lys Pro Asp Phe Val Gln Pro Arg
            340                 345                 350
```

```
Asp Val Gln Glu Leu Lys Asp Ala Lys Thr Val Leu His Gln Lys Ser
        355                 360                 365

Ser Arg Pro Pro Val Pro Ile Ser Asn Ala Thr Lys Arg Ser Phe Leu
    370                 375                 380

Gly Ser Pro Ala Ala Gly Thr Leu Ala Glu Leu Gln Pro Pro Val Gln
385                 390                 395                 400

Leu Pro Ala Glu Gly Cys His Arg His Tyr Leu His Pro Glu Glu Pro
                405                 410                 415

Glu Tyr Leu Gly Lys Gly Thr Ala Ala Phe Ser Pro Ser His Pro Leu
            420                 425                 430

Leu Pro Leu Arg Gln Lys Gln Gln Lys Ser Ile Gln Gly Glu Asp Ile
        435                 440                 445

Pro Asp Gln Arg His Arg Ser Asn Ser Leu Thr Arg Val Asp Gly Gln
    450                 455                 460

Pro Arg Gly Ala Ala Ile Ala Trp Pro Glu Lys Lys Thr Arg Pro Ala
465                 470                 475                 480

Ser Gln Pro Thr Pro Phe Ala Leu His His Ala Ala Ser Cys Glu Val
                485                 490                 495

Asp Pro Ser Ser Gly Asp Ser Ile Ser Leu Ala Arg Ser Ile Ser Lys
            500                 505                 510

Asp Ser Leu Ala Ser Asn Ile Val Asn Leu Thr Pro Gln Asn Gln Pro
        515                 520                 525

His Pro Thr Ala Thr Lys Ser His Gly Lys Ser Leu Leu Ser Asn Val
    530                 535                 540

Ser Ile Glu Asp Glu Glu Glu Glu Leu Val Ala Ile Val Arg Ala Asp
545                 550                 555                 560

Val Val Pro Gln Gln Ala Asp Pro Glu Phe Pro Arg Ala Ser Pro Arg
                565                 570                 575

Ala Leu Gly Leu Thr Ala Asn Ala Arg Ser Pro Gln Gly Gln Leu Asp
```

```
            580                 585                 590

Thr Ser Glu Ser Lys Pro Asp Ser Phe Phe Leu Glu Pro Leu Met Pro
        595                 600                 605

Ala Val Leu Lys Pro Ala Lys Glu Lys Gln Val Ile Thr Lys Glu Asp
    610                 615                 620

Glu Arg Gly Glu Gly Arg Pro Arg Ser Ile Val Ser Arg Arg Pro Ser
625                 630                 635                 640

Glu Gly Pro Gln Pro Leu Val Arg Arg Lys Met Thr Gly Ser Arg Asp
                645                 650                 655

Leu Asn Arg Thr Phe Thr Pro Ile Pro Cys Ser Glu Phe Pro Met Gly
            660                 665                 670

Ile Asp Pro Thr Glu Thr Gly Pro Leu Ser Val Glu Thr Ala Gly Glu
        675                 680                 685

Val Cys Gly Gly Pro Leu Ala Leu Gly Gly Phe Asp Pro Phe Pro Gln
    690                 695                 700

Gly Pro Ser Thr Asp Gly Phe Phe Leu His Val Gly Arg Ala Asp Glu
705                 710                 715                 720

Asp Thr Glu Gly Arg Leu Tyr Val Ser Cys Ser Lys Ser Pro Asn Ser
                725                 730                 735

His Asp Ser Glu Pro Trp Thr Leu Leu Arg Gln Asp Ser Asp Ser Asp
            740                 745                 750

Val Val Asp Ile Glu Glu Ala Glu His Asp Phe Met Gly Glu Ala His
        755                 760                 765

Pro Val Val Phe Ser Arg Tyr Ile Gly Glu Glu Glu Ser Ala Lys Leu
    770                 775                 780

Gln Glu Asp Met Lys Val Lys Glu His Glu Asp Lys Asp Asp Ala Ser
785                 790                 795                 800

Gly Arg Ser Ser Pro Cys Leu Ser Thr Ala Ser Gln Met Ser Ser Val
                805                 810                 815
```

```
Ser Met Ala Ser Gly Ser Val Lys Met Thr Ser Phe Ala Glu Arg Lys
            820                 825                 830

Leu Gln Arg Leu Asn Ser Cys Glu Thr Lys Ser Ser Thr Ser Ser Ser
        835                 840                 845

Gln Lys Thr Thr Pro Asp Ala Ser Glu Ser Cys Pro Ala Pro Leu Thr
    850                 855                 860

Thr Trp Arg Gln Lys Arg Glu Gln Ser Pro Ser Gln His Gly Lys Asp
865                 870                 875                 880

Pro Ala Ser Leu Leu Ala Ser Glu Leu Val Gln Leu His Met Gln Leu
                885                 890                 895

Glu Glu Lys Arg Arg Ala Ile Glu Ala Gln Lys Lys Lys Met Glu Ala
            900                 905                 910

Leu Ser Ala Arg Gln Arg Leu Lys Leu Gly Lys Ala Ala Phe Leu His
        915                 920                 925

Val Val Lys Lys Gly Lys Ala Glu Ala Ala Pro Pro Leu Arg Pro Glu
    930                 935                 940

His Phe Ala Lys Glu Tyr Ser Gln His Asn Gly Glu Asp Cys Gly Asp
945                 950                 955                 960

Ala Val Ser Lys Thr Glu Asp Phe Leu Val Lys Glu Glu Gln Arg Glu
                965                 970                 975

Glu Leu Leu His Glu Pro Gln Asp Val Asp Lys Glu Ser Leu Ala Phe
            980                 985                 990

Ala Gln Gln His Lys Ala Lys Asp  Pro Val Ala Leu His  Glu Leu
Glu
        995                 1000                1005

Arg Asn  Lys Val Ile Ser Ala  Ala Leu Leu Glu Asp  Thr Val Gly
    1010                1015                1020

Glu Val  Val Asp Val Asn Glu  Cys Asp Leu Ser Ile  Glu Lys Leu
    1025                1030                1035
```

```
Asn Glu  Thr Ile Ser Thr Leu  Gln Gln Ala Ile Leu  Lys Ile Ser
    1040                1045                1050

Gln Gln  Gln Glu Gln Leu Leu  Met Lys Ser Pro Thr  Val Pro Val
    1055                1060                1065

Pro Gly  Ser Lys Asn Asn Ser  Gln Asp His Lys Val  Lys Ala Pro
    1070                1075                1080

Val His  Phe Val Glu Pro Leu  Ser Pro Thr Gly Val  Ala Gly His
    1085                1090                1095

Arg Lys  Ala Pro Arg Leu Gly  Gln Gly Arg Asn Ser  Arg Ser Gly
    1100                1105                1110

Arg Pro  Ala Glu Leu Lys Val  Pro Lys Asp Arg Pro  Gln Gly Ser
    1115                1120                1125

Ser Arg  Ser Lys Thr Pro Thr  Pro Ser Val Glu Thr  Leu Pro His
    1130                1135                1140

Leu Arg  Pro Phe Pro Ala Ser  Ser His Pro Arg Thr  Pro Thr Asp
    1145                1150                1155

Pro Gly  Leu Asp Ser Ala Leu  Glu Pro Ser Gly Asp  Pro His Gly
    1160                1165                1170

Lys Cys  Leu Phe Asp Ser Tyr  Arg Leu His Asp Glu  Ser Asn Gln
    1175                1180                1185

Arg Thr  Leu Thr Leu Ser Ser  Ser Lys Asp Ala Asn  Ile Leu Ser
    1190                1195                1200

Glu Gln  Met Ser Leu Lys Glu  Val Leu Asp Ala Ser  Val Lys Glu
    1205                1210                1215

Val Gly  Ser Ser Ser Ser Asp  Val Ser Gly Lys Glu  Ser Val Pro
    1220                1225                1230

Val Glu  Glu Pro Leu Arg Ser  Arg Ala Ser Leu Ile  Glu Val Asp
    1235                1240                1245
```

```
Leu Ser  Asp Leu Lys Ala Pro  Asp Glu Asp Gly Glu  Leu Val Ser
    1250                1255                1260

Leu Asp  Gly Ser Ala Asp Leu  Val Ser Glu Gly Asp  Gln Lys Pro
    1265                1270                1275

Gly Val  Gly Phe Phe Phe Lys  Asp Glu Gln Lys Ala  Glu Asp Glu
    1280                1285                1290

Leu Ala  Lys Lys Arg Ala Ala  Phe Leu Leu Lys Gln  Gln Arg Lys
    1295                1300                1305

Ala Glu  Glu Ala Arg Val Arg  Lys Gln Gln Leu Glu  Ala Glu Val
    1310                1315                1320

Glu Leu  Lys Arg Asp Glu Ala  Arg Arg Lys Ala Glu  Glu Asp Arg
    1325                1330                1335

Val Arg  Lys Glu Glu Glu Lys  Ala Arg Arg Glu Leu  Ile Lys Gln
    1340                1345                1350

Glu Tyr  Leu Arg Arg Lys Gln  Gln Gln Ile Leu Glu  Glu Gln Gly
    1355                1360                1365

Leu Gly  Lys Pro Lys Ser Lys  Pro Lys Lys Pro Arg  Pro Lys Ser
    1370                1375                1380

Val His  Arg Glu Glu Ser Cys  Ser Asp Ser Gly Thr  Lys Cys Ser
    1385                1390                1395

Ser Thr  Pro Asp Asn Leu Ser  Arg Thr Gln Ser Gly  Ser Ser Leu
    1400                1405                1410

Ser Leu  Ala Ser Ala Ala Thr  Thr Glu Pro Glu Ser  Val His Ser
    1415                1420                1425

Gly Gly  Thr Pro Ser Gln Arg  Val Glu Ser Met Glu  Ala Leu Pro
    1430                1435                1440

Ile Leu  Ser Arg Asn Pro Ser  Arg Ser Thr Asp Arg  Asp Trp Glu
    1445                1450                1455
```

```
Thr Ala  Ser Ala Ala Ser Ser  Leu Ala Ser Val Ala  Glu Tyr Thr
    1460                 1465                 1470

Gly Pro  Lys Leu Phe Lys Glu  Pro Ser Ser Lys Ser  Asn Lys Pro
    1475                 1480                 1485

Ile Ile  His Asn Ala Ile Ser  His Cys Cys Leu Ala  Gly Lys Val
    1490                 1495                 1500

Asn Glu  Pro His Lys Asn Ser  Ile Leu Glu Glu Leu  Glu Lys Cys
    1505                 1510                 1515

Asp Ala  Asn His Tyr Ile Ile  Leu Phe Arg Asp Ala  Gly Cys Gln
    1520                 1525                 1530

Phe Arg  Ala Leu Tyr Cys Tyr  Tyr Pro Asp Thr Glu  Glu Ile Tyr
    1535                 1540                 1545

Lys Leu  Thr Gly Thr Gly Pro  Lys Asn Ile Thr Lys  Lys Met Ile
    1550                 1555                 1560

Asp Lys  Leu Tyr Lys Tyr Ser  Ser Asp Arg Lys Gln  Phe Asn Leu
    1565                 1570                 1575

Ile Pro  Ala Lys Thr Met Ser  Val Ser Val Asp Ala  Leu Thr Ile
    1580                 1585                 1590

His Asn  His Leu Trp Gln Pro  Lys Arg Pro Ala Val  Pro Lys Lys
    1595                 1600                 1605

Ala Gln  Thr Arg Lys
    1610
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<210> 11058
<211> 1489
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAMSAP2; "

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<223> /note="Gene Name: calmodulin regulated spectrin-
associated prt
      family, member 2; "

<220>
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<223> /note="Uniprot ID: Q08AD1; "

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Met Gly Asp Ala Ala Asp Pro Arg Glu Met Arg Lys Thr Phe Ile Val
1   5   10   15

Pro Ala Ile Lys Pro Phe Asp His Tyr Asp Phe Ser Arg Ala Lys Ile
            20   25   30

Ala Cys Asn Leu Ala Trp Leu Val Ala Lys Ala Phe Gly Thr Glu Asn
        35   40   45

Val Pro Glu Glu Leu Gln Glu Pro Phe Tyr Thr Asp Gln Tyr Asp Gln
    50   55   60

Glu His Ile Lys Pro Pro Val Val Asn Leu Leu Leu Ser Ala Glu Leu
65   70   75   80

Tyr Cys Arg Ala Gly Ser Leu Ile Leu Lys Ser Asp Ala Ala Lys Pro
                85   90   95

Leu Leu Gly His Asp Ala Val Ile Gln Ala Leu Ala Gln Lys Gly Leu
            100   105   110

Tyr Val Thr Asp Gln Glu Lys Leu Val Thr Glu Arg Asp Leu His Lys
        115   120   125

Lys Pro Ile Gln Met Ser Ala His Leu Ala Met Ile Asp Thr Leu Met
    130   135   140

Met Ala Tyr Thr Val Glu Met Val Ser Ile Glu Lys Val Ile Ala Cys
145   150   155   160

Ala Gln Gln Tyr Ser Ala Phe Phe Gln Ala Thr Asp Leu Pro Tyr Asp
                165   170   175

```
Ile Glu Asp Ala Val Met Tyr Trp Ile Asn Lys Val Asn Glu His Leu
            180                 185                 190

Lys Asp Ile Met Glu Gln Glu Gln Lys Leu Lys Glu His His Thr Val
        195                 200                 205

Glu Ala Pro Gly Gly Gln Lys Ser Pro Ser Lys Trp Phe Trp Lys Leu
    210                 215                 220

Val Pro Ala Arg Tyr Arg Lys Glu Gln Thr Leu Leu Lys Gln Leu Pro
225                 230                 235                 240

Cys Ile Pro Leu Val Glu Asn Leu Leu Lys Asp Gly Thr Asp Gly Cys
                245                 250                 255

Ala Leu Ala Ala Leu Ile His Phe Tyr Cys Pro Asp Val Val Arg Leu
            260                 265                 270

Glu Asp Ile Cys Leu Lys Glu Thr Met Ser Leu Ala Asp Ser Leu Tyr
        275                 280                 285

Asn Leu Gln Leu Ile Gln Glu Phe Cys Gln Glu Tyr Leu Asn Gln Cys
    290                 295                 300

Cys His Phe Thr Leu Glu Asp Met Leu Tyr Ala Ala Ser Ser Ile Lys
305                 310                 315                 320

Ser Asn Tyr Leu Val Phe Met Ala Glu Leu Phe Trp Trp Phe Glu Val
                325                 330                 335

Val Lys Pro Ser Phe Val Gln Pro Arg Val Val Arg Pro Gln Gly Ala
            340                 345                 350

Glu Pro Val Lys Asp Met Pro Ser Ile Pro Val Leu Asn Ala Ala Lys
        355                 360                 365

Arg Asn Val Leu Asp Ser Ser Ser Asp Phe Pro Ser Ser Gly Glu Gly
    370                 375                 380

Ala Thr Phe Thr Gln Ser His His His Leu Pro Ser Arg Tyr Ser Arg
385                 390                 395                 400
```

```
Pro Gln Ala His Ser Ser Ala Ser Gly Gly Ile Arg Arg Ser Ser Ser
                405                 410                 415

Met Ser Tyr Val Asp Gly Phe Ile Gly Thr Trp Pro Lys Glu Lys Arg
            420                 425                 430

Ser Ser Val His Gly Val Ser Phe Asp Ile Ser Phe Asp Lys Glu Asp
        435                 440                 445

Ser Val Gln Arg Ser Thr Pro Asn Arg Gly Ile Thr Arg Ser Ile Ser
    450                 455                 460

Asn Glu Gly Leu Thr Leu Asn Asn Ser His Val Ser Lys His Ile Arg
465                 470                 475                 480

Lys Asn Leu Ser Phe Lys Pro Ile Asn Gly Glu Glu Glu Ala Glu Ser
                485                 490                 495

Ile Glu Glu Glu Leu Asn Ile Asp Ser His Ser Asp Leu Lys Ser Cys
            500                 505                 510

Val Pro Leu Asn Thr Asn Glu Leu Asn Ser Asn Glu Asn Ile His Tyr
        515                 520                 525

Lys Leu Pro Asn Gly Ala Leu Gln Asn Arg Ile Leu Leu Asp Glu Phe
    530                 535                 540

Gly Asn Gln Ile Glu Thr Pro Ser Ile Glu Glu Ala Leu Gln Ile Ile
545                 550                 555                 560

His Asp Thr Glu Lys Ser Pro His Thr Pro Gln Pro Asp Gln Ile Ala
                565                 570                 575

Asn Gly Phe Phe Leu His Ser Gln Glu Met Ser Ile Leu Asn Ser Asn
            580                 585                 590

Ile Lys Leu Asn Gln Ser Ser Pro Asp Asn Val Thr Asp Thr Lys Gly
        595                 600                 605

Ala Leu Ser Pro Ile Thr Asp Asn Thr Glu Val Asp Thr Gly Ile His
    610                 615                 620
```

```
Val Pro Ser Glu Asp Ile Pro Glu Thr Met Asp Glu Asp Ser Ser Leu
625                 630                 635                 640

Arg Asp Tyr Thr Val Ser Leu Asp Ser Asp Met Asp Asp Ala Ser Lys
                645                 650                 655

Phe Leu Gln Asp Tyr Asp Ile Arg Thr Gly Asn Thr Arg Glu Ala Leu
            660                 665                 670

Ser Pro Cys Pro Ser Thr Val Ser Thr Lys Ser Gln Pro Gly Ser Ser
        675                 680                 685

Ala Ser Ser Ser Ser Gly Val Lys Met Thr Ser Phe Ala Glu Gln Lys
    690                 695                 700

Phe Arg Lys Leu Asn His Thr Asp Gly Lys Ser Ser Gly Ser Ser Ser
705                 710                 715                 720

Gln Lys Thr Thr Pro Glu Gly Ser Glu Leu Asn Ile Pro His Val Val
                725                 730                 735

Ala Trp Ala Gln Ile Pro Glu Glu Thr Gly Leu Pro Gln Gly Arg Asp
            740                 745                 750

Thr Thr Gln Leu Leu Ala Ser Glu Met Val His Leu Arg Met Lys Leu
        755                 760                 765

Glu Glu Lys Arg Arg Ala Ile Glu Ala Gln Lys Lys Lys Met Glu Ala
    770                 775                 780

Ala Phe Thr Lys Gln Arg Gln Lys Met Gly Arg Thr Ala Phe Leu Thr
785                 790                 795                 800

Val Val Lys Lys Lys Gly Asp Gly Ile Ser Pro Leu Arg Glu Glu Ala
                805                 810                 815

Ala Gly Ala Glu Asp Glu Lys Val Tyr Thr Asp Arg Ala Lys Glu Lys
            820                 825                 830

Glu Ser Gln Lys Thr Asp Gly Gln Arg Ser Lys Ser Leu Ala Asp Ile
        835                 840                 845

Lys Glu Ser Met Glu Asn Pro Gln Ala Lys Trp Leu Lys Ser Pro Thr
```

```
    850                 855                 860

Thr Pro Ile Asp Pro Glu Lys Gln Trp Asn Leu Ala Ser Pro Ser Glu
865                 870                 875                 880

Glu Thr Leu Asn Glu Gly Glu Ile Leu Glu Tyr Thr Lys Ser Ile Glu
                885                 890                 895

Lys Leu Asn Ser Ser Leu His Phe Leu Gln Gln Glu Met Gln Arg Leu
            900                 905                 910

Ser Leu Gln Gln Glu Met Leu Met Gln Met Arg Glu Gln Gln Ser Trp
        915                 920                 925

Val Ile Ser Pro Pro Gln Pro Ser Pro Gln Lys Gln Ile Arg Asp Phe
    930                 935                 940

Lys Pro Ser Lys Gln Ala Gly Leu Ser Ser Ala Ile Ala Pro Phe Ser
945                 950                 955                 960

Ser Asp Ser Pro Arg Pro Thr His Pro Ser Pro Gln Ser Ser Asn Arg
                965                 970                 975

Lys Ser Ala Ser Phe Ser Val Lys Ser Gln Arg Thr Pro Arg Pro Asn
            980                 985                 990

Glu Leu Lys Ile Thr Pro Leu Asn  Arg Thr Leu Thr Pro  Pro Arg
Ser
        995                 1000                1005

Val Asp  Ser Leu Pro Arg Leu  Arg Arg Phe Ser Pro  Ser Gln Val
    1010                1015                1020

Pro Ile  Gln Thr Arg Ser Phe  Val Cys Phe Gly Asp  Asp Gly Glu
    1025                1030                1035

Pro Gln  Leu Lys Glu Ser Lys  Pro Lys Glu Glu Val  Lys Lys Glu
    1040                1045                1050

Glu Leu  Glu Ser Lys Gly Thr  Leu Glu Gln Arg Gly  His Asn Pro
    1055                1060                1065

Glu Glu  Lys Glu Ile Lys Pro  Phe Glu Ser Thr Val  Ser Glu Val
```

1070 1075 1080

Leu Ser Leu Pro Val Thr Glu Thr Val Cys Leu Thr Pro Asn Glu
1085 1090 1095

Asp Gln Leu Asn Gln Pro Thr Glu Pro Pro Pro Lys Pro Val Phe
1100 1105 1110

Pro Pro Thr Ala Pro Lys Asn Val Asn Leu Ile Glu Val Ser Leu
1115 1120 1125

Ser Asp Leu Lys Pro Pro Glu Lys Ala Asp Val Pro Val Glu Lys
1130 1135 1140

Tyr Asp Gly Glu Ser Asp Lys Glu Gln Phe Asp Asp Asp Gln Lys
1145 1150 1155

Val Cys Cys Gly Phe Phe Phe Lys Asp Asp Gln Lys Ala Glu Asn
1160 1165 1170

Asp Met Ala Met Lys Arg Ala Ala Leu Leu Glu Lys Arg Leu Arg
1175 1180 1185

Arg Glu Lys Glu Thr Gln Leu Arg Lys Gln Gln Leu Glu Ala Glu
1190 1195 1200

Met Glu His Lys Lys Glu Glu Thr Arg Arg Lys Thr Glu Glu Glu
1205 1210 1215

Arg Gln Lys Lys Glu Asp Glu Arg Ala Arg Arg Glu Phe Ile Arg
1220 1225 1230

Gln Glu Tyr Met Arg Arg Lys Gln Leu Lys Leu Met Glu Asp Met
1235 1240 1245

Asp Thr Val Ile Lys Pro Arg Pro Gln Val Val Lys Gln Lys Lys
1250 1255 1260

Gln Arg Pro Lys Ser Ile His Arg Asp His Ile Glu Ser Pro Lys
1265 1270 1275

Thr Pro Ile Lys Gly Pro Pro Val Ser Ser Leu Ser Leu Ala Ser
1280 1285 1290

```
Leu Asn  Thr Gly Asp Asn Glu  Ser Val His Ser Gly  Lys Arg Thr
    1295                1300                1305

Pro Arg  Ser Glu Ser Val Glu  Gly Phe Leu Ser Pro  Ser Arg Cys
    1310                1315                1320

Gly Ser  Arg Asn Gly Glu Lys  Asp Trp Glu Asn Ala  Ser Thr Thr
    1325                1330                1335

Ser Ser  Val Ala Ser Gly Thr  Glu Tyr Thr Gly Pro  Lys Leu Tyr
    1340                1345                1350

Lys Glu  Pro Ser Ala Lys Ser  Asn Lys His Ile Ile  Gln Asn Ala
    1355                1360                1365

Leu Ala  His Cys Cys Leu Ala  Gly Lys Val Asn Glu  Gly Gln Lys
    1370                1375                1380

Lys Lys  Ile Leu Glu Glu Met  Glu Lys Ser Asp Ala  Asn Asn Phe
    1385                1390                1395

Leu Ile  Leu Phe Arg Asp Ser  Gly Cys Gln Phe Arg  Ser Leu Tyr
    1400                1405                1410

Thr Tyr  Cys Pro Glu Thr Glu  Glu Ile Asn Lys Leu  Thr Gly Ile
    1415                1420                1425

Gly Pro  Lys Ser Ile Thr Lys  Lys Met Ile Glu Gly  Leu Tyr Lys
    1430                1435                1440

Tyr Asn  Ser Asp Arg Lys Gln  Phe Ser His Ile Pro  Ala Lys Thr
    1445                1450                1455

Leu Ser  Ala Ser Val Asp Ala  Ile Thr Ile His Ser  His Leu Trp
    1460                1465                1470

Gln Thr  Lys Arg Pro Val Thr  Pro Lys Lys Leu Leu  Pro Thr Lys
    1475                1480                1485

Ala
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<210> 11059
<211> 1478
<212> PRT
<213> Homo sapiens

<220>
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<221> source
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family, member 2; "

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Met Gly Asp Ala Ala Asp Pro Arg Glu Met Arg Lys Thr Phe Ile Val
1 5 10 15

Pro Ala Ile Lys Pro Phe Asp His Tyr Asp Phe Ser Arg Ala Lys Ile
20 25 30

Ala Cys Asn Leu Ala Trp Leu Val Ala Lys Ala Phe Gly Thr Glu Asn
35 40 45

Val Pro Glu Glu Leu Gln Glu Pro Phe Tyr Thr Asp Gln Tyr Asp Gln
50 55 60

Glu His Ile Lys Pro Pro Val Val Asn Leu Leu Leu Ser Ala Glu Leu
65 70 75 80

Tyr Cys Arg Ala Gly Ser Leu Ile Leu Lys Ser Asp Ala Ala Lys Pro
85 90 95

Leu Leu Gly His Asp Ala Val Ile Gln Ala Leu Ala Gln Lys Gly Leu
100 105 110

```
Tyr Val Thr Asp Gln Glu Lys Leu Val Thr Glu Arg Asp Leu His Lys
        115                 120                 125

Lys Pro Ile Gln Met Ser Ala His Leu Ala Met Ile Asp Thr Leu Met
    130                 135                 140

Met Ala Tyr Thr Val Glu Met Val Ser Ile Glu Lys Val Ile Ala Cys
145                 150                 155                 160

Ala Gln Gln Tyr Ser Ala Phe Phe Gln Ala Thr Asp Leu Pro Tyr Asp
                165                 170                 175

Ile Glu Asp Ala Val Met Tyr Trp Ile Asn Lys Val Asn Glu His Leu
            180                 185                 190

Lys Asp Ile Met Glu Gln Glu Gln Lys Leu Lys Glu His His Thr Val
        195                 200                 205

Glu Ala Pro Gly Gly Gln Lys Ala Arg Tyr Arg Lys Glu Gln Thr Leu
    210                 215                 220

Leu Lys Gln Leu Pro Cys Ile Pro Leu Val Glu Asn Leu Leu Lys Asp
225                 230                 235                 240

Gly Thr Asp Gly Cys Ala Leu Ala Ala Leu Ile His Phe Tyr Cys Pro
                245                 250                 255

Asp Val Val Arg Leu Glu Asp Ile Cys Leu Lys Glu Thr Met Ser Leu
            260                 265                 270

Ala Asp Ser Leu Tyr Asn Leu Gln Leu Ile Gln Glu Phe Cys Gln Glu
        275                 280                 285

Tyr Leu Asn Gln Cys Cys His Phe Thr Leu Glu Asp Met Leu Tyr Ala
    290                 295                 300

Ala Ser Ser Ile Lys Ser Asn Tyr Leu Val Phe Met Ala Glu Leu Phe
305                 310                 315                 320

Trp Trp Phe Glu Val Val Lys Pro Ser Phe Val Gln Pro Arg Val Val
                325                 330                 335

Arg Pro Gln Gly Ala Glu Pro Val Lys Asp Met Pro Ser Ile Pro Val
```

```
            340                 345                 350

Leu Asn Ala Ala Lys Arg Asn Val Leu Asp Ser Ser Ser Asp Phe Pro
        355                 360                 365

Ser Ser Gly Glu Gly Ala Thr Phe Thr Gln Ser His His His Leu Pro
    370                 375                 380

Ser Arg Tyr Ser Arg Pro Gln Ala His Ser Ser Ala Ser Gly Gly Ile
385                 390                 395                 400

Arg Arg Ser Ser Ser Met Ser Tyr Val Asp Gly Phe Ile Gly Thr Trp
                405                 410                 415

Pro Lys Glu Lys Arg Ser Ser Val His Gly Val Ser Phe Asp Ile Ser
            420                 425                 430

Phe Asp Lys Glu Asp Ser Val Gln Arg Ser Thr Pro Asn Arg Gly Ile
        435                 440                 445

Thr Arg Ser Ile Ser Asn Glu Gly Leu Thr Leu Asn Asn Ser His Val
    450                 455                 460

Ser Lys His Ile Arg Lys Asn Leu Ser Phe Lys Pro Ile Asn Gly Glu
465                 470                 475                 480

Glu Glu Ala Glu Ser Ile Glu Glu Glu Leu Asn Ile Asp Ser His Ser
                485                 490                 495

Asp Leu Lys Ser Cys Val Pro Leu Asn Thr Asn Glu Leu Asn Ser Asn
            500                 505                 510

Glu Asn Ile His Tyr Lys Leu Pro Asn Gly Ala Leu Gln Asn Arg Ile
        515                 520                 525

Leu Leu Asp Glu Phe Gly Asn Gln Ile Glu Thr Pro Ser Ile Glu Glu
    530                 535                 540

Ala Leu Gln Ile Ile His Asp Thr Glu Lys Ser Pro His Thr Pro Gln
545                 550                 555                 560

Pro Asp Gln Ile Ala Asn Gly Phe Phe Leu His Ser Gln Glu Met Ser
                565                 570                 575
```

```
Ile Leu Asn Ser Asn Ile Lys Leu Asn Gln Ser Ser Pro Asp Asn Val
            580                 585                 590

Thr Asp Thr Lys Gly Ala Leu Ser Pro Ile Thr Asp Asn Thr Glu Val
        595                 600                 605

Asp Thr Gly Ile His Val Pro Ser Glu Asp Ile Pro Glu Thr Met Asp
    610                 615                 620

Glu Asp Ser Ser Leu Arg Asp Tyr Thr Val Ser Leu Asp Ser Asp Met
625                 630                 635                 640

Asp Asp Ala Ser Lys Phe Leu Gln Asp Tyr Asp Ile Arg Thr Gly Asn
                645                 650                 655

Thr Arg Glu Ala Leu Ser Pro Cys Pro Ser Thr Val Ser Thr Lys Ser
            660                 665                 670

Gln Pro Gly Ser Ser Ala Ser Ser Ser Ser Gly Val Lys Met Thr Ser
        675                 680                 685

Phe Ala Glu Gln Lys Phe Arg Lys Leu Asn His Thr Asp Gly Lys Ser
    690                 695                 700

Ser Gly Ser Ser Ser Gln Lys Thr Thr Pro Glu Gly Ser Glu Leu Asn
705                 710                 715                 720

Ile Pro His Val Val Ala Trp Ala Gln Ile Pro Glu Glu Thr Gly Leu
                725                 730                 735

Pro Gln Gly Arg Asp Thr Thr Gln Leu Leu Ala Ser Glu Met Val His
            740                 745                 750

Leu Arg Met Lys Leu Glu Glu Lys Arg Arg Ala Ile Glu Ala Gln Lys
        755                 760                 765

Lys Lys Met Glu Ala Ala Phe Thr Lys Gln Arg Gln Lys Met Gly Arg
    770                 775                 780

Thr Ala Phe Leu Thr Val Val Lys Lys Lys Gly Asp Gly Ile Ser Pro
785                 790                 795                 800
```

```
Leu Arg Glu Glu Ala Ala Gly Ala Glu Asp Glu Lys Val Tyr Thr Asp
                805                 810                 815

Arg Ala Lys Glu Lys Glu Ser Gln Lys Thr Asp Gly Gln Arg Ser Lys
            820                 825                 830

Ser Leu Ala Asp Ile Lys Glu Ser Met Glu Asn Pro Gln Ala Lys Trp
        835                 840                 845

Leu Lys Ser Pro Thr Thr Pro Ile Asp Pro Glu Lys Gln Trp Asn Leu
    850                 855                 860

Ala Ser Pro Ser Glu Glu Thr Leu Asn Glu Gly Glu Ile Leu Glu Tyr
865                 870                 875                 880

Thr Lys Ser Ile Glu Lys Leu Asn Ser Ser Leu His Phe Leu Gln Gln
                885                 890                 895

Glu Met Gln Arg Leu Ser Leu Gln Gln Glu Met Leu Met Gln Met Arg
            900                 905                 910

Glu Gln Gln Ser Trp Val Ile Ser Pro Pro Gln Pro Ser Pro Gln Lys
        915                 920                 925

Gln Ile Arg Asp Phe Lys Pro Ser Lys Gln Ala Gly Leu Ser Ser Ala
    930                 935                 940

Ile Ala Pro Phe Ser Ser Asp Ser Pro Arg Pro Thr His Pro Ser Pro
945                 950                 955                 960

Gln Ser Ser Asn Arg Lys Ser Ala Ser Phe Ser Val Lys Ser Gln Arg
                965                 970                 975

Thr Pro Arg Pro Asn Glu Leu Lys Ile Thr Pro Leu Asn Arg Thr Leu
            980                 985                 990

Thr Pro Pro Arg Ser Val Asp Ser  Leu Pro Arg Leu Arg  Arg Phe
Ser
        995                 1000                1005

Pro Ser  Gln Val Pro Ile Gln  Thr Arg Ser Phe Val  Cys Phe Gly
    1010                1015                1020
```

```
Asp Asp  Gly Glu Pro Gln Leu  Lys Glu Ser Lys Pro  Lys Glu Glu
    1025                1030                1035

Val Lys  Lys Glu Glu Leu Glu  Ser Lys Gly Thr Leu  Glu Gln Arg
    1040                1045                1050

Gly His  Asn Pro Glu Glu Lys  Glu Ile Lys Pro Phe  Glu Ser Thr
    1055                1060                1065

Val Ser  Glu Val Leu Ser Leu  Pro Val Thr Glu Thr  Val Cys Leu
    1070                1075                1080

Thr Pro  Asn Glu Asp Gln Leu  Asn Gln Pro Thr Glu  Pro Pro Pro
    1085                1090                1095

Lys Pro  Val Phe Pro Pro Thr  Ala Pro Lys Asn Val  Asn Leu Ile
    1100                1105                1110

Glu Val  Ser Leu Ser Asp Leu  Lys Pro Pro Glu Lys  Ala Asp Val
    1115                1120                1125

Pro Val  Glu Lys Tyr Asp Gly  Glu Ser Asp Lys Glu  Gln Phe Asp
    1130                1135                1140

Asp Asp  Gln Lys Val Cys Cys  Gly Phe Phe Phe Lys  Asp Asp Gln
    1145                1150                1155

Lys Ala  Glu Asn Asp Met Ala  Met Lys Arg Ala Ala  Leu Leu Glu
    1160                1165                1170

Lys Arg  Leu Arg Arg Glu Lys  Glu Thr Gln Leu Arg  Lys Gln Gln
    1175                1180                1185

Leu Glu  Ala Glu Met Glu His  Lys Lys Glu Glu Thr  Arg Arg Lys
    1190                1195                1200

Thr Glu  Glu Glu Arg Gln Lys  Lys Glu Asp Glu Arg  Ala Arg Arg
    1205                1210                1215

Glu Phe  Ile Arg Gln Glu Tyr  Met Arg Arg Lys Gln  Leu Lys Leu
    1220                1225                1230
```

Met Glu Asp Met Asp Thr Val Ile Lys Pro Arg Pro Gln Val Val
1235 1240 1245

Lys Gln Lys Lys Gln Arg Pro Lys Ser Ile His Arg Asp His Ile
1250 1255 1260

Glu Ser Pro Lys Thr Pro Ile Lys Gly Pro Pro Val Ser Ser Leu
1265 1270 1275

Ser Leu Ala Ser Leu Asn Thr Gly Asp Asn Glu Ser Val His Ser
1280 1285 1290

Gly Lys Arg Thr Pro Arg Ser Glu Ser Val Glu Gly Phe Leu Ser
1295 1300 1305

Pro Ser Arg Cys Gly Ser Arg Asn Gly Glu Lys Asp Trp Glu Asn
1310 1315 1320

Ala Ser Thr Thr Ser Ser Val Ala Ser Gly Thr Glu Tyr Thr Gly
1325 1330 1335

Pro Lys Leu Tyr Lys Glu Pro Ser Ala Lys Ser Asn Lys His Ile
1340 1345 1350

Ile Gln Asn Ala Leu Ala His Cys Cys Leu Ala Gly Lys Val Asn
1355 1360 1365

Glu Gly Gln Lys Lys Lys Ile Leu Glu Glu Met Glu Lys Ser Asp
1370 1375 1380

Ala Asn Asn Phe Leu Ile Leu Phe Arg Asp Ser Gly Cys Gln Phe
1385 1390 1395

Arg Ser Leu Tyr Thr Tyr Cys Pro Glu Thr Glu Glu Ile Asn Lys
1400 1405 1410

Leu Thr Gly Ile Gly Pro Lys Ser Ile Thr Lys Lys Met Ile Glu
1415 1420 1425

Gly Leu Tyr Lys Tyr Asn Ser Asp Arg Lys Gln Phe Ser His Ile
1430 1435 1440

Pro Ala Lys Thr Leu Ser Ala Ser Val Asp Ala Ile Thr Ile His

1445 1450 1455

Ser His Leu Trp Gln Thr Lys Arg Pro Val Thr Pro Lys Lys Leu
1460 1465 1470

Leu Pro Thr Lys Ala
1475

<210> 11060
<211> 133
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Gene Symbol: CAMSAP2; "

<220>
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family, member 2; "

<220>
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<223> /note="ENSP ID: ENSP00000395365"

<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 11060
Xaa Lys Glu Thr Met Ser Leu Ala Asp Ser Leu Tyr Asn Leu Gln Leu
1 5 10 15

Ile Gln Glu Phe Cys Gln Glu Tyr Leu Asn Gln Cys Cys His Phe Thr
20 25 30

Leu Glu Asp Met Leu Tyr Ala Ala Ser Ser Ile Lys Ser Asn Tyr Leu
35 40 45

Val Phe Met Ala Glu Leu Phe Trp Trp Phe Glu Val Val Lys Pro Ser
50 55 60

```
Phe Val Gln Pro Arg Val Val Arg Pro Gln Gly Ala Glu Pro Val Lys
65                  70                  75                  80

Asp Met Pro Ser Ile Pro Val Leu Asn Ala Ala Lys Arg Asn Val Leu
                85                  90                  95

Asp Ser Ser Ser Asp Phe Pro Ser Ser Gly Glu Gly Ala Thr Phe Thr
            100                 105                 110

Gln Ser His His His Leu Pro Ser Arg Tyr Ser Arg Pro Gln Ala His
        115                 120                 125

Ser Ser Ala Ser Gly
    130


<210> 11061
<211> 1462
<212> PRT
<213> Homo sapiens

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<220>
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<223> /note="Uniprot ID:  Q08AD1; "

<220>
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<400> 11061
Met Gly Asp Ala Ala Asp Pro Arg Glu Met Arg Lys Thr Phe Ile Val
1               5                   10                  15

Pro Ala Ile Lys Pro Phe Asp His Tyr Asp Phe Ser Arg Ala Lys Ile
            20                  25                  30

Ala Cys Asn Leu Ala Trp Leu Val Ala Lys Ala Phe Gly Thr Glu Asn
```

```
        35                  40                  45

Val Pro Glu Glu Leu Gln Glu Pro Phe Tyr Thr Asp Gln Tyr Asp Gln
    50                  55                  60

Glu His Ile Lys Pro Pro Val Val Asn Leu Leu Leu Ser Ala Glu Leu
65                  70                  75                  80

Tyr Cys Arg Ala Gly Ser Leu Ile Leu Lys Ser Asp Ala Ala Lys Pro
                85                  90                  95

Leu Leu Gly His Asp Ala Val Ile Gln Ala Leu Ala Gln Lys Gly Leu
            100                 105                 110

Tyr Val Thr Asp Gln Glu Lys Leu Val Thr Glu Arg Asp Leu His Lys
        115                 120                 125

Lys Pro Ile Gln Met Ser Ala His Leu Ala Met Ile Asp Thr Leu Met
    130                 135                 140

Met Ala Tyr Thr Val Glu Met Val Ser Ile Glu Lys Val Ile Ala Cys
145                 150                 155                 160

Ala Gln Gln Tyr Ser Ala Phe Phe Gln Ala Thr Asp Leu Pro Tyr Asp
                165                 170                 175

Ile Glu Asp Ala Val Met Tyr Trp Ile Asn Lys Val Asn Glu His Leu
            180                 185                 190

Lys Asp Ile Met Glu Gln Glu Gln Lys Leu Lys Glu His His Thr Val
        195                 200                 205

Glu Ala Pro Gly Gly Gln Lys Ala Arg Tyr Arg Lys Glu Gln Thr Leu
    210                 215                 220

Leu Lys Gln Leu Pro Cys Ile Pro Leu Val Glu Asn Leu Leu Lys Asp
225                 230                 235                 240

Gly Thr Asp Gly Cys Ala Leu Ala Ala Leu Ile His Phe Tyr Cys Pro
                245                 250                 255

Asp Val Val Arg Leu Glu Asp Ile Cys Leu Lys Glu Thr Met Ser Leu
            260                 265                 270
```

```
Ala Asp Ser Leu Tyr Asn Leu Gln Leu Ile Gln Glu Phe Cys Gln Glu
        275                 280                 285

Tyr Leu Asn Gln Cys Cys His Phe Thr Leu Glu Asp Met Leu Tyr Ala
    290                 295                 300

Ala Ser Ser Ile Lys Ser Asn Tyr Leu Val Phe Met Ala Glu Leu Phe
305                 310                 315                 320

Trp Trp Phe Glu Val Val Lys Pro Ser Phe Val Gln Pro Arg Val Val
                325                 330                 335

Arg Pro Gln Gly Ala Glu Pro Val Lys Asp Met Pro Ser Ile Pro Val
            340                 345                 350

Leu Asn Ala Ala Lys Arg Asn Val Leu Asp Ser Ser Ser Asp Phe Pro
        355                 360                 365

Ser Arg Tyr Ser Arg Pro Gln Ala His Ser Ser Ala Ser Gly Gly Ile
    370                 375                 380

Arg Arg Ser Ser Ser Met Ser Tyr Val Asp Gly Phe Ile Gly Thr Trp
385                 390                 395                 400

Pro Lys Glu Lys Arg Ser Ser Val His Gly Val Ser Phe Asp Ile Ser
                405                 410                 415

Phe Asp Lys Glu Asp Ser Val Gln Arg Ser Thr Pro Asn Arg Gly Ile
            420                 425                 430

Thr Arg Ser Ile Ser Asn Glu Gly Leu Thr Leu Asn Asn Ser His Val
        435                 440                 445

Ser Lys His Ile Arg Lys Asn Leu Ser Phe Lys Pro Ile Asn Gly Glu
    450                 455                 460

Glu Glu Ala Glu Ser Ile Glu Glu Glu Leu Asn Ile Asp Ser His Ser
465                 470                 475                 480

Asp Leu Lys Ser Cys Val Pro Leu Asn Thr Asn Glu Leu Asn Ser Asn
                485                 490                 495
```

```
Glu Asn Ile His Tyr Lys Leu Pro Asn Gly Ala Leu Gln Asn Arg Ile
            500                 505                 510

Leu Leu Asp Glu Phe Gly Asn Gln Ile Glu Thr Pro Ser Ile Glu Glu
        515                 520                 525

Ala Leu Gln Ile Ile His Asp Thr Glu Lys Ser Pro His Thr Pro Gln
    530                 535                 540

Pro Asp Gln Ile Ala Asn Gly Phe Phe Leu His Ser Gln Glu Met Ser
545                 550                 555                 560

Ile Leu Asn Ser Asn Ile Lys Leu Asn Gln Ser Ser Pro Asp Asn Val
                565                 570                 575

Thr Asp Thr Lys Gly Ala Leu Ser Pro Ile Thr Asp Asn Thr Glu Val
            580                 585                 590

Asp Thr Gly Ile His Val Pro Ser Glu Asp Ile Pro Glu Thr Met Asp
        595                 600                 605

Glu Asp Ser Ser Leu Arg Asp Tyr Thr Val Ser Leu Asp Ser Asp Met
    610                 615                 620

Asp Asp Ala Ser Lys Phe Leu Gln Asp Tyr Asp Ile Arg Thr Gly Asn
625                 630                 635                 640

Thr Arg Glu Ala Leu Ser Pro Cys Pro Ser Thr Val Ser Thr Lys Ser
                645                 650                 655

Gln Pro Gly Ser Ser Ala Ser Ser Ser Ser Gly Val Lys Met Thr Ser
            660                 665                 670

Phe Ala Glu Gln Lys Phe Arg Lys Leu Asn His Thr Asp Gly Lys Ser
        675                 680                 685

Ser Gly Ser Ser Ser Gln Lys Thr Thr Pro Glu Gly Ser Glu Leu Asn
    690                 695                 700

Ile Pro His Val Val Ala Trp Ala Gln Ile Pro Glu Glu Thr Gly Leu
705                 710                 715                 720
```

```
Pro Gln Gly Arg Asp Thr Thr Gln Leu Leu Ala Ser Glu Met Val His
                725                 730                 735

Leu Arg Met Lys Leu Glu Glu Lys Arg Arg Ala Ile Glu Ala Gln Lys
            740                 745                 750

Lys Lys Met Glu Ala Ala Phe Thr Lys Gln Arg Gln Lys Met Gly Arg
        755                 760                 765

Thr Ala Phe Leu Thr Val Val Lys Lys Lys Gly Asp Gly Ile Ser Pro
    770                 775                 780

Leu Arg Glu Glu Ala Ala Gly Ala Glu Asp Glu Lys Val Tyr Thr Asp
785                 790                 795                 800

Arg Ala Lys Glu Lys Glu Ser Gln Lys Thr Asp Gly Gln Arg Ser Lys
                805                 810                 815

Ser Leu Ala Asp Ile Lys Glu Ser Met Glu Asn Pro Gln Ala Lys Trp
            820                 825                 830

Leu Lys Ser Pro Thr Thr Pro Ile Asp Pro Glu Lys Gln Trp Asn Leu
        835                 840                 845

Ala Ser Pro Ser Glu Glu Thr Leu Asn Glu Gly Glu Ile Leu Glu Tyr
    850                 855                 860

Thr Lys Ser Ile Glu Lys Leu Asn Ser Ser Leu His Phe Leu Gln Gln
865                 870                 875                 880

Glu Met Gln Arg Leu Ser Leu Gln Gln Glu Met Leu Met Gln Met Arg
                885                 890                 895

Glu Gln Gln Ser Trp Val Ile Ser Pro Pro Gln Pro Ser Pro Gln Lys
            900                 905                 910

Gln Ile Arg Asp Phe Lys Pro Ser Lys Gln Ala Gly Leu Ser Ser Ala
        915                 920                 925

Ile Ala Pro Phe Ser Ser Asp Ser Pro Arg Pro Thr His Pro Ser Pro
    930                 935                 940

Gln Ser Ser Asn Arg Lys Ser Ala Ser Phe Ser Val Lys Ser Gln Arg
```

945 950 955 960

Thr Pro Arg Pro Asn Glu Leu Lys Ile Thr Pro Leu Asn Arg Thr Leu
965 970 975

Thr Pro Pro Arg Ser Val Asp Ser Leu Pro Arg Leu Arg Arg Phe Ser
980 985 990

Pro Ser Gln Val Pro Ile Gln Thr Arg Ser Phe Val Cys Phe Gly
Asp
995 1000 1005

Asp Gly Glu Pro Gln Leu Lys Glu Ser Lys Pro Lys Glu Glu Val
1010 1015 1020

Lys Lys Glu Glu Leu Glu Ser Lys Gly Thr Leu Glu Gln Arg Gly
1025 1030 1035

His Asn Pro Glu Glu Lys Glu Ile Lys Pro Phe Glu Ser Thr Val
1040 1045 1050

Ser Glu Val Leu Ser Leu Pro Val Thr Glu Thr Val Cys Leu Thr
1055 1060 1065

Pro Asn Glu Asp Gln Leu Asn Gln Pro Thr Glu Pro Pro Pro Lys
1070 1075 1080

Pro Val Phe Pro Pro Thr Ala Pro Lys Asn Val Asn Leu Ile Glu
1085 1090 1095

Val Ser Leu Ser Asp Leu Lys Pro Pro Glu Lys Ala Asp Val Pro
1100 1105 1110

Val Glu Lys Tyr Asp Gly Glu Ser Asp Lys Glu Gln Phe Asp Asp
1115 1120 1125

Asp Gln Lys Val Cys Cys Gly Phe Phe Phe Lys Asp Asp Gln Lys
1130 1135 1140

Ala Glu Asn Asp Met Ala Met Lys Arg Ala Ala Leu Leu Glu Lys
1145 1150 1155

Arg Leu Arg Arg Glu Lys Glu Thr Gln Leu Arg Lys Gln Gln Leu

1160 1165 1170

Glu Ala Glu Met Glu His Lys Lys Glu Glu Thr Arg Arg Lys Thr
1175 1180 1185

Glu Glu Glu Arg Gln Lys Lys Glu Asp Glu Arg Ala Arg Arg Glu
1190 1195 1200

Phe Ile Arg Gln Glu Tyr Met Arg Arg Lys Gln Leu Lys Leu Met
1205 1210 1215

Glu Asp Met Asp Thr Val Ile Lys Pro Arg Pro Gln Val Val Lys
1220 1225 1230

Gln Lys Lys Gln Arg Pro Lys Ser Ile His Arg Asp His Ile Glu
1235 1240 1245

Ser Pro Lys Thr Pro Ile Lys Gly Pro Pro Val Ser Ser Leu Ser
1250 1255 1260

Leu Ala Ser Leu Asn Thr Gly Asp Asn Glu Ser Val His Ser Gly
1265 1270 1275

Lys Arg Thr Pro Arg Ser Glu Ser Val Glu Gly Phe Leu Ser Pro
1280 1285 1290

Ser Arg Cys Gly Ser Arg Asn Gly Glu Lys Asp Trp Glu Asn Ala
1295 1300 1305

Ser Thr Thr Ser Ser Val Ala Ser Gly Thr Glu Tyr Thr Gly Pro
1310 1315 1320

Lys Leu Tyr Lys Glu Pro Ser Ala Lys Ser Asn Lys His Ile Ile
1325 1330 1335

Gln Asn Ala Leu Ala His Cys Cys Leu Ala Gly Lys Val Asn Glu
1340 1345 1350

Gly Gln Lys Lys Lys Ile Leu Glu Glu Met Glu Lys Ser Asp Ala
1355 1360 1365

Asn Asn Phe Leu Ile Leu Phe Arg Asp Ser Gly Cys Gln Phe Arg
1370 1375 1380

Ser Leu Tyr Thr Tyr Cys Pro Glu Thr Glu Glu Ile Asn Lys Leu
1385 1390 1395

Thr Gly Ile Gly Pro Lys Ser Ile Thr Lys Lys Met Ile Glu Gly
1400 1405 1410

Leu Tyr Lys Tyr Asn Ser Asp Arg Lys Gln Phe Ser His Ile Pro
1415 1420 1425

Ala Lys Thr Leu Ser Ala Ser Val Asp Ala Ile Thr Ile His Ser
1430 1435 1440

His Leu Trp Gln Thr Lys Arg Pro Val Thr Pro Lys Lys Leu Leu
1445 1450 1455

Pro Thr Lys Ala
1460

<210> 11062
<211> 56
<212> PRT
<213> Homo sapiens

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<220>
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associated prt
family, member 2; "

<220>
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<220>
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<222> (1)..(1)
<223> Any amino acid

<400> 11062
Xaa Ser Ser Val Ala Ser Gly Thr Glu Tyr Thr Gly Pro Lys Leu Tyr

1 5 10 15

Lys Glu Pro Ser Ala Lys Ser Asn Lys His Ile Ile Gln Asn Ala Leu
20 25 30

Ala His Cys Cys Leu Ala Gly Lys Val Asn Glu Gly Gln Lys Lys Lys
35 40 45

Ile Leu Glu Val Ser Met Phe Ala
50 55

<210> 11063
<211> 1249
<212> PRT
<213> Homo sapiens

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<221> source
<223> /note="Uniprot ID: Q9P1Y5; "

<220>
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<400> 11063
Met Val Glu Ala Ala Pro Pro Gly Pro Gly Pro Leu Arg Arg Thr Phe
1 5 10 15

Leu Val Pro Glu Ile Lys Ser Leu Asp Gln Tyr Asp Phe Ser Arg Ala
20 25 30

Lys Ala Ala Ala Ser Leu Ala Trp Val Leu Arg Ala Ala Phe Gly Gly
35 40 45

Ala Glu His Val Pro Pro Glu Leu Trp Glu Pro Phe Tyr Thr Asp Gln
50 55 60

```
Tyr Ala Gln Glu His Val Lys Pro Pro Val Thr Arg Leu Leu Leu Ser
65                  70                  75                  80

Ala Glu Leu Tyr Cys Arg Ala Trp Arg Gln Ala Leu Pro Gln Leu Glu
                85                  90                  95

Thr Pro Pro Asn Pro Ser Ala Leu Leu Ala Leu Leu Ala Arg Arg Gly
            100                 105                 110

Thr Val Pro Ala Leu Pro Glu Arg Pro Val Arg Glu Ala Asp Leu Arg
        115                 120                 125

His Gln Pro Ile Leu Met Gly Ala His Leu Ala Val Ile Asp Ala Leu
    130                 135                 140

Met Ala Ala Phe Ala Phe Glu Trp Thr Lys Thr Leu Pro Gly Pro Leu
145                 150                 155                 160

Ala Leu Thr Ser Leu Glu His Lys Leu Leu Phe Trp Val Asp Thr Thr
                165                 170                 175

Val Arg Arg Leu Gln Glu Lys Thr Glu Gln Glu Ala Ala Gln Arg Ala
            180                 185                 190

Ser Pro Ala Ala Pro Ala Asp Gly Ala Ala Pro Ala Gln Pro Ser Ile
        195                 200                 205

Arg Tyr Arg Lys Asp Arg Val Val Ala Arg Arg Ala Pro Cys Phe Pro
    210                 215                 220

Thr Val Thr Ser Leu Gln Asp Leu Ala Ser Gly Ala Ala Leu Ala Ala
225                 230                 235                 240

Thr Ile His Cys Tyr Cys Pro Gln Leu Leu Arg Leu Glu Glu Val Cys
                245                 250                 255

Leu Lys Asp Pro Met Ser Val Ala Asp Ser Leu Tyr Asn Leu Gln Leu
            260                 265                 270

Val Gln Asp Phe Cys Ala Ser Arg Leu Pro Arg Gly Cys Pro Leu Ser
        275                 280                 285
```

```
Leu Glu Asp Leu Leu Tyr Val Pro Pro Pro Leu Lys Val Asn Leu Val
    290                 295                 300

Val Met Leu Ala Glu Leu Phe Met Cys Phe Glu Val Leu Lys Pro Asp
305                 310                 315                 320

Phe Val Gln Val Lys Asp Leu Pro Asp Gly His Ala Ala Ser Pro Arg
                325                 330                 335

Gly Thr Glu Ala Ser Pro Pro Gln Asn Asn Ser Gly Ser Ser Ser Pro
            340                 345                 350

Val Phe Thr Phe Arg His Pro Leu Leu Ser Ser Gly Gly Pro Gln Ser
        355                 360                 365

Pro Leu Arg Gly Ser Thr Gly Ser Leu Lys Ser Ser Pro Ser Met Ser
    370                 375                 380

His Met Glu Ala Leu Gly Lys Ala Trp Asn Arg Gln Leu Ser Arg Pro
385                 390                 395                 400

Leu Ser Gln Ala Val Ser Phe Ser Thr Pro Phe Gly Leu Asp Ser Asp
                405                 410                 415

Val Asp Val Val Met Gly Asp Pro Val Leu Leu Arg Ser Val Ser Ser
            420                 425                 430

Asp Ser Leu Gly Pro Pro Arg Pro Ala Pro Ala Arg Thr Pro Thr Gln
        435                 440                 445

Pro Pro Pro Glu Pro Gly Asp Leu Pro Thr Ile Glu Glu Ala Leu Gln
    450                 455                 460

Ile Ile His Ser Ala Glu Pro Arg Leu Leu Pro Asp Gly Ala Ala Asp
465                 470                 475                 480

Gly Ser Phe Tyr Leu His Ser Pro Glu Gly Pro Ser Lys Pro Ser Leu
                485                 490                 495

Ala Ser Pro Tyr Leu Pro Glu Gly Thr Ser Lys Pro Leu Ser Asp Arg
            500                 505                 510
```

```
Pro Thr Lys Ala Pro Val Tyr Met Pro His Pro Glu Thr Pro Ser Lys
        515                 520                 525

Pro Ser Pro Cys Leu Val Gly Glu Ala Ser Lys Pro Pro Ala Pro Ser
    530                 535                 540

Glu Gly Ser Pro Lys Ala Val Ala Ser Ser Pro Ala Ala Thr Asn Ser
545                 550                 555                 560

Glu Val Lys Met Thr Ser Phe Ala Glu Arg Lys Lys Gln Leu Val Lys
                565                 570                 575

Ala Glu Ala Glu Ala Gly Ala Gly Ser Pro Thr Ser Thr Pro Ala Pro
            580                 585                 590

Pro Glu Ala Leu Ser Ser Glu Met Ser Glu Leu Ser Ala Arg Leu Glu
        595                 600                 605

Glu Lys Arg Arg Ala Ile Glu Ala Gln Lys Arg Arg Ile Glu Ala Ile
    610                 615                 620

Phe Ala Lys His Arg Gln Arg Leu Gly Lys Ser Ala Phe Leu Gln Val
625                 630                 635                 640

Gln Pro Arg Glu Ala Ser Gly Glu Ala Glu Ala Glu Ala Glu Glu Ala
                645                 650                 655

Asp Ser Gly Pro Val Pro Gly Gly Glu Arg Pro Ala Gly Glu Gly Gln
            660                 665                 670

Gly Glu Pro Thr Ser Arg Pro Lys Ala Val Thr Phe Ser Pro Asp Leu
        675                 680                 685

Gly Pro Val Pro His Glu Gly Leu Gly Glu Tyr Asn Arg Ala Val Ser
    690                 695                 700

Lys Leu Ser Ala Ala Leu Ser Ser Leu Gln Arg Asp Met Gln Arg Leu
705                 710                 715                 720

Thr Asp Gln Gln Gln Arg Leu Leu Ala Pro Pro Glu Ala Pro Gly Ser
                725                 730                 735

Ala Pro Pro Pro Ala Ala Trp Val Ile Pro Gly Pro Thr Thr Gly Pro
```

740 745 750

Lys Ala Ala Ser Pro Ser Pro Ala Arg Arg Val Pro Ala Thr Arg Arg
755 760 765

Ser Pro Gly Pro Gly Pro Ser Gln Ser Pro Arg Ser Pro Lys His Thr
770 775 780

Arg Pro Ala Glu Leu Arg Leu Ala Pro Leu Thr Arg Val Leu Thr Pro
785 790 795 800

Pro His Asp Val Asp Ser Leu Pro His Leu Arg Lys Phe Ser Pro Ser
805 810 815

Gln Val Pro Val Gln Thr Arg Ser Ser Ile Leu Leu Ala Glu Glu Thr
820 825 830

Pro Pro Glu Glu Pro Ala Ala Arg Pro Gly Leu Ile Glu Ile Pro Leu
835 840 845

Gly Ser Leu Ala Asp Pro Ala Ala Glu Asp Glu Gly Asp Gly Ser Pro
850 855 860

Ala Gly Ala Glu Asp Ser Leu Glu Glu Glu Ala Ser Ser Glu Gly Glu
865 870 875 880

Pro Arg Val Gly Leu Gly Phe Phe Tyr Lys Asp Glu Asp Lys Pro Glu
885 890 895

Asp Glu Met Ala Gln Lys Arg Ala Ser Leu Leu Glu Arg Gln Gln Arg
900 905 910

Arg Ala Glu Glu Ala Arg Arg Arg Lys Gln Trp Gln Glu Val Glu Lys
915 920 925

Glu Gln Arg Arg Glu Glu Ala Ala Arg Leu Ala Gln Glu Glu Ala Pro
930 935 940

Gly Pro Ala Pro Leu Val Ser Ala Val Pro Met Ala Thr Pro Ala Pro
945 950 955 960

Ala Ala Arg Ala Pro Ala Glu Glu Glu Val Gly Pro Arg Lys Gly Asp
965 970 975

```
Phe Thr Arg Gln Glu Tyr Glu Arg Arg Ala Gln Leu Lys Leu Met Asp
            980                 985                 990

Asp Leu Asp Lys Val Leu Arg Pro  Arg Ala Ala Gly Ser  Gly Gly
Pro
        995                1000                1005

Gly Arg  Gly Gly Arg Arg Ala  Thr Arg Pro Arg Ser  Gly Cys Cys
    1010                1015                1020

Asp Asp  Ser Ala Leu Ala Arg  Ser Pro Ala Arg Gly  Leu Leu Gly
    1025                1030                1035

Ser Arg  Leu Ser Lys Ile Tyr  Ser Gln Ser Thr Leu  Ser Leu Ser
    1040                1045                1050

Thr Val  Ala Asn Glu Ala His  Asn Asn Leu Gly Val  Lys Arg Pro
    1055                1060                1065

Thr Ser  Arg Ala Pro Ser Pro  Ser Gly Leu Met Ser  Pro Ser Arg
    1070                1075                1080

Leu Pro  Gly Ser Arg Glu Arg  Asp Trp Glu Asn Gly  Ser Asn Ala
    1085                1090                1095

Ser Ser  Pro Ala Ser Val Pro  Glu Tyr Thr Gly Pro  Arg Leu Tyr
    1100                1105                1110

Lys Glu  Pro Ser Ala Lys Ser  Asn Lys Phe Ile Ile  His Asn Ala
    1115                1120                1125

Leu Ser  His Cys Cys Leu Ala  Gly Lys Val Asn Glu  Pro Gln Lys
    1130                1135                1140

Asn Arg  Ile Leu Glu Glu Ile  Glu Lys Ser Lys Ala  Asn His Phe
    1145                1150                1155

Leu Ile  Leu Phe Arg Asp Ser  Ser Cys Gln Phe Arg  Ala Leu Tyr
    1160                1165                1170

Thr Leu  Ser Gly Glu Thr Glu  Glu Leu Ser Arg Leu  Ala Gly Tyr
    1175                1180                1185
```

Gly Pro Arg Thr Val Thr Pro Ala Met Val Glu Gly Ile Tyr Lys
1190 1195 1200

Tyr Asn Ser Asp Arg Lys Arg Phe Thr Gln Ile Pro Ala Lys Thr
1205 1210 1215

Met Ser Met Ser Val Asp Ala Phe Thr Ile Gln Gly His Leu Trp
1220 1225 1230

Gln Gly Lys Lys Pro Thr Thr Pro Lys Lys Gly Gly Gly Thr Pro
1235 1240 1245

Lys

<210> 11064
<211> 1276
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2188; "

<220>
<221> source
<223> /note="Gene Symbol: CAMSAP3; "

<220>
<221> source
<223> /note="Gene Name: calmodulin regulated spectrin-associated prt
family, member 3; "

<220>
<221> source
<223> /note="Uniprot ID: Q9P1Y5; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000416797"

<400> 11064
Met Val Glu Ala Ala Pro Pro Gly Pro Gly Pro Leu Arg Arg Thr Phe
1 5 10 15

Leu Val Pro Glu Ile Lys Ser Leu Asp Gln Tyr Asp Phe Ser Arg Ala
20 25 30

```
Lys Ala Ala Ala Ser Leu Ala Trp Val Leu Arg Ala Ala Phe Gly Gly
        35                  40                  45

Ala Glu His Val Pro Pro Glu Leu Trp Glu Pro Phe Tyr Thr Asp Gln
    50                  55                  60

Tyr Ala Gln Glu His Val Lys Pro Pro Val Thr Arg Leu Leu Leu Ser
65                  70                  75                  80

Ala Glu Leu Tyr Cys Arg Ala Trp Arg Gln Ala Leu Pro Gln Leu Glu
                85                  90                  95

Thr Pro Pro Asn Pro Ser Ala Leu Leu Ala Leu Leu Ala Arg Arg Gly
            100                 105                 110

Thr Val Pro Ala Leu Pro Glu Arg Pro Val Arg Glu Ala Asp Leu Arg
        115                 120                 125

His Gln Pro Ile Leu Met Gly Ala His Leu Ala Val Ile Asp Ala Leu
    130                 135                 140

Met Ala Ala Phe Ala Phe Glu Trp Thr Lys Thr Leu Pro Gly Pro Leu
145                 150                 155                 160

Ala Leu Thr Ser Leu Glu His Lys Leu Leu Phe Trp Val Asp Thr Thr
                165                 170                 175

Val Arg Arg Leu Gln Glu Lys Thr Glu Gln Glu Ala Ala Gln Arg Ala
            180                 185                 190

Ser Pro Ala Ala Pro Ala Asp Gly Ala Ala Pro Ala Gln Pro Ser Cys
        195                 200                 205

Pro Thr Arg Trp Tyr Trp Lys Leu Val Pro His Ala Ile Ala Phe Cys
    210                 215                 220

Leu Lys Glu Ser Gly Ser Lys Pro Pro Met Ile Arg Tyr Arg Lys Asp
225                 230                 235                 240

Arg Val Val Ala Arg Arg Ala Pro Cys Phe Pro Thr Val Thr Ser Leu
                245                 250                 255
```

```
Gln Asp Leu Ala Ser Gly Ala Ala Leu Ala Ala Thr Ile His Cys Tyr
            260                 265                 270

Cys Pro Gln Leu Leu Arg Leu Glu Glu Val Cys Leu Lys Asp Pro Met
        275                 280                 285

Ser Val Ala Asp Ser Leu Tyr Asn Leu Gln Leu Val Gln Asp Phe Cys
    290                 295                 300

Ala Ser Arg Leu Pro Arg Gly Cys Pro Leu Ser Leu Glu Asp Leu Leu
305                 310                 315                 320

Tyr Val Pro Pro Pro Leu Lys Val Asn Leu Val Val Met Leu Ala Glu
                325                 330                 335

Leu Phe Met Cys Phe Glu Val Leu Lys Pro Asp Phe Val Gln Val Lys
            340                 345                 350

Asp Leu Pro Asp Gly His Ala Ala Ser Pro Arg Gly Thr Glu Ala Ser
        355                 360                 365

Pro Pro Gln Asn Asn Ser Gly Ser Ser Ser Pro Val Phe Thr Phe Arg
    370                 375                 380

His Pro Leu Leu Ser Ser Gly Gly Pro Gln Ser Pro Leu Arg Gly Ser
385                 390                 395                 400

Thr Gly Ser Leu Lys Ser Ser Pro Ser Met Ser His Met Glu Ala Leu
                405                 410                 415

Gly Lys Ala Trp Asn Arg Gln Leu Ser Arg Pro Leu Ser Gln Ala Val
            420                 425                 430

Ser Phe Ser Thr Pro Phe Gly Leu Asp Ser Asp Val Asp Val Val Met
        435                 440                 445

Gly Asp Pro Val Leu Leu Arg Ser Val Ser Ser Asp Ser Leu Gly Pro
    450                 455                 460

Pro Arg Pro Ala Pro Ala Arg Thr Pro Thr Gln Pro Pro Pro Glu Pro
465                 470                 475                 480

Gly Asp Leu Pro Thr Ile Glu Glu Ala Leu Gln Ile Ile His Ser Ala
```

```
                485                 490                 495

Glu Pro Arg Leu Leu Pro Asp Gly Ala Ala Asp Gly Ser Phe Tyr Leu
            500                 505                 510

His Ser Pro Glu Gly Pro Ser Lys Pro Ser Leu Ala Ser Pro Tyr Leu
        515                 520                 525

Pro Glu Gly Thr Ser Lys Pro Leu Ser Asp Arg Pro Thr Lys Ala Pro
    530                 535                 540

Val Tyr Met Pro His Pro Glu Thr Pro Ser Lys Pro Ser Pro Cys Leu
545                 550                 555                 560

Val Gly Glu Ala Ser Lys Pro Pro Ala Pro Ser Glu Gly Ser Pro Lys
                565                 570                 575

Ala Val Ala Ser Ser Pro Ala Ala Thr Asn Ser Glu Val Lys Met Thr
            580                 585                 590

Ser Phe Ala Glu Arg Lys Lys Gln Leu Val Lys Ala Glu Ala Glu Ala
        595                 600                 605

Gly Ala Gly Ser Pro Thr Ser Thr Pro Ala Pro Pro Glu Ala Leu Ser
    610                 615                 620

Ser Glu Met Ser Glu Leu Ser Ala Arg Leu Glu Glu Lys Arg Arg Ala
625                 630                 635                 640

Ile Glu Ala Gln Lys Arg Arg Ile Glu Ala Ile Phe Ala Lys His Arg
                645                 650                 655

Gln Arg Leu Gly Lys Ser Ala Phe Leu Gln Val Gln Pro Arg Glu Ala
            660                 665                 670

Ser Gly Glu Ala Glu Ala Glu Ala Glu Glu Ala Asp Ser Gly Pro Val
        675                 680                 685

Pro Gly Gly Glu Arg Pro Ala Gly Glu Gly Gln Gly Glu Pro Thr Ser
    690                 695                 700

Arg Pro Lys Ala Val Thr Phe Ser Pro Asp Leu Gly Pro Val Pro His
705                 710                 715                 720
```

Glu Gly Leu Gly Glu Tyr Asn Arg Ala Val Ser Lys Leu Ser Ala Ala
725 730 735

Leu Ser Ser Leu Gln Arg Asp Met Gln Arg Leu Thr Asp Gln Gln Gln
740 745 750

Arg Leu Leu Ala Pro Pro Glu Ala Pro Gly Ser Ala Pro Pro Pro Ala
755 760 765

Ala Trp Val Ile Pro Gly Pro Thr Thr Gly Pro Lys Ala Ala Ser Pro
770 775 780

Ser Pro Ala Arg Arg Val Pro Ala Thr Arg Arg Ser Pro Gly Pro Gly
785 790 795 800

Pro Ser Gln Ser Pro Arg Ser Pro Lys His Thr Arg Pro Ala Glu Leu
805 810 815

Arg Leu Ala Pro Leu Thr Arg Val Leu Thr Pro Pro His Asp Val Asp
820 825 830

Ser Leu Pro His Leu Arg Lys Phe Ser Pro Ser Gln Val Pro Val Gln
835 840 845

Thr Arg Ser Ser Ile Leu Leu Ala Glu Glu Thr Pro Pro Glu Glu Pro
850 855 860

Ala Ala Arg Pro Gly Leu Ile Glu Ile Pro Leu Gly Ser Leu Ala Asp
865 870 875 880

Pro Ala Ala Glu Asp Glu Gly Asp Gly Ser Pro Ala Gly Ala Glu Asp
885 890 895

Ser Leu Glu Glu Glu Ala Ser Ser Glu Gly Glu Pro Arg Val Gly Leu
900 905 910

Gly Phe Phe Tyr Lys Asp Glu Asp Lys Pro Glu Asp Glu Met Ala Gln
915 920 925

Lys Arg Ala Ser Leu Leu Glu Arg Gln Gln Arg Arg Ala Glu Glu Ala
930 935 940

```
Arg Arg Arg Lys Gln Trp Gln Glu Val Glu Lys Glu Gln Arg Arg Glu
945                 950                 955                 960

Glu Ala Ala Arg Leu Ala Gln Glu Glu Ala Pro Gly Pro Ala Pro Leu
                965                 970                 975

Val Ser Ala Val Pro Met Ala Thr Pro Ala Pro Ala Ala Arg Ala Pro
            980                 985                 990

Ala Glu Glu Glu Val Gly Pro Arg  Lys Gly Asp Phe Thr  Arg Gln
Glu
        995                 1000                1005

Tyr Glu  Arg Arg Ala Gln Leu  Lys Leu Met Asp Asp  Leu Asp Lys
    1010                1015                1020

Val Leu  Arg Pro Arg Ala Ala  Gly Ser Gly Gly Pro  Gly Arg Gly
    1025                1030                1035

Gly Arg  Arg Ala Thr Arg Pro  Arg Ser Gly Cys Cys  Asp Asp Ser
    1040                1045                1050

Ala Leu  Ala Arg Ser Pro Ala  Arg Gly Leu Leu Gly  Ser Arg Leu
    1055                1060                1065

Ser Lys  Ile Tyr Ser Gln Ser  Thr Leu Ser Leu Ser  Thr Val Ala
    1070                1075                1080

Asn Glu  Ala His Asn Asn Leu  Gly Val Lys Arg Pro  Thr Ser Arg
    1085                1090                1095

Ala Pro  Ser Pro Ser Gly Leu  Met Ser Pro Ser Arg  Leu Pro Gly
    1100                1105                1110

Ser Arg  Glu Arg Asp Trp Glu  Asn Gly Ser Asn Ala  Ser Ser Pro
    1115                1120                1125

Ala Ser  Val Pro Glu Tyr Thr  Gly Pro Arg Leu Tyr  Lys Glu Pro
    1130                1135                1140

Ser Ala  Lys Ser Asn Lys Phe  Ile Ile His Asn Ala  Leu Ser His
    1145                1150                1155
```

```
Cys Cys  Leu Ala Gly Lys Val  Asn Glu Pro Gln Lys  Asn Arg Ile
    1160                1165                1170

Leu Glu  Glu Ile Glu Lys Ser  Lys Ala Asn His Phe  Leu Ile Leu
    1175                1180                1185

Phe Arg  Asp Ser Ser Cys Gln  Phe Arg Ala Leu Tyr  Thr Leu Ser
    1190                1195                1200

Gly Glu  Thr Glu Glu Leu Ser  Arg Leu Ala Gly Tyr  Gly Pro Arg
    1205                1210                1215

Thr Val  Thr Pro Ala Met Val  Glu Gly Ile Tyr Lys  Tyr Asn Ser
    1220                1225                1230

Asp Arg  Lys Arg Phe Thr Gln  Ile Pro Ala Lys Thr  Met Ser Met
    1235                1240                1245

Ser Val  Asp Ala Phe Thr Ile  Gln Gly His Leu Trp  Gln Gly Lys
    1250                1255                1260

Lys Pro  Thr Thr Pro Lys Lys  Gly Gly Gly Thr Pro  Lys
    1265                1270                1275
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<210> 11065
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2189; "

<220>
<221> source
<223> /note="Gene Symbol: CALML3; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 3; "

<220>
<221> source
<223> /note="Uniprot ID: P27482; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000315299"

<400> 11065
Met Ala Asp Gln Leu Thr Glu Glu Gln Val Thr Glu Phe Lys Glu Ala
1 5 10 15

Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Cys Ile Thr Thr Arg Glu
20 25 30

Leu Gly Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu
35 40 45

Leu Arg Asp Met Met Ser Glu Ile Asp Arg Asp Gly Asn Gly Thr Val
50 55 60

Asp Phe Pro Glu Phe Leu Gly Met Met Ala Arg Lys Met Lys Asp Thr
65 70 75 80

Asp Asn Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp
85 90 95

Gly Asn Gly Phe Val Ser Ala Ala Glu Leu Arg His Val Met Thr Arg
100 105 110

Leu Gly Glu Lys Leu Ser Asp Glu Glu Val Asp Glu Met Ile Arg Ala
115 120 125

Ala Asp Thr Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Arg
130 135 140

Val Leu Val Ser Lys
145

<210> 11066
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2190; "

<220>
<221> source
<223> /note="Gene Symbol: CALML4; "

<220>
<221> source

<223> /note="Gene Name: calmodulin-like 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q96GE6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000378848"

<400> 11066
Met Ala Ala Glu His Leu Leu Pro Gly Pro Pro Pro Ser Leu Ala Asp
1   5   10   15

Phe Arg Leu Glu Ala Gly Gly Lys Gly Thr Glu Arg Gly Ser Gly Ser
            20   25   30

Ser Lys Pro Thr Gly Ser Ser Arg Gly Pro Arg Met Trp Met Ile Ser
        35   40   45

Ser Gly Lys Gln Ile Ser Asn Pro Met Ala Lys
    50   55

<210> 11067
<211> 149
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2190; "

<220>
<221> source
<223> /note="Gene Symbol: CALML4; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q96GE6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000400755"

<400> 11067
Met Ala Ala Glu His Leu Leu Pro Gly Pro Pro Pro Ser Leu Ala Asp
1   5   10   15

```
Phe Arg Leu Glu Ala Gly Gly Lys Gly Thr Glu Arg Gly Ser Gly Ser
            20                  25                  30

Ser Lys Pro Thr Gly Ser Ser Arg Gly Pro Arg Met Ala Lys Phe Leu
        35                  40                  45

Ser Gln Asp Gln Ile Asn Asp Gly Asn Gly Glu Leu Asp Phe Ser Thr
    50                  55                  60

Phe Leu Thr Ile Met His Met Gln Ile Lys Gln Glu Asp Pro Lys Lys
65                  70                  75                  80

Glu Ile Leu Leu Ala Met Leu Met Val Asp Lys Glu Lys Lys Gly Tyr
                85                  90                  95

Val Met Ala Ser Asp Leu Arg Ser Lys Leu Thr Ser Leu Gly Glu Lys
            100                 105                 110

Leu Thr His Lys Glu Val Asp Asp Leu Phe Arg Glu Ala Asp Ile Glu
        115                 120                 125

Pro Asn Gly Lys Val Lys Tyr Asp Glu Phe Ile His Lys Ile Thr Leu
    130                 135                 140

Pro Gly Arg Asp Tyr
145


<210> 11068
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2190; "

<220>
<221> source
<223> /note="Gene Symbol: CALML4; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 4; "

<220>
<221> source
<223> /note="Uniprot ID:  Q96GE6; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000419081"

<400> 11068
Met Ala Ala Glu His Leu Leu Pro Gly Pro Pro Pro Ser Leu Ala Asp
1 5 10 15

Phe Arg Leu Glu Ala Gly Gly Lys Gly Thr Glu Arg Gly Ser Gly Ser
20 25 30

Ser Lys Pro Thr Gly Ser Ser Arg Gly Pro Arg Met Ala Lys Phe Leu
35 40 45

Ser Gln Asp Gln Ile Asn Glu Tyr Lys Glu Cys Phe Ser Leu Tyr Asp
50 55 60

Lys Gln Gln Arg Gly Lys Ile Lys Ala Thr Asp Leu Met Val Ala Met
65 70 75 80

Arg Cys Leu Gly Ala Ser Pro Thr Pro Gly Glu Val Gln Arg His Leu
85 90 95

Gln Thr His Gly Ile Asp Gly Asn Gly Glu Leu Asp Phe Ser Thr Phe
100 105 110

Leu Thr Ile Met His Met Gln Ile Lys Gln Glu Asp Pro Lys Lys Glu
115 120 125

Ile Leu Leu Ala Met Leu Met Val Asp Lys Glu Lys Lys Gly Tyr Val
130 135 140

Met Ala Ser Asp Leu Arg Ser Lys Leu Thr Ser Leu Gly Glu Lys Leu
145 150 155 160

Thr His Lys Glu Val Asp Asp Leu Phe Arg Glu Ala Asp Ile Glu Pro
165 170 175

Asn Gly Lys Val Lys Tyr Asp Glu Phe Ile His Lys Ile Thr Leu Pro
180 185 190

Gly Arg Asp Tyr
195

<210> 11069
<211> 29
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2190; "

<220>
<221> source
<223> /note="Gene Symbol: CALML4; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432629"

<400> 11069
Glu Arg Gly Ser Gly Ser Ser Lys Pro Thr Gly Ser Ser Arg Gly Pro
1   5   10   15

Arg Met Thr Glu Met Glu Ser Trp Ile Ser Pro Leu Phe
            20   25

<210> 11070
<211> 60
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2190; "

<220>
<221> source
<223> /note="Gene Symbol: CALML4; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435285"

<400> 11070
Met Ala Ala Glu His Leu Leu Pro Gly Pro Pro Pro Ser Leu Ala Asp
1   5   10   15

Phe Arg Leu Glu Ala Gly Gly Lys Gly Thr Glu Arg Gly Ser Gly Ser

20 25 30

Ser Lys Pro Thr Gly Ser Ser Arg Gly Pro Arg Met Ser Thr Arg Asn
35 40 45

Ala Ser Pro Cys Met Thr Ser Ser Arg Gly Gly Arg
50 55 60

<210> 11071
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2190; "

<220>
<221> source
<223> /note="Gene Symbol: CALML4; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 4; "

<220>
<221> source
<223> /note="Uniprot ID: Q96GE6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000438177"

<400> 11071
Met Val Ala Met Arg Cys Leu Gly Ala Ser Pro Thr Pro Gly Glu Val
1 5 10 15

Gln Arg His Leu Gln Thr His Gly Ile Asp Gly Asn Gly Glu Leu Asp
20 25 30

Phe Ser Thr Phe Leu Thr Ile Met His Met Gln Ile Lys Gln Glu Asp
35 40 45

Pro Lys Lys Glu Ile Leu Leu Ala Met Leu Met Val Asp Lys Glu Lys
50 55 60

Lys Gly Tyr Val Met Ala Ser Asp Leu Arg Ser Lys Leu Thr Ser Leu
65 70 75 80

```
Gly Glu Lys Leu Thr His Lys Glu Val Asp Asp Leu Phe Arg Glu Ala
                85                  90                  95

Asp Ile Glu Pro Asn Gly Lys Val Lys Tyr Asp Glu Phe Ile His Lys
            100                 105                 110

Ile Thr Leu Pro Gly Arg Asp Tyr
        115                 120


<210> 11072
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2190; "

<220>
<221> source
<223> /note="Gene Symbol: CALML4; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 4; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000456532"

<400> 11072
Met Val Ala Met Arg Cys Leu Gly Ala Ser Pro Thr Pro Gly Glu Val
1               5                   10                  15

Gln Arg His Leu Gln Thr His Gly Ile Asp Gly Asn Gly Glu Leu Asp
            20                  25                  30

Phe Ser Thr Phe Leu Thr Ile Met His Met Gln Ile Lys Gln Glu Asp
        35                  40                  45

Pro Lys Lys Glu Ile Leu Leu Ala Met Leu Met Val Asp Lys Glu Lys
    50                  55                  60

Lys Gly Tyr Val Met Ala Ser Asp Leu Arg Ser Lys Leu Thr Ser Leu
65                  70                  75                  80

Gly Glu Lys Leu Thr His Lys Glu
                85
```

<210> 11073
<211> 146
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2191; "

<220>
<221> source
<223> /note="Gene Symbol: CALML5; "

<220>
<221> source
<223> /note="Gene Name: calmodulin-like 5; "

<220>
<221> source
<223> /note="Uniprot ID: Q9NZT1; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000369689"

<400> 11073
Met Ala Gly Glu Leu Thr Pro Glu Glu Glu Ala Gln Tyr Lys Lys Ala
1   5   10   15

Phe Ser Ala Val Asp Thr Asp Gly Asn Gly Thr Ile Asn Ala Gln Glu
            20   25   30

Leu Gly Ala Ala Leu Lys Ala Thr Gly Lys Asn Leu Ser Glu Ala Gln
        35   40   45

Leu Arg Lys Leu Ile Ser Glu Val Asp Ser Asp Gly Asp Gly Glu Ile
    50   55   60

Ser Phe Gln Glu Phe Leu Thr Ala Ala Lys Lys Ala Arg Ala Gly Leu
65   70   75   80

Glu Asp Leu Gln Val Ala Phe Arg Ala Phe Asp Gln Asp Gly Asp Gly
                85   90   95

His Ile Thr Val Asp Glu Leu Arg Arg Ala Met Ala Gly Leu Gly Gln
            100   105   110

Pro Leu Pro Gln Glu Glu Leu Asp Ala Met Ile Arg Glu Ala Asp Val
        115   120   125

Asp Gln Asp Gly Arg Val Asn Tyr Glu Glu Phe Ala Arg Met Leu Ala
130 135 140

Gln Glu
145

<210> 11074
<211> 181
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2192; "

<220>
<221> source
<223> /note="Gene Symbol: CALML6; "

<220>
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<223> /note="Gene Name: calmodulin-like 6; "

<220>
<221> source
<223> /note="Uniprot ID: Q8TD86; "

<220>
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<223> /note="ENSP ID: ENSP00000304643"

<400> 11074
Met Gly Leu Gln Gln Glu Ile Ser Leu Gln Pro Trp Cys His His Pro
1 5 10 15

Ala Glu Ser Cys Gln Thr Thr Thr Asp Met Thr Glu Arg Leu Ser Ala
20 25 30

Glu Gln Ile Lys Glu Tyr Lys Gly Val Phe Glu Met Phe Asp Glu Glu
35 40 45

Gly Asn Gly Glu Val Lys Thr Gly Glu Leu Glu Trp Leu Met Ser Leu
50 55 60

Leu Gly Ile Asn Pro Thr Lys Ser Glu Leu Ala Ser Met Ala Lys Asp
65 70 75 80

Val Asp Arg Asp Asn Lys Gly Phe Phe Asn Cys Asp Gly Phe Leu Ala

```
                85                  90                  95

Leu Met Gly Val Tyr His Glu Lys Ala Gln Asn Gln Glu Ser Glu Leu
            100                 105                 110

Arg Ala Ala Phe Arg Val Phe Asp Lys Glu Gly Lys Gly Tyr Ile Asp
        115                 120                 125

Trp Asn Thr Leu Lys Tyr Val Leu Met Asn Ala Gly Glu Pro Leu Asn
    130                 135                 140

Glu Val Glu Ala Glu Gln Met Met Lys Glu Ala Asp Lys Asp Gly Asp
145                 150                 155                 160

Arg Thr Ile Asp Tyr Glu Glu Phe Val Ala Met Met Thr Gly Glu Ser
                165                 170                 175

Phe Lys Leu Ile Gln
            180


<210> 11075
<211> 164
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Name: calmodulin-like 6; "

<220>
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<223> /note="ENSP ID: ENSP00000367867"

<400> 11075
Met Gly Leu Gln Gln Glu Ile Ser Leu Thr Glu Arg Leu Ser Ala Glu
1               5                   10                  15

Gln Ile Lys Glu Tyr Lys Gly Val Phe Glu Met Phe Asp Glu Glu Gly
            20                  25                  30
```

```
Asn Gly Glu Val Lys Thr Gly Glu Leu Glu Trp Leu Met Ser Leu Leu
        35                  40                  45

Gly Ile Asn Pro Thr Lys Ser Glu Leu Ala Ser Met Ala Lys Asp Val
    50                  55                  60

Asp Arg Asp Asn Lys Gly Phe Phe Asn Cys Asp Gly Phe Leu Ala Leu
65                  70                  75                  80

Met Gly Val Tyr His Glu Lys Ala Gln Asn Gln Glu Ser Glu Leu Arg
                85                  90                  95

Ala Ala Phe Arg Val Phe Asp Lys Glu Gly Lys Gly Tyr Ile Asp Trp
            100                 105                 110

Asn Thr Leu Lys Tyr Val Leu Met Asn Ala Gly Glu Pro Leu Asn Glu
        115                 120                 125

Val Glu Ala Glu Gln Met Met Lys Glu Ala Asp Lys Asp Gly Asp Arg
    130                 135                 140

Thr Ile Asp Tyr Glu Glu Phe Val Ala Met Met Thr Gly Glu Ser Phe
145                 150                 155                 160

Lys Leu Ile Gln
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<210> 11076
<211> 323
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CAMKMT; "

<220>
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<223> /note="Gene Name: calmodulin-lysine N-
methyltransferase; "

<220>
<221> source
<223> /note="Uniprot ID: Q7Z624; "

<220>
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<223> /note="ENSP ID: ENSP00000367755"

<400> 11076
Met Glu Ser Arg Val Ala Asp Ala Gly Thr Gly Glu Thr Ala Arg Ala
1   5   10   15

Ala Gly Gly Ser Pro Ala Val Gly Cys Thr Thr Arg Gly Pro Val Val
            20   25   30

Ser Ala Pro Leu Gly Ala Ala Arg Trp Lys Leu Leu Arg Gln Val Leu
        35   40   45

Lys Gln Lys His Leu Asp Asp Cys Leu Arg His Val Ser Val Arg Arg
    50   55   60

Phe Glu Ser Phe Asn Leu Phe Ser Val Thr Glu Gly Lys Glu Arg Glu
65   70   75   80

Thr Glu Glu Glu Val Gly Ala Trp Val Gln Tyr Thr Ser Ile Phe Cys
                85   90   95

Pro Glu Tyr Ser Ile Ser Leu Arg His Asn Ser Gly Ser Leu Asn Val
            100   105   110

Glu Asp Val Leu Thr Ser Phe Asp Asn Thr Gly Asn Val Cys Ile Trp
        115   120   125

Pro Ser Glu Glu Val Leu Ala Tyr Tyr Cys Leu Lys His Asn Asn Ile
    130   135   140

Phe Arg Ala Leu Ala Val Cys Glu Leu Gly Gly Gly Met Thr Cys Leu
145   150   155   160

Ala Gly Leu Met Val Ala Ile Ser Ala Asp Val Lys Glu Val Leu Leu
                165   170   175

Thr Asp Gly Asn Glu Lys Ala Ile Arg Asn Val Gln Asp Ile Ile Thr
            180   185   190

Arg Asn Gln Lys Ala Gly Val Phe Lys Thr Gln Lys Ile Ser Ser Cys
        195   200   205

```
Val Leu Arg Trp Asp Asn Glu Thr Asp Val Ser Gln Leu Glu Gly His
    210                 215                 220

Phe Asp Ile Val Met Cys Ala Asp Cys Leu Phe Leu Asp Gln Tyr Arg
225                 230                 235                 240

Ala Ser Leu Val Asp Ala Ile Lys Arg Leu Leu Gln Pro Arg Gly Lys
                245                 250                 255

Ala Met Val Phe Ala Pro Arg Arg Gly Asn Thr Leu Asn Gln Phe Cys
            260                 265                 270

Asn Leu Ala Glu Lys Ala Gly Phe Cys Ile Gln Arg His Glu Asn Tyr
        275                 280                 285

Asp Glu His Ile Ser Asn Phe His Ser Lys Leu Lys Lys Glu Asn Pro
    290                 295                 300

Asp Ile Tyr Glu Glu Asn Leu His Tyr Pro Leu Leu Leu Ile Leu Thr
305                 310                 315                 320

Lys His Gly
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<210> 11077
<211> 136
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2193; "

<220>
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<223> /note="Gene Symbol: CAMKMT; "

<220>
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<223> /note="Gene Name: calmodulin-lysine N-
methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384039"

<400> 11077
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Met Glu Ser Arg Val Ala Asp Ala Gly Thr Gly Glu Thr Ala Arg Ala
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```
1               5                   10                  15

Ala Gly Gly Ser Pro Ala Val Gly Cys Thr Thr Arg Gly Pro Val Val
            20                  25                  30

Ser Ala Pro Leu Gly Ala Ala Arg Trp Lys Leu Leu Arg Gln Val Leu
        35                  40                  45

Lys Gln Lys His Leu Asp Asp Cys Leu Arg His Val Ser Val Arg Arg
    50                  55                  60

Phe Glu Ser Phe Asn Leu Phe Ser Val Thr Glu Gly Lys Glu Arg Glu
65                  70                  75                  80

Thr Glu Glu Glu Val Gly Ala Trp Val Gln Tyr Thr Ser Ile Phe Cys
                85                  90                  95

Pro Glu Tyr Ser Ile Ser Leu Arg His Asn Ser Gly Ser Leu Asn Val
            100                 105                 110

Glu Asp Val Leu Thr Ser Phe Asp Asn Thr Gly Asn Val Tyr Asp Val
        115                 120                 125

Ser Leu Tyr Cys Pro Cys Trp Ser
    130                 135


<210> 11078
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2193; "

<220>
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<220>
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<220>
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<223> /note="Uniprot ID:  Q7Z624; "
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<220>
<221> source
<223> /note="ENSP ID: ENSP00000385124"

<400> 11078
Met Glu Ser Arg Val Ala Asp Ala Gly Thr Gly Glu Thr Ala Arg Ala
1   5   10   15

Ala Gly Gly Ser Pro Ala Val Gly Cys Thr Thr Arg Gly Pro Val Val
            20   25   30

Ser Ala Pro Leu Gly Ala Ala Arg Trp Lys Leu Leu Arg Gln Val Leu
        35   40   45

Lys Gln Lys His Leu Asp Asp Cys Leu Arg His Val Ser Val Arg Arg
    50   55   60

Phe Glu Ser Phe Asn Leu Phe Ser Val Thr Glu Gly Lys Glu Arg Glu
65   70   75   80

Thr Glu Glu Glu Val Gly Ala Trp Val Gln Tyr Thr Ser Ile Phe Cys
                85   90   95

Pro Glu Tyr Ser Ile Ser Leu Arg His Asn Ser Gly Ser Leu Asn Val
            100   105   110

Glu Asp Val Leu Thr Ser Phe Asp Asn Thr Gly Asn Val Trp Glu Ala
        115   120   125

Thr Arg Gly Lys
    130

<210> 11079
<211> 139
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
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<223> /note="Gene Symbol: CAMKMT; "

<220>
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<223> /note="Gene Name: calmodulin-lysine N-

methyltransferase; "

<220>
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<223> /note="ENSP ID: ENSP00000385587"

<400> 11079
Met Glu Ser Arg Val Ala Asp Ala Gly Thr Gly Glu Thr Ala Arg Ala
1   5   10   15

Ala Gly Gly Ser Pro Ala Val Gly Cys Thr Thr Arg Gly Pro Val Val
            20   25   30

Ser Ala Pro Leu Gly Ala Ala Arg Trp Lys Leu Leu Arg Gln Val Leu
        35   40   45

Lys Gln Lys His Leu Asp Asp Cys Leu Arg His Val Ser Val Arg Arg
    50   55   60

Phe Glu Ser Phe Asn Leu Phe Ser Val Thr Glu Gly Lys Glu Arg Glu
65   70   75   80

Thr Glu Glu Glu Val Gly Ala Trp Val Gln Tyr Thr Ser Ile Phe Cys
                85   90   95

Pro Glu Tyr Ser Ile Ser Leu Arg His Asn Ser Gly Ser Leu Asn Val
            100   105   110

Glu Asp Val Leu Thr Ser Phe Asp Asn Thr Gly Asn Val Tyr Thr Gly
        115   120   125

Ser His Ser Val Ala Gln Ala Gly Val Gln Trp
    130   135

<210> 11080
<211> 93
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAMKMT; "

<220>

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<223> /note="Gene Name: calmodulin-lysine N-
methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000406936"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11080
Xaa Ala Pro Leu Gly Ala Ala Arg Trp Lys Leu Leu Arg Gln Val Leu
1 5 10 15

Lys Gln Lys His Leu Asp Asp Cys Leu Arg His Val Ser Val Arg Arg
20 25 30

Phe Glu Ser Phe Asn Leu Phe Ser Val Thr Glu Gly Lys Glu Arg Glu
35 40 45

Thr Glu Glu Glu Val Gly Ala Trp Val Gln Tyr Thr Ser Ile Phe Cys
50 55 60

Pro Glu Tyr Ser Ile Ser Leu Arg His Asn Ser Gly Ser Leu Asn Val
65 70 75 80

Glu Asp Val Leu Thr Ser Phe Asp Asn Thr Gly Asn Val
85 90

<210> 11081
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CAMKMT; "

<220>
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<223> /note="Gene Name: calmodulin-lysine N-
methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407594"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11081
Xaa Cys Leu Arg His Val Ser Val Arg Arg Phe Glu Ser Phe Asn Leu
1 5 10 15

Phe Ser Val Thr Glu Gly Lys Glu Arg Glu Thr Glu Glu Glu Val Gly
20 25 30

Ala Trp Val Gln Tyr Thr Ser Ile Phe Cys Pro Glu Tyr Ser Ile Ser
35 40 45

Leu Arg His Asn Ser Gly Ser Leu Asn Val Glu Asp Val Leu Thr Ser
50 55 60

Phe Asp Asn Thr Gly Asn Val
65 70

<210> 11082
<211> 83
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2193; "

<220>
<221> source
<223> /note="Gene Symbol: CAMKMT; "

<220>
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<223> /note="Gene Name: calmodulin-lysine N-
methyltransferase; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410783"

<220>
<221> MOD_RES
<222> (1)..(1)

<223> Any amino acid

<400> 11082
Xaa Arg His Val Ser Val Arg Arg Phe Glu Ser Phe Asn Leu Phe Ser
1 5 10 15

Val Thr Glu Gly Lys Glu Arg Glu Thr Glu Glu Glu Val Gly Ala Trp
20 25 30

Val Gln Tyr Thr Ser Ile Phe Cys Pro Glu Tyr Ser Ile Ser Leu Arg
35 40 45

His Asn Ser Gly Ser Leu Asn Val Glu Asp Val Leu Thr Ser Phe Asp
50 55 60

Asn Thr Gly Asn Val Tyr Thr Gly Ser His Ser Val Ala Gln Ala Gly
65 70 75 80

Val Gln Trp

<210> 11083
<211> 197
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2193; "

<220>
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<223> /note="Gene Symbol: CAMKMT; "

<220>
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<223> /note="Gene Name: calmodulin-lysine N-
methyltransferase; "

<220>
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<223> /note="ENSP ID: ENSP00000482360"

<400> 11083
Ile Trp Pro Ser Glu Glu Val Leu Ala Tyr Tyr Cys Leu Lys His Asn
1 5 10 15

Asn Ile Phe Arg Ala Leu Ala Val Cys Glu Leu Gly Gly Gly Met Thr
20 25 30

```
Cys Leu Ala Gly Leu Met Val Ala Ile Ser Ala Asp Val Lys Glu Val
        35                  40                  45

Leu Leu Thr Asp Gly Asn Glu Lys Ala Ile Arg Asn Val Gln Asp Ile
    50                  55                  60

Ile Thr Arg Asn Gln Lys Ala Gly Val Phe Lys Thr Gln Lys Ile Ser
65                  70                  75                  80

Ser Cys Val Leu Arg Trp Asp Asn Glu Thr Asp Val Ser Gln Leu Glu
                85                  90                  95

Gly His Phe Asp Ile Val Met Cys Ala Asp Cys Leu Phe Leu Asp Gln
            100                 105                 110

Tyr Arg Ala Ser Leu Val Asp Ala Ile Lys Arg Leu Leu Gln Pro Arg
        115                 120                 125

Gly Lys Ala Met Val Phe Ala Pro Arg Arg Gly Asn Thr Leu Asn Gln
    130                 135                 140

Phe Cys Asn Leu Ala Glu Lys Ala Gly Phe Cys Ile Gln Arg His Glu
145                 150                 155                 160

Asn Tyr Asp Glu His Ile Ser Asn Phe His Ser Lys Leu Lys Lys Glu
                165                 170                 175

Asn Pro Asp Ile Tyr Glu Glu Asn Leu His Tyr Pro Leu Leu Leu Ile
            180                 185                 190

Leu Thr Lys His Gly
        195


<210> 11084
<211> 219
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2194; "

<220>
<221> source
<223> /note="Gene Symbol: CALN1; "
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<220>
<221> source
<223> /note="Gene Name: calneuron 1; "

<220>
<221> source
<223> /note="Uniprot ID: Q9BXU9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000332498"

<400> 11084
Met Pro Phe His His Val Thr Ala Gly Leu Leu Tyr Lys Gly Asn Tyr
1   5   10   15

Leu Asn Arg Ser Leu Ser Ala Gly Ser Asp Ser Glu Gln Leu Ala Asn
            20   25   30

Ile Ser Val Glu Glu Leu Asp Glu Ile Arg Glu Ala Phe Arg Val Leu
        35   40   45

Asp Arg Asp Gly Asn Gly Phe Ile Ser Lys Gln Glu Leu Gly Met Ala
    50   55   60

Met Arg Ser Leu Gly Tyr Met Pro Ser Glu Val Glu Leu Ala Ile Ile
65   70   75   80

Met Gln Arg Leu Asp Met Asp Gly Asp Gly Gln Val Asp Phe Asp Glu
                85   90   95

Phe Met Thr Ile Leu Gly Pro Lys Leu Val Ser Ser Glu Gly Arg Asp
            100   105   110

Gly Phe Leu Gly Asn Thr Ile Asp Ser Ile Phe Trp Gln Phe Asp Met
        115   120   125

Gln Arg Ile Thr Leu Glu Glu Leu Lys His Ile Leu Tyr His Ala Phe
    130   135   140

Arg Asp His Leu Thr Met Lys Asp Ile Glu Asn Ile Ile Ile Asn Glu
145   150   155   160

Glu Glu Ser Leu Asn Glu Thr Ser Gly Asn Cys Gln Thr Glu Phe Glu
                165   170   175

```
Gly Val His Ser Gln Lys Gln Asn Arg Gln Thr Cys Val Arg Lys Ser
            180                 185                 190

Leu Ile Cys Ala Phe Ala Met Ala Phe Ile Ile Ser Val Met Leu Ile
        195                 200                 205

Ala Ala Asn Gln Ile Leu Arg Ser Gly Met Glu
    210                 215
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<210> 11085
<211> 261
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CALN1; "

<220>
<221> source
<223> /note="Gene Name: calneuron 1; "

<220>
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<223> /note="Uniprot ID: Q9BXU9; "

<220>
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<223> /note="ENSP ID: ENSP00000378690"

<400> 11085

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Met Arg Leu Pro Glu Gln Pro Gly Glu Gly Lys Pro Glu Asn Glu Lys
1               5                   10                  15

Lys Gly Asp Gly Gly Ala Leu Gly Gly Gly Glu Glu Pro Pro Arg Ser
            20                  25                  30

Gln Ala Pro Asp Phe Pro Thr Trp Glu Lys Met Pro Phe His His Val
        35                  40                  45

Thr Ala Gly Leu Leu Tyr Lys Gly Asn Tyr Leu Asn Arg Ser Leu Ser
    50                  55                  60

Ala Gly Ser Asp Ser Glu Gln Leu Ala Asn Ile Ser Val Glu Glu Leu
65                  70                  75                  80
```

```
Asp Glu Ile Arg Glu Ala Phe Arg Val Leu Asp Arg Asp Gly Asn Gly
                85                  90                  95

Phe Ile Ser Lys Gln Glu Leu Gly Met Ala Met Arg Ser Leu Gly Tyr
            100                 105                 110

Met Pro Ser Glu Val Glu Leu Ala Ile Ile Met Gln Arg Leu Asp Met
        115                 120                 125

Asp Gly Asp Gly Gln Val Asp Phe Asp Glu Phe Met Thr Ile Leu Gly
    130                 135                 140

Pro Lys Leu Val Ser Ser Glu Gly Arg Asp Gly Phe Leu Gly Asn Thr
145                 150                 155                 160

Ile Asp Ser Ile Phe Trp Gln Phe Asp Met Gln Arg Ile Thr Leu Glu
                165                 170                 175

Glu Leu Lys His Ile Leu Tyr His Ala Phe Arg Asp His Leu Thr Met
            180                 185                 190

Lys Asp Ile Glu Asn Ile Ile Ile Asn Glu Glu Glu Ser Leu Asn Glu
        195                 200                 205

Thr Ser Gly Asn Cys Gln Thr Glu Phe Glu Gly Val His Ser Gln Lys
    210                 215                 220

Gln Asn Arg Gln Thr Cys Val Arg Lys Ser Leu Ile Cys Ala Phe Ala
225                 230                 235                 240

Met Ala Phe Ile Ile Ser Val Met Leu Ile Ala Ala Asn Gln Ile Leu
                245                 250                 255

Arg Ser Gly Met Glu
            260
```

<210> 11086
<211> 219
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 2194; "

<220>
<221> source
<223> /note="Gene Symbol: CALN1; "

<220>
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<223> /note="Gene Name: calneuron 1; "

<220>
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<223> /note="Uniprot ID: Q9BXU9; "

<220>
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<223> /note="ENSP ID: ENSP00000378691"

<400> 11086

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Met Pro Phe His His Val Thr Ala Gly Leu Leu Tyr Lys Gly Asn Tyr
1               5                  10                  15

Leu Asn Arg Ser Leu Ser Ala Gly Ser Asp Ser Glu Gln Leu Ala Asn
            20                  25                  30

Ile Ser Val Glu Glu Leu Asp Glu Ile Arg Glu Ala Phe Arg Val Leu
        35                  40                  45

Asp Arg Asp Gly Asn Gly Phe Ile Ser Lys Gln Glu Leu Gly Met Ala
    50                  55                  60

Met Arg Ser Leu Gly Tyr Met Pro Ser Glu Val Glu Leu Ala Ile Ile
65                  70                  75                  80

Met Gln Arg Leu Asp Met Asp Gly Asp Gly Gln Val Asp Phe Asp Glu
                85                  90                  95

Phe Met Thr Ile Leu Gly Pro Lys Leu Val Ser Ser Glu Gly Arg Asp
            100                 105                 110

Gly Phe Leu Gly Asn Thr Ile Asp Ser Ile Phe Trp Gln Phe Asp Met
        115                 120                 125

Gln Arg Ile Thr Leu Glu Glu Leu Lys His Ile Leu Tyr His Ala Phe
    130                 135                 140

Arg Asp His Leu Thr Met Lys Asp Ile Glu Asn Ile Ile Ile Asn Glu
145                 150                 155                 160
```

```
Glu Glu Ser Leu Asn Glu Thr Ser Gly Asn Cys Gln Thr Glu Phe Glu
                165                 170                 175

Gly Val His Ser Gln Lys Gln Asn Arg Gln Thr Cys Val Arg Lys Ser
            180                 185                 190

Leu Ile Cys Ala Phe Ala Met Ala Phe Ile Ile Ser Val Met Leu Ile
        195                 200                 205

Ala Ala Asn Gln Ile Leu Arg Ser Gly Met Glu
    210                 215


<210> 11087
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2194; "

<220>
<221> source
<223> /note="Gene Symbol: CALN1; "

<220>
<221> source
<223> /note="Gene Name: calneuron 1; "

<220>
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<223> /note="ENSP ID: ENSP00000384354"

<400> 11087
Gln Phe Asp Met Gln Arg Ile Thr Leu Glu Glu Leu Lys His Ile Leu
1               5                   10                  15

Tyr His Ala Phe Arg Asp His Leu Thr Met Lys Asp Ile Glu Asn Ile
            20                  25                  30

Ile Ile Asn Glu Glu Glu Ser Leu Asn Glu Thr Ser Gly Asn Cys Gln
        35                  40                  45

Thr Glu Phe Glu Gly Val His Ser Gln Lys Gln Asn Arg Gln Thr Cys
    50                  55                  60

Val Arg Lys Ser Leu Ile Cys Ala Phe Ala Met Ala Phe Ile Ile Ser
```

65 70 75 80

Val Met Leu Ile Ala Ala Asn Gln Ile Leu Arg Ser Gly Met Glu
85 90 95

<210> 11088
<211> 219
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2194; "

<220>
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<223> /note="Gene Symbol: CALN1; "

<220>
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<223> /note="Gene Name: calneuron 1; "

<220>
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<223> /note="Uniprot ID: Q9BXU9; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000410704"

<400> 11088
Met Pro Phe His His Val Thr Ala Gly Leu Leu Tyr Lys Gly Asn Tyr
1 5 10 15

Leu Asn Arg Ser Leu Ser Ala Gly Ser Asp Ser Glu Gln Leu Ala Asn
20 25 30

Ile Ser Val Glu Glu Leu Asp Glu Ile Arg Glu Ala Phe Arg Val Leu
35 40 45

Asp Arg Asp Gly Asn Gly Phe Ile Ser Lys Gln Glu Leu Gly Met Ala
50 55 60

Met Arg Ser Leu Gly Tyr Met Pro Ser Glu Val Glu Leu Ala Ile Ile
65 70 75 80

Met Gln Arg Leu Asp Met Asp Gly Asp Gly Gln Val Asp Phe Asp Glu
85 90 95

```
Phe Met Thr Ile Leu Gly Pro Lys Leu Val Ser Ser Glu Gly Arg Asp
            100                 105                 110

Gly Phe Leu Gly Asn Thr Ile Asp Ser Ile Phe Trp Gln Phe Asp Met
        115                 120                 125

Gln Arg Ile Thr Leu Glu Glu Leu Lys His Ile Leu Tyr His Ala Phe
    130                 135                 140

Arg Asp His Leu Thr Met Lys Asp Ile Glu Asn Ile Ile Ile Asn Glu
145                 150                 155                 160

Glu Glu Ser Leu Asn Glu Thr Ser Gly Asn Cys Gln Thr Glu Phe Glu
                165                 170                 175

Gly Val His Ser Gln Lys Gln Asn Arg Gln Thr Cys Val Arg Lys Ser
            180                 185                 190

Leu Ile Cys Ala Phe Ala Met Ala Phe Ile Ile Ser Val Met Leu Ile
        195                 200                 205

Ala Ala Asn Gln Ile Leu Arg Ser Gly Met Glu
    210                 215


<210> 11089
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2194; "

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Name: calneuron 1; "

<220>
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<223> /note="ENSP ID: ENSP00000411806"

<400> 11089
Met Pro Phe His His Val Thr Ala Gly Leu Leu Tyr Lys Gly Asn Tyr
1               5                   10                  15
```

```
Leu Asn Arg Ser Leu Ser Ala Gly Ser Asp Ser Glu Gln Leu Ala Asn
            20                  25                  30

Ile Ser Val Glu Glu Leu Asp Glu Ile Arg Glu Ala Phe Arg Val Leu
        35                  40                  45

Asp Arg Asp Gly Asn Gly Phe Ile Ser Lys Gln Glu Leu Gly Met Ala
    50                  55                  60

Met Arg Ser Leu Gly Tyr Met Pro Ser Glu Val Glu Leu Ala Ile Ile
65                  70                  75                  80

Met Gln Arg Leu Asp Met Asp Gly Asp Gly Gln Val Asp Phe Asp Glu
                85                  90                  95

Phe Met Thr Ile Leu Gly Pro Lys Leu Val Ser Ser Glu Gly Arg Asp
            100                 105                 110

Gly Phe Leu Gly Asn Thr Ile Asp Ser Ile Phe Trp Gln
        115                 120                 125


<210> 11090
<211> 592
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
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<223> /note="Gene Name: calnexin; "

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<223> /note="Uniprot ID:  P27824; "

<220>
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<223> /note="ENSP ID: ENSP00000247461"

<400> 11090
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1               5                   10                  15
```

```
Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
            20                  25                  30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
        35                  40                  45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
    50                  55                  60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65                  70                  75                  80

Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp Glu
                85                  90                  95

Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys Glu Ser
            100                 105                 110

Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys His
        115                 120                 125

His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr Lys
    130                 135                 140

Pro Leu Ile Val Gln Tyr Glu Val Asn Phe Gln Asn Gly Ile Glu Cys
145                 150                 155                 160

Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro Glu Leu Asn Leu
                165                 170                 175

Asp Gln Phe His Asp Lys Thr Pro Tyr Thr Ile Met Phe Gly Pro Asp
            180                 185                 190

Lys Cys Gly Glu Asp Tyr Lys Leu His Phe Ile Phe Arg His Lys Asn
        195                 200                 205

Pro Lys Thr Gly Ile Tyr Glu Glu Lys His Ala Lys Arg Pro Asp Ala
    210                 215                 220

Asp Leu Lys Thr Tyr Phe Thr Asp Lys Lys Thr His Leu Tyr Thr Leu
225                 230                 235                 240
```

```
Ile Leu Asn Pro Asp Asn Ser Phe Glu Ile Leu Val Asp Gln Ser Val
                245                 250                 255

Val Asn Ser Gly Asn Leu Leu Asn Asp Met Thr Pro Pro Val Asn Pro
            260                 265                 270

Ser Arg Glu Ile Glu Asp Pro Glu Asp Arg Lys Pro Glu Asp Trp Asp
        275                 280                 285

Glu Arg Pro Lys Ile Pro Asp Pro Glu Ala Val Lys Pro Asp Asp Trp
    290                 295                 300

Asp Glu Asp Ala Pro Ala Lys Ile Pro Asp Glu Glu Ala Thr Lys Pro
305                 310                 315                 320

Glu Gly Trp Leu Asp Asp Glu Pro Glu Tyr Val Pro Asp Pro Asp Ala
                325                 330                 335

Glu Lys Pro Glu Asp Trp Asp Glu Asp Met Asp Gly Glu Trp Glu Ala
            340                 345                 350

Pro Gln Ile Ala Asn Pro Arg Cys Glu Ser Ala Pro Gly Cys Gly Val
        355                 360                 365

Trp Gln Arg Pro Val Ile Asp Asn Pro Asn Tyr Lys Gly Lys Trp Lys
    370                 375                 380

Pro Pro Met Ile Asp Asn Pro Ser Tyr Gln Gly Ile Trp Lys Pro Arg
385                 390                 395                 400

Lys Ile Pro Asn Pro Asp Phe Phe Glu Asp Leu Glu Pro Phe Arg Met
                405                 410                 415

Thr Pro Phe Ser Ala Ile Gly Leu Glu Leu Trp Ser Met Thr Ser Asp
            420                 425                 430

Ile Phe Phe Asp Asn Phe Ile Ile Cys Ala Asp Arg Arg Ile Val Asp
        435                 440                 445

Asp Trp Ala Asn Asp Gly Trp Gly Leu Lys Lys Ala Ala Asp Gly Ala
    450                 455                 460
```

```
Ala Glu Pro Gly Val Val Gly Gln Met Ile Glu Ala Ala Glu Glu Arg
465                 470                 475                 480

Pro Trp Leu Trp Val Val Tyr Ile Leu Thr Val Ala Leu Pro Val Phe
                485                 490                 495

Leu Val Ile Leu Phe Cys Cys Ser Gly Lys Lys Gln Thr Ser Gly Met
            500                 505                 510

Glu Tyr Lys Lys Thr Asp Ala Pro Gln Pro Asp Val Lys Glu Glu Glu
        515                 520                 525

Glu Glu Lys Glu Glu Glu Lys Asp Lys Gly Asp Glu Glu Glu Glu Gly
    530                 535                 540

Glu Glu Lys Leu Glu Glu Lys Gln Lys Ser Asp Ala Glu Glu Asp Gly
545                 550                 555                 560

Gly Thr Val Ser Gln Glu Glu Glu Asp Arg Lys Pro Lys Ala Glu Glu
                565                 570                 575

Asp Glu Ile Leu Asn Arg Ser Pro Arg Asn Arg Lys Pro Arg Arg Glu
            580                 585                 590


<210> 11091
<211> 592
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2195; "

<220>
<221> source
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<220>
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<223> /note="Gene Name: calnexin; "

<220>
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<223> /note="Uniprot ID:  P27824; "

<220>
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<223> /note="ENSP ID: ENSP00000391646"
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<400> 11091
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1 5 10 15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
20 25 30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
35 40 45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
50 55 60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65 70 75 80

Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp Glu
85 90 95

Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys Glu Ser
100 105 110

Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys His
115 120 125

His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr Lys
130 135 140

Pro Leu Ile Val Gln Tyr Glu Val Asn Phe Gln Asn Gly Ile Glu Cys
145 150 155 160

Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro Glu Leu Asn Leu
165 170 175

Asp Gln Phe His Asp Lys Thr Pro Tyr Thr Ile Met Phe Gly Pro Asp
180 185 190

Lys Cys Gly Glu Asp Tyr Lys Leu His Phe Ile Phe Arg His Lys Asn
195 200 205

Pro Lys Thr Gly Ile Tyr Glu Glu Lys His Ala Lys Arg Pro Asp Ala
210 215 220

```
Asp Leu Lys Thr Tyr Phe Thr Asp Lys Lys Thr His Leu Tyr Thr Leu
225                 230                 235                 240

Ile Leu Asn Pro Asp Asn Ser Phe Glu Ile Leu Val Asp Gln Ser Val
                245                 250                 255

Val Asn Ser Gly Asn Leu Leu Asn Asp Met Thr Pro Pro Val Asn Pro
            260                 265                 270

Ser Arg Glu Ile Glu Asp Pro Glu Asp Arg Lys Pro Glu Asp Trp Asp
        275                 280                 285

Glu Arg Pro Lys Ile Pro Asp Pro Glu Ala Val Lys Pro Asp Asp Trp
    290                 295                 300

Asp Glu Asp Ala Pro Ala Lys Ile Pro Asp Glu Glu Ala Thr Lys Pro
305                 310                 315                 320

Glu Gly Trp Leu Asp Asp Glu Pro Glu Tyr Val Pro Asp Pro Asp Ala
                325                 330                 335

Glu Lys Pro Glu Asp Trp Asp Glu Asp Met Asp Gly Glu Trp Glu Ala
            340                 345                 350

Pro Gln Ile Ala Asn Pro Arg Cys Glu Ser Ala Pro Gly Cys Gly Val
        355                 360                 365

Trp Gln Arg Pro Val Ile Asp Asn Pro Asn Tyr Lys Gly Lys Trp Lys
    370                 375                 380

Pro Pro Met Ile Asp Asn Pro Ser Tyr Gln Gly Ile Trp Lys Pro Arg
385                 390                 395                 400

Lys Ile Pro Asn Pro Asp Phe Phe Glu Asp Leu Glu Pro Phe Arg Met
                405                 410                 415

Thr Pro Phe Ser Ala Ile Gly Leu Glu Leu Trp Ser Met Thr Ser Asp
            420                 425                 430

Ile Phe Phe Asp Asn Phe Ile Ile Cys Ala Asp Arg Arg Ile Val Asp
        435                 440                 445

Asp Trp Ala Asn Asp Gly Trp Gly Leu Lys Lys Ala Ala Asp Gly Ala
```

```
    450                 455                 460

Ala Glu Pro Gly Val Val Gly Gln Met Ile Glu Ala Ala Glu Glu Arg
465                 470                 475                 480

Pro Trp Leu Trp Val Val Tyr Ile Leu Thr Val Ala Leu Pro Val Phe
                485                 490                 495

Leu Val Ile Leu Phe Cys Cys Ser Gly Lys Lys Gln Thr Ser Gly Met
            500                 505                 510

Glu Tyr Lys Lys Thr Asp Ala Pro Gln Pro Asp Val Lys Glu Glu Glu
        515                 520                 525

Glu Glu Lys Glu Glu Glu Lys Asp Lys Gly Asp Glu Glu Glu Glu Gly
    530                 535                 540

Glu Glu Lys Leu Glu Glu Lys Gln Lys Ser Asp Ala Glu Glu Asp Gly
545                 550                 555                 560

Gly Thr Val Ser Gln Glu Glu Glu Asp Arg Lys Pro Lys Ala Glu Glu
                565                 570                 575

Asp Glu Ile Leu Asn Arg Ser Pro Arg Asn Arg Lys Pro Arg Arg Glu
            580                 585                 590


<210> 11092
<211> 308
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Gene Symbol: CANX; "

<220>
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<223> /note="Gene Name: calnexin; "

<220>
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<223> /note="ENSP ID: ENSP00000421107"

<400> 11092
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```
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1               5                  10                  15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
            20                  25                  30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Glu Met Lys Glu Ser
        35                  40                  45

Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys His
    50                  55                  60

His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr Lys
65                  70                  75                  80

Pro Leu Ile Val Gln Tyr Glu Val Asn Phe Gln Asn Gly Ile Glu Cys
                85                  90                  95

Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro Glu Leu Asn Leu
            100                 105                 110

Asp Gln Phe His Asp Lys Thr Pro Tyr Thr Ile Met Phe Gly Pro Asp
        115                 120                 125

Lys Cys Gly Glu Asp Tyr Lys Leu His Phe Ile Phe Arg His Lys Asn
    130                 135                 140

Pro Lys Thr Gly Ile Tyr Glu Glu Lys His Ala Lys Arg Pro Asp Ala
145                 150                 155                 160

Asp Leu Lys Thr Tyr Phe Thr Asp Lys Lys Thr His Leu Tyr Thr Leu
                165                 170                 175

Ile Leu Asn Pro Asp Asn Ser Phe Glu Ile Leu Val Asp Gln Ser Val
            180                 185                 190

Val Asn Ser Gly Asn Leu Leu Asn Asp Met Thr Pro Pro Val Asn Pro
        195                 200                 205

Ser Arg Glu Ile Glu Asp Pro Glu Asp Arg Lys Pro Glu Asp Trp Asp
    210                 215                 220

Glu Arg Pro Lys Ile Pro Asp Pro Glu Ala Val Lys Pro Asp Asp Trp
```

225 230 235 240

Asp Glu Asp Ala Pro Ala Lys Ile Pro Asp Glu Glu Ala Thr Lys Pro
245 250 255

Glu Gly Trp Leu Asp Asp Glu Pro Glu Tyr Val Pro Asp Pro Asp Ala
260 265 270

Glu Lys Pro Glu Asp Trp Asp Glu Asp Met Asp Gly Glu Trp Glu Ala
275 280 285

Pro Gln Ile Ala Asn Pro Arg Cys Glu Ser Ala Pro Gly Cys Gly Val
290 295 300

Trp Gln Arg Pro
305

<210> 11093
<211> 32
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
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<223> /note="ENSP ID: ENSP00000421434"

<400> 11093
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1 5 10 15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
20 25 30

<210> 11094
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000421813"

<400> 11094
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1   5   10   15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
            20   25   30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
        35   40   45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
    50   55   60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65   70   75   80

Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp Glu
                85   90   95

Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu
            100   105

<210> 11095
<211> 592
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2195; "

<220>
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<223> /note="Gene Symbol: CANX; "

<220>
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<223> /note="Gene Name: calnexin; "

<220>
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<223> /note="Uniprot ID: P27824; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424063"

<400> 11095

```
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1               5                  10                  15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
            20                  25                  30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
        35                  40                  45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
    50                  55                  60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65                  70                  75                  80

Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp Glu
                85                  90                  95

Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys Glu Ser
            100                 105                 110

Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys His
        115                 120                 125

His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr Lys
    130                 135                 140

Pro Leu Ile Val Gln Tyr Glu Val Asn Phe Gln Asn Gly Ile Glu Cys
145                 150                 155                 160

Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro Glu Leu Asn Leu
                165                 170                 175
```

```
Asp Gln Phe His Asp Lys Thr Pro Tyr Thr Ile Met Phe Gly Pro Asp
            180                 185                 190

Lys Cys Gly Glu Asp Tyr Lys Leu His Phe Ile Phe Arg His Lys Asn
        195                 200                 205

Pro Lys Thr Gly Ile Tyr Glu Glu Lys His Ala Lys Arg Pro Asp Ala
    210                 215                 220

Asp Leu Lys Thr Tyr Phe Thr Asp Lys Lys Thr His Leu Tyr Thr Leu
225                 230                 235                 240

Ile Leu Asn Pro Asp Asn Ser Phe Glu Ile Leu Val Asp Gln Ser Val
                245                 250                 255

Val Asn Ser Gly Asn Leu Leu Asn Asp Met Thr Pro Pro Val Asn Pro
            260                 265                 270

Ser Arg Glu Ile Glu Asp Pro Glu Asp Arg Lys Pro Glu Asp Trp Asp
        275                 280                 285

Glu Arg Pro Lys Ile Pro Asp Pro Glu Ala Val Lys Pro Asp Asp Trp
    290                 295                 300

Asp Glu Asp Ala Pro Ala Lys Ile Pro Asp Glu Glu Ala Thr Lys Pro
305                 310                 315                 320

Glu Gly Trp Leu Asp Asp Glu Pro Glu Tyr Val Pro Asp Pro Asp Ala
                325                 330                 335

Glu Lys Pro Glu Asp Trp Asp Glu Asp Met Asp Gly Glu Trp Glu Ala
            340                 345                 350

Pro Gln Ile Ala Asn Pro Arg Cys Glu Ser Ala Pro Gly Cys Gly Val
        355                 360                 365

Trp Gln Arg Pro Val Ile Asp Asn Pro Asn Tyr Lys Gly Lys Trp Lys
    370                 375                 380

Pro Pro Met Ile Asp Asn Pro Ser Tyr Gln Gly Ile Trp Lys Pro Arg
385                 390                 395                 400
```

```
Lys Ile Pro Asn Pro Asp Phe Phe Glu Asp Leu Glu Pro Phe Arg Met
                405                 410                 415

Thr Pro Phe Ser Ala Ile Gly Leu Glu Leu Trp Ser Met Thr Ser Asp
            420                 425                 430

Ile Phe Phe Asp Asn Phe Ile Ile Cys Ala Asp Arg Arg Ile Val Asp
        435                 440                 445

Asp Trp Ala Asn Asp Gly Trp Gly Leu Lys Lys Ala Ala Asp Gly Ala
    450                 455                 460

Ala Glu Pro Gly Val Val Gly Gln Met Ile Glu Ala Ala Glu Glu Arg
465                 470                 475                 480

Pro Trp Leu Trp Val Val Tyr Ile Leu Thr Val Ala Leu Pro Val Phe
                485                 490                 495

Leu Val Ile Leu Phe Cys Cys Ser Gly Lys Lys Gln Thr Ser Gly Met
            500                 505                 510

Glu Tyr Lys Lys Thr Asp Ala Pro Gln Pro Asp Val Lys Glu Glu Glu
        515                 520                 525

Glu Glu Lys Glu Glu Glu Lys Asp Lys Gly Asp Glu Glu Glu Glu Gly
    530                 535                 540

Glu Glu Lys Leu Glu Glu Lys Gln Lys Ser Asp Ala Glu Glu Asp Gly
545                 550                 555                 560

Gly Thr Val Ser Gln Glu Glu Glu Asp Arg Lys Pro Lys Ala Glu Glu
                565                 570                 575

Asp Glu Ile Leu Asn Arg Ser Pro Arg Asn Arg Lys Pro Arg Arg Glu
            580                 585                 590
```

<210> 11096
<211> 189
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

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<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424140"

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11096
Xaa Gly Leu Val Leu Met Ser Arg Ala Lys His His Ala Ile Ser Ala
1 5 10 15

Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr Lys Pro Leu Ile Val Gln
20 25 30

Tyr Glu Val Asn Phe Gln Asn Gly Ile Glu Cys Gly Gly Ala Tyr Val
35 40 45

Lys Leu Leu Ser Lys Thr Pro Glu Leu Asn Leu Asp Gln Phe His Asp
50 55 60

Lys Thr Pro Tyr Thr Ile Met Phe Gly Pro Asp Lys Cys Gly Glu Asp
65 70 75 80

Tyr Lys Leu His Phe Ile Phe Arg His Lys Asn Pro Lys Thr Gly Ile
85 90 95

Tyr Glu Glu Lys His Ala Lys Arg Pro Asp Ala Asp Leu Lys Thr Tyr
100 105 110

Phe Thr Asp Lys Lys Thr His Leu Tyr Thr Leu Lys Ser Arg Gly Thr
115 120 125

Asn His Leu Cys Phe Val His Lys Glu Met Gly Val Ser Phe Pro Lys
130 135 140

Thr Pro Gly Ala Arg His Cys Ser Tyr Pro Lys Ala Ser Val Leu Asn

145 150 155 160

Pro Asp Asn Ser Phe Glu Ile Leu Val Asp Gln Ser Val Val Asn Ser
165 170 175

Gly Asn Leu Leu Asn Asp Met Thr Pro Pro Val Asn Pro
180 185

<210> 11097
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424341"

<400> 11097
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1 5 10 15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
20 25 30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
35 40 45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
50 55 60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65 70 75 80

Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp Glu
85 90 95

```
Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys Glu Ser
            100                 105                 110

Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys His
        115                 120                 125

His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr Lys
    130                 135                 140


<210> 11098
<211> 170
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424740"


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11098
Xaa Leu Tyr Cys Gly Ala Gly Gln Gly Val Arg Ala Gly Arg Gly Thr
1               5                   10                  15

Gly Thr Pro Ala Val Pro Gly Arg Leu Glu Val Thr Tyr Lys Ala Pro
            20                  25                  30

Val Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr
        35                  40                  45

Leu Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp
    50                  55                  60

Glu Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys Glu
```

65 70 75 80

Ser Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys
85 90 95

His His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr
100 105 110

Lys Pro Leu Ile Val Gln Tyr Glu Val Asn Phe Gln Asn Gly Ile Glu
115 120 125

Cys Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro Glu Leu Asn
130 135 140

Leu Asp Gln Phe His Asp Lys Thr Pro Tyr Thr Ile Met Phe Gly Pro
145 150 155 160

Asp Lys Cys Gly Glu Asp Tyr Lys Leu His
165 170

<210> 11099
<211> 134
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000424745"

<400> 11099
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1 5 10 15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
20 25 30

```
Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
        35                  40                  45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
    50                  55                  60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65                  70                  75                  80

Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp Glu
                85                  90                  95

Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys Glu Ser
            100                 105                 110

Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys His
        115                 120                 125

His Ala Ile Ser Ala Lys
    130


<210> 11100
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000425246"

<400> 11100
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1               5                   10                  15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
            20                  25                  30
```

```
Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
        35                  40                  45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
    50                  55                  60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65                  70                  75                  80

Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp Asp Glu
                85                  90                  95

Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys Glu Ser
            100                 105                 110

Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala Lys His
        115                 120                 125

His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp Thr Lys
    130                 135                 140

Pro Leu Ile Val Gln Tyr Glu Val Asn Phe Gln Asn Gly Ile Glu Cys
145                 150                 155                 160

Gly Gly Ala Tyr Val Lys Leu Leu
                165
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<210> 11101
<211> 78
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426052"

<400> 11101
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1   5   10   15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
            20   25   30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
        35   40   45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
    50   55   60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly
65   70   75

<210> 11102
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426425"

<400> 11102
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1   5   10   15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
            20   25   30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
        35   40   45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Glu Ser Gly Arg

50 55 60

<210> 11103
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000426555"

<400> 11103
Met Lys Glu Ser Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser
1 5 10 15

Arg Ala Lys His His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu
20 25 30

Phe Asp Thr Lys Pro Leu Ile Val Gln Tyr Glu Val Asn Phe Gln Asn
35 40 45

Gly Ile Glu Cys Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro
50 55 60

Glu Leu Asn Leu Asp Gln Phe His Asp Lys Thr Pro Tyr Thr Ile Met
65 70 75 80

Phe Gly Pro Asp Lys Cys Gly Glu Asp Tyr Lys Leu His Phe Ile Phe
85 90 95

Arg His Lys Asn Pro Lys Thr Gly Ile Tyr Glu Glu Lys His Ala Lys
100 105 110

Arg Pro Asp Ala Asp Leu Lys Thr Tyr Phe Thr Asp Lys Lys Thr His
115 120 125

Leu Tyr Thr
130

<210> 11104
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2195; "

<220>
<221> source
<223> /note="Gene Symbol: CANX; "

<220>
<221> source
<223> /note="Gene Name: calnexin; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000427115"

<400> 11104
Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly Thr Ala
1 5 10 15

Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp Ile Glu
20 25 30

Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys Pro Asp
35 40 45

Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala Pro Val
50 55 60

Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly Thr Leu
65 70 75 80

Ser Gly Lys Val Gly Gly Arg Gly Asn Glu Gly Val Lys Ala Ser Arg
85 90 95

<210> 11105
<211> 714
<212> PRT
<213> Homo sapiens

<220>
<221> source

<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P07384; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000279247"

<400> 11105

```
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                  10                  15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
```

145 150 155 160

Asp Val Val Val Asp Asp Leu Leu Pro Ile Lys Asp Gly Lys Leu Val
165 170 175

Phe Val His Ser Ala Glu Gly Asn Glu Phe Trp Ser Ala Leu Leu Glu
180 185 190

Lys Ala Tyr Ala Lys Val Asn Gly Ser Tyr Glu Ala Leu Ser Gly Gly
195 200 205

Ser Thr Ser Glu Gly Phe Glu Asp Phe Thr Gly Gly Val Thr Glu Trp
210 215 220

Tyr Glu Leu Arg Lys Ala Pro Ser Asp Leu Tyr Gln Ile Ile Leu Lys
225 230 235 240

Ala Leu Glu Arg Gly Ser Leu Leu Gly Cys Ser Ile Asp Ile Ser Ser
245 250 255

Val Leu Asp Met Glu Ala Ile Thr Phe Lys Lys Leu Val Lys Gly His
260 265 270

Ala Tyr Ser Val Thr Gly Ala Lys Gln Val Asn Tyr Arg Gly Gln Val
275 280 285

Val Ser Leu Ile Arg Met Arg Asn Pro Trp Gly Glu Val Glu Trp Thr
290 295 300

Gly Ala Trp Ser Asp Ser Ser Ser Glu Trp Asn Asn Val Asp Pro Tyr
305 310 315 320

Glu Arg Asp Gln Leu Arg Val Lys Met Glu Asp Gly Glu Phe Trp Met
325 330 335

Ser Phe Arg Asp Phe Met Arg Glu Phe Thr Arg Leu Glu Ile Cys Asn
340 345 350

Leu Thr Pro Asp Ala Leu Lys Ser Arg Thr Ile Arg Lys Trp Asn Thr
355 360 365

Thr Leu Tyr Glu Gly Thr Trp Arg Arg Gly Ser Thr Ala Gly Gly Cys
370 375 380

```
Arg Asn Tyr Pro Ala Thr Phe Trp Val Asn Pro Gln Phe Lys Ile Arg
385                 390                 395                 400

Leu Asp Glu Thr Asp Asp Pro Asp Asp Tyr Gly Asp Arg Glu Ser Gly
                405                 410                 415

Cys Ser Phe Val Leu Ala Leu Met Gln Lys His Arg Arg Arg Glu Arg
            420                 425                 430

Arg Phe Gly Arg Asp Met Glu Thr Ile Gly Phe Ala Val Tyr Glu Val
        435                 440                 445

Pro Pro Glu Leu Val Gly Gln Pro Ala Val His Leu Lys Arg Asp Phe
    450                 455                 460

Phe Leu Ala Asn Ala Ser Arg Ala Arg Ser Glu Gln Phe Ile Asn Leu
465                 470                 475                 480

Arg Glu Val Ser Thr Arg Phe Arg Leu Pro Pro Gly Glu Tyr Val Val
                485                 490                 495

Val Pro Ser Thr Phe Glu Pro Asn Lys Glu Gly Asp Phe Val Leu Arg
            500                 505                 510

Phe Phe Ser Glu Lys Ser Ala Gly Thr Val Glu Leu Asp Asp Gln Ile
        515                 520                 525

Gln Ala Asn Leu Pro Asp Glu Gln Val Leu Ser Glu Glu Glu Ile Asp
    530                 535                 540

Glu Asn Phe Lys Ala Leu Phe Arg Gln Leu Ala Gly Glu Asp Met Glu
545                 550                 555                 560

Ile Ser Val Lys Glu Leu Arg Thr Ile Leu Asn Arg Ile Ile Ser Lys
                565                 570                 575

His Lys Asp Leu Arg Thr Lys Gly Phe Ser Leu Glu Ser Cys Arg Ser
            580                 585                 590

Met Val Asn Leu Met Asp Arg Asp Gly Asn Gly Lys Leu Gly Leu Val
        595                 600                 605
```

```
Glu Phe Asn Ile Leu Trp Asn Arg Ile Arg Asn Tyr Leu Ser Ile Phe
    610                 615                 620

Arg Lys Phe Asp Leu Asp Lys Ser Gly Ser Met Ser Ala Tyr Glu Met
625                 630                 635                 640

Arg Met Ala Ile Glu Ser Ala Gly Phe Lys Leu Asn Lys Lys Leu Tyr
                645                 650                 655

Glu Leu Ile Ile Thr Arg Tyr Ser Glu Pro Asp Leu Ala Val Asp Phe
            660                 665                 670

Asp Asn Phe Val Cys Cys Leu Val Arg Leu Glu Thr Met Phe Arg Phe
        675                 680                 685

Phe Lys Thr Leu Asp Thr Asp Leu Asp Gly Val Val Thr Phe Asp Leu
    690                 695                 700

Phe Lys Trp Leu Gln Leu Thr Met Phe Ala
705                 710
```

<210> 11106
<211> 152
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431172"

<400> 11106

```
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                   10                  15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
```

```
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile Phe His Phe Gln
145                 150


<210> 11107
<211> 161
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431528"
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<400> 11107
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1 5 10 15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
20 25 30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
35 40 45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
50 55 60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65 70 75 80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
85 90 95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
100 105 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
115 120 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
130 135 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145 150 155 160

Asp

<210> 11108
<211> 714
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
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<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P07384; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431686"

<400> 11108
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1   5   10   15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20   25   30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35   40   45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50   55   60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65   70   75   80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85   90   95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100   105   110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115   120   125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130   135   140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145   150   155   160

Asp Val Val Val Asp Asp Leu Leu Pro Ile Lys Asp Gly Lys Leu Val
                165   170   175

```
Phe Val His Ser Ala Glu Gly Asn Glu Phe Trp Ser Ala Leu Leu Glu
            180                 185                 190

Lys Ala Tyr Ala Lys Val Asn Gly Ser Tyr Glu Ala Leu Ser Gly Gly
        195                 200                 205

Ser Thr Ser Glu Gly Phe Glu Asp Phe Thr Gly Gly Val Thr Glu Trp
    210                 215                 220

Tyr Glu Leu Arg Lys Ala Pro Ser Asp Leu Tyr Gln Ile Ile Leu Lys
225                 230                 235                 240

Ala Leu Glu Arg Gly Ser Leu Leu Gly Cys Ser Ile Asp Ile Ser Ser
                245                 250                 255

Val Leu Asp Met Glu Ala Ile Thr Phe Lys Lys Leu Val Lys Gly His
            260                 265                 270

Ala Tyr Ser Val Thr Gly Ala Lys Gln Val Asn Tyr Arg Gly Gln Val
        275                 280                 285

Val Ser Leu Ile Arg Met Arg Asn Pro Trp Gly Glu Val Glu Trp Thr
    290                 295                 300

Gly Ala Trp Ser Asp Ser Ser Ser Glu Trp Asn Asn Val Asp Pro Tyr
305                 310                 315                 320

Glu Arg Asp Gln Leu Arg Val Lys Met Glu Asp Gly Glu Phe Trp Met
                325                 330                 335

Ser Phe Arg Asp Phe Met Arg Glu Phe Thr Arg Leu Glu Ile Cys Asn
            340                 345                 350

Leu Thr Pro Asp Ala Leu Lys Ser Arg Thr Ile Arg Lys Trp Asn Thr
        355                 360                 365

Thr Leu Tyr Glu Gly Thr Trp Arg Arg Gly Ser Thr Ala Gly Gly Cys
    370                 375                 380

Arg Asn Tyr Pro Ala Thr Phe Trp Val Asn Pro Gln Phe Lys Ile Arg
385                 390                 395                 400
```

Leu Asp Glu Thr Asp Asp Pro Asp Asp Tyr Gly Asp Arg Glu Ser Gly
405 410 415

Cys Ser Phe Val Leu Ala Leu Met Gln Lys His Arg Arg Arg Glu Arg
420 425 430

Arg Phe Gly Arg Asp Met Glu Thr Ile Gly Phe Ala Val Tyr Glu Val
435 440 445

Pro Pro Glu Leu Val Gly Gln Pro Ala Val His Leu Lys Arg Asp Phe
450 455 460

Phe Leu Ala Asn Ala Ser Arg Ala Arg Ser Glu Gln Phe Ile Asn Leu
465 470 475 480

Arg Glu Val Ser Thr Arg Phe Arg Leu Pro Pro Gly Glu Tyr Val Val
485 490 495

Val Pro Ser Thr Phe Glu Pro Asn Lys Glu Gly Asp Phe Val Leu Arg
500 505 510

Phe Phe Ser Glu Lys Ser Ala Gly Thr Val Glu Leu Asp Asp Gln Ile
515 520 525

Gln Ala Asn Leu Pro Asp Glu Gln Val Leu Ser Glu Glu Glu Ile Asp
530 535 540

Glu Asn Phe Lys Ala Leu Phe Arg Gln Leu Ala Gly Glu Asp Met Glu
545 550 555 560

Ile Ser Val Lys Glu Leu Arg Thr Ile Leu Asn Arg Ile Ile Ser Lys
565 570 575

His Lys Asp Leu Arg Thr Lys Gly Phe Ser Leu Glu Ser Cys Arg Ser
580 585 590

Met Val Asn Leu Met Asp Arg Asp Gly Asn Gly Lys Leu Gly Leu Val
595 600 605

Glu Phe Asn Ile Leu Trp Asn Arg Ile Arg Asn Tyr Leu Ser Ile Phe
610 615 620

```
Arg Lys Phe Asp Leu Asp Lys Ser Gly Ser Met Ser Ala Tyr Glu Met
625                 630                 635                 640

Arg Met Ala Ile Glu Ser Ala Gly Phe Lys Leu Asn Lys Lys Leu Tyr
                645                 650                 655

Glu Leu Ile Ile Thr Arg Tyr Ser Glu Pro Asp Leu Ala Val Asp Phe
            660                 665                 670

Asp Asn Phe Val Cys Cys Leu Val Arg Leu Glu Thr Met Phe Arg Phe
        675                 680                 685

Phe Lys Thr Leu Asp Thr Asp Leu Asp Gly Val Val Thr Phe Asp Leu
    690                 695                 700

Phe Lys Trp Leu Gln Leu Thr Met Phe Ala
705                 710
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<210> 11109
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431793"

<400> 11109

```
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                   10                  15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45
```

```
Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val
    130                 135


<210> 11110
<211> 714
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
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<223> /note="Gene Name: calpain 1, (mu/I) large
      subunit; "

<220>
<221> source
<223> /note="Uniprot ID:  P07384; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000431984"

<400> 11110
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                   10                  15
```

```
Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145                 150                 155                 160

Asp Val Val Val Asp Asp Leu Leu Pro Ile Lys Asp Gly Lys Leu Val
                165                 170                 175

Phe Val His Ser Ala Glu Gly Asn Glu Phe Trp Ser Ala Leu Leu Glu
            180                 185                 190

Lys Ala Tyr Ala Lys Val Asn Gly Ser Tyr Glu Ala Leu Ser Gly Gly
        195                 200                 205

Ser Thr Ser Glu Gly Phe Glu Asp Phe Thr Gly Gly Val Thr Glu Trp
    210                 215                 220

Tyr Glu Leu Arg Lys Ala Pro Ser Asp Leu Tyr Gln Ile Ile Leu Lys
225                 230                 235                 240

Ala Leu Glu Arg Gly Ser Leu Leu Gly Cys Ser Ile Asp Ile Ser Ser
```

```
                245                 250                 255

Val Leu Asp Met Glu Ala Ile Thr Phe Lys Lys Leu Val Lys Gly His
            260                 265                 270

Ala Tyr Ser Val Thr Gly Ala Lys Gln Val Asn Tyr Arg Gly Gln Val
        275                 280                 285

Val Ser Leu Ile Arg Met Arg Asn Pro Trp Gly Glu Val Glu Trp Thr
    290                 295                 300

Gly Ala Trp Ser Asp Ser Ser Ser Glu Trp Asn Asn Val Asp Pro Tyr
305                 310                 315                 320

Glu Arg Asp Gln Leu Arg Val Lys Met Glu Asp Gly Glu Phe Trp Met
                325                 330                 335

Ser Phe Arg Asp Phe Met Arg Glu Phe Thr Arg Leu Glu Ile Cys Asn
            340                 345                 350

Leu Thr Pro Asp Ala Leu Lys Ser Arg Thr Ile Arg Lys Trp Asn Thr
        355                 360                 365

Thr Leu Tyr Glu Gly Thr Trp Arg Arg Gly Ser Thr Ala Gly Gly Cys
    370                 375                 380

Arg Asn Tyr Pro Ala Thr Phe Trp Val Asn Pro Gln Phe Lys Ile Arg
385                 390                 395                 400

Leu Asp Glu Thr Asp Asp Pro Asp Asp Tyr Gly Asp Arg Glu Ser Gly
                405                 410                 415

Cys Ser Phe Val Leu Ala Leu Met Gln Lys His Arg Arg Arg Glu Arg
            420                 425                 430

Arg Phe Gly Arg Asp Met Glu Thr Ile Gly Phe Ala Val Tyr Glu Val
        435                 440                 445

Pro Pro Glu Leu Val Gly Gln Pro Ala Val His Leu Lys Arg Asp Phe
    450                 455                 460

Phe Leu Ala Asn Ala Ser Arg Ala Arg Ser Glu Gln Phe Ile Asn Leu
465                 470                 475                 480
```

```
Arg Glu Val Ser Thr Arg Phe Arg Leu Pro Pro Gly Glu Tyr Val Val
                485                 490                 495

Val Pro Ser Thr Phe Glu Pro Asn Lys Glu Gly Asp Phe Val Leu Arg
            500                 505                 510

Phe Phe Ser Glu Lys Ser Ala Gly Thr Val Glu Leu Asp Asp Gln Ile
        515                 520                 525

Gln Ala Asn Leu Pro Asp Glu Gln Val Leu Ser Glu Glu Glu Ile Asp
    530                 535                 540

Glu Asn Phe Lys Ala Leu Phe Arg Gln Leu Ala Gly Glu Asp Met Glu
545                 550                 555                 560

Ile Ser Val Lys Glu Leu Arg Thr Ile Leu Asn Arg Ile Ile Ser Lys
                565                 570                 575

His Lys Asp Leu Arg Thr Lys Gly Phe Ser Leu Glu Ser Cys Arg Ser
            580                 585                 590

Met Val Asn Leu Met Asp Arg Asp Gly Asn Gly Lys Leu Gly Leu Val
        595                 600                 605

Glu Phe Asn Ile Leu Trp Asn Arg Ile Arg Asn Tyr Leu Ser Ile Phe
    610                 615                 620

Arg Lys Phe Asp Leu Asp Lys Ser Gly Ser Met Ser Ala Tyr Glu Met
625                 630                 635                 640

Arg Met Ala Ile Glu Ser Ala Gly Phe Lys Leu Asn Lys Lys Leu Tyr
                645                 650                 655

Glu Leu Ile Ile Thr Arg Tyr Ser Glu Pro Asp Leu Ala Val Asp Phe
            660                 665                 670

Asp Asn Phe Val Cys Cys Leu Val Arg Leu Glu Thr Met Phe Arg Phe
        675                 680                 685

Phe Lys Thr Leu Asp Thr Asp Leu Asp Gly Val Val Thr Phe Asp Leu
    690                 695                 700
```

Phe Lys Trp Leu Gln Leu Thr Met Phe Ala
705 710

<210> 11111
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000432512"

<400> 11111
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1 5 10 15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
20 25 30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
35 40 45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
50 55 60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65 70 75 80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
85 90 95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
100 105 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp

```
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145                 150                 155                 160

Asp Val Val Val Asp Asp Leu Leu Pro Ile Lys Asp Gly Lys Leu Val
                165                 170                 175

Phe Val His Ser Ala Glu Gly Asn Glu Phe Trp Ser Ala Leu Leu
            180                 185                 190


<210> 11112
<211> 191
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433366"

<400> 11112
Met Cys Ile Pro Pro Ala Pro Gly Asp Cys Trp Leu Leu Ala Ala Ile
1               5                   10                  15

Ala Ser Leu Thr Leu Asn Asp Thr Leu Leu His Arg Val Val Pro His
            20                  25                  30

Gly Gln Ser Phe Gln Asn Gly Tyr Ala Gly Ile Phe His Phe Gln Leu
        35                  40                  45

Trp Gln Phe Gly Glu Trp Val Asp Val Val Val Asp Asp Leu Leu Pro
    50                  55                  60
```

```
Ile Lys Asp Gly Lys Leu Val Phe Val His Ser Ala Glu Gly Asn Glu
65                  70                  75                  80

Phe Trp Ser Ala Leu Leu Glu Lys Ala Tyr Ala Lys Val Asn Gly Ser
                85                  90                  95

Tyr Glu Ala Leu Ser Gly Gly Ser Thr Ser Glu Gly Phe Glu Asp Phe
            100                 105                 110

Thr Gly Gly Val Thr Glu Trp Tyr Glu Leu Arg Lys Ala Pro Ser Asp
        115                 120                 125

Leu Tyr Gln Ile Ile Leu Lys Ala Leu Glu Arg Gly Ser Leu Leu Gly
    130                 135                 140

Cys Ser Ile Asp Ile Ser Ser Val Leu Asp Met Glu Ala Ile Thr Phe
145                 150                 155                 160

Lys Lys Leu Val Lys Gly His Ala Tyr Ser Val Thr Gly Ala Lys Gln
                165                 170                 175

Val Asn Tyr Arg Gly Gln Val Val Ser Leu Ile Arg Met Arg Asn
            180                 185                 190


<210> 11113
<211> 161
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000433823"

<400> 11113
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
```

1 5 10 15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
20 25 30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
35 40 45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
50 55 60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65 70 75 80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
85 90 95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
100 105 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
115 120 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
130 135 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145 150 155 160

Asp

<210> 11114
<211> 714
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>

<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P07384; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000434176"

<400> 11114

```
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                  10                  15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145                 150                 155                 160

Asp Val Val Val Asp Asp Leu Leu Pro Ile Lys Asp Gly Lys Leu Val
                165                 170                 175
```

```
Phe Val His Ser Ala Glu Gly Asn Glu Phe Trp Ser Ala Leu Leu Glu
            180                 185                 190

Lys Ala Tyr Ala Lys Val Asn Gly Ser Tyr Glu Ala Leu Ser Gly Gly
        195                 200                 205

Ser Thr Ser Glu Gly Phe Glu Asp Phe Thr Gly Gly Val Thr Glu Trp
    210                 215                 220

Tyr Glu Leu Arg Lys Ala Pro Ser Asp Leu Tyr Gln Ile Ile Leu Lys
225                 230                 235                 240

Ala Leu Glu Arg Gly Ser Leu Leu Gly Cys Ser Ile Asp Ile Ser Ser
                245                 250                 255

Val Leu Asp Met Glu Ala Ile Thr Phe Lys Lys Leu Val Lys Gly His
            260                 265                 270

Ala Tyr Ser Val Thr Gly Ala Lys Gln Val Asn Tyr Arg Gly Gln Val
        275                 280                 285

Val Ser Leu Ile Arg Met Arg Asn Pro Trp Gly Glu Val Glu Trp Thr
    290                 295                 300

Gly Ala Trp Ser Asp Ser Ser Ser Glu Trp Asn Asn Val Asp Pro Tyr
305                 310                 315                 320

Glu Arg Asp Gln Leu Arg Val Lys Met Glu Asp Gly Glu Phe Trp Met
                325                 330                 335

Ser Phe Arg Asp Phe Met Arg Glu Phe Thr Arg Leu Glu Ile Cys Asn
            340                 345                 350

Leu Thr Pro Asp Ala Leu Lys Ser Arg Thr Ile Arg Lys Trp Asn Thr
        355                 360                 365

Thr Leu Tyr Glu Gly Thr Trp Arg Arg Gly Ser Thr Ala Gly Gly Cys
    370                 375                 380

Arg Asn Tyr Pro Ala Thr Phe Trp Val Asn Pro Gln Phe Lys Ile Arg
385                 390                 395                 400

Leu Asp Glu Thr Asp Asp Pro Asp Asp Tyr Gly Asp Arg Glu Ser Gly
```

```
                405                 410                 415

Cys Ser Phe Val Leu Ala Leu Met Gln Lys His Arg Arg Arg Glu Arg
            420                 425                 430

Arg Phe Gly Arg Asp Met Glu Thr Ile Gly Phe Ala Val Tyr Glu Val
        435                 440                 445

Pro Pro Glu Leu Val Gly Gln Pro Ala Val His Leu Lys Arg Asp Phe
    450                 455                 460

Phe Leu Ala Asn Ala Ser Arg Ala Arg Ser Glu Gln Phe Ile Asn Leu
465                 470                 475                 480

Arg Glu Val Ser Thr Arg Phe Arg Leu Pro Pro Gly Glu Tyr Val Val
                485                 490                 495

Val Pro Ser Thr Phe Glu Pro Asn Lys Glu Gly Asp Phe Val Leu Arg
            500                 505                 510

Phe Phe Ser Glu Lys Ser Ala Gly Thr Val Glu Leu Asp Asp Gln Ile
        515                 520                 525

Gln Ala Asn Leu Pro Asp Glu Gln Val Leu Ser Glu Glu Glu Ile Asp
    530                 535                 540

Glu Asn Phe Lys Ala Leu Phe Arg Gln Leu Ala Gly Glu Asp Met Glu
545                 550                 555                 560

Ile Ser Val Lys Glu Leu Arg Thr Ile Leu Asn Arg Ile Ile Ser Lys
                565                 570                 575

His Lys Asp Leu Arg Thr Lys Gly Phe Ser Leu Glu Ser Cys Arg Ser
            580                 585                 590

Met Val Asn Leu Met Asp Arg Asp Gly Asn Gly Lys Leu Gly Leu Val
        595                 600                 605

Glu Phe Asn Ile Leu Trp Asn Arg Ile Arg Asn Tyr Leu Ser Ile Phe
    610                 615                 620

Arg Lys Phe Asp Leu Asp Lys Ser Gly Ser Met Ser Ala Tyr Glu Met
625                 630                 635                 640
```

```
Arg Met Ala Ile Glu Ser Ala Gly Phe Lys Leu Asn Lys Lys Leu Tyr
                645                 650                 655

Glu Leu Ile Ile Thr Arg Tyr Ser Glu Pro Asp Leu Ala Val Asp Phe
            660                 665                 670

Asp Asn Phe Val Cys Cys Leu Val Arg Leu Glu Thr Met Phe Arg Phe
        675                 680                 685

Phe Lys Thr Leu Asp Thr Asp Leu Asp Gly Val Val Thr Phe Asp Leu
    690                 695                 700

Phe Lys Trp Leu Gln Leu Thr Met Phe Ala
705                 710


<210> 11115
<211> 122
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435092"

<400> 11115
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                   10                  15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45
```

```
Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala
        115                 120


<210> 11116
<211> 148
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
      subunit; "

<220>
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<223> /note="ENSP ID: ENSP00000435198"

<400> 11116
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                   10                  15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60
```

```
Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile
145
```

<210> 11117
<211> 714
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
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<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="Uniprot ID: P07384; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435272"

<400> 11117

```
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1               5                   10                  15
```

```
Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
            20                  25                  30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
        35                  40                  45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
    50                  55                  60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65                  70                  75                  80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145                 150                 155                 160

Asp Val Val Val Asp Asp Leu Leu Pro Ile Lys Asp Gly Lys Leu Val
                165                 170                 175

Phe Val His Ser Ala Glu Gly Asn Glu Phe Trp Ser Ala Leu Leu Glu
            180                 185                 190

Lys Ala Tyr Ala Lys Val Asn Gly Ser Tyr Glu Ala Leu Ser Gly Gly
        195                 200                 205

Ser Thr Ser Glu Gly Phe Glu Asp Phe Thr Gly Gly Val Thr Glu Trp
    210                 215                 220

Tyr Glu Leu Arg Lys Ala Pro Ser Asp Leu Tyr Gln Ile Ile Leu Lys
225                 230                 235                 240

Ala Leu Glu Arg Gly Ser Leu Leu Gly Cys Ser Ile Asp Ile Ser Ser
```

```
                245                 250                 255

Val Leu Asp Met Glu Ala Ile Thr Phe Lys Lys Leu Val Lys Gly His
            260                 265                 270

Ala Tyr Ser Val Thr Gly Ala Lys Gln Val Asn Tyr Arg Gly Gln Val
        275                 280                 285

Val Ser Leu Ile Arg Met Arg Asn Pro Trp Gly Glu Val Glu Trp Thr
    290                 295                 300

Gly Ala Trp Ser Asp Ser Ser Ser Glu Trp Asn Asn Val Asp Pro Tyr
305                 310                 315                 320

Glu Arg Asp Gln Leu Arg Val Lys Met Glu Asp Gly Glu Phe Trp Met
                325                 330                 335

Ser Phe Arg Asp Phe Met Arg Glu Phe Thr Arg Leu Glu Ile Cys Asn
            340                 345                 350

Leu Thr Pro Asp Ala Leu Lys Ser Arg Thr Ile Arg Lys Trp Asn Thr
        355                 360                 365

Thr Leu Tyr Glu Gly Thr Trp Arg Arg Gly Ser Thr Ala Gly Gly Cys
    370                 375                 380

Arg Asn Tyr Pro Ala Thr Phe Trp Val Asn Pro Gln Phe Lys Ile Arg
385                 390                 395                 400

Leu Asp Glu Thr Asp Asp Pro Asp Asp Tyr Gly Asp Arg Glu Ser Gly
                405                 410                 415

Cys Ser Phe Val Leu Ala Leu Met Gln Lys His Arg Arg Arg Glu Arg
            420                 425                 430

Arg Phe Gly Arg Asp Met Glu Thr Ile Gly Phe Ala Val Tyr Glu Val
        435                 440                 445

Pro Pro Glu Leu Val Gly Gln Pro Ala Val His Leu Lys Arg Asp Phe
    450                 455                 460

Phe Leu Ala Asn Ala Ser Arg Ala Arg Ser Glu Gln Phe Ile Asn Leu
465                 470                 475                 480
```

```
Arg Glu Val Ser Thr Arg Phe Arg Leu Pro Pro Gly Glu Tyr Val Val
                485                 490                 495

Val Pro Ser Thr Phe Glu Pro Asn Lys Glu Gly Asp Phe Val Leu Arg
            500                 505                 510

Phe Phe Ser Glu Lys Ser Ala Gly Thr Val Glu Leu Asp Asp Gln Ile
        515                 520                 525

Gln Ala Asn Leu Pro Asp Glu Gln Val Leu Ser Glu Glu Glu Ile Asp
    530                 535                 540

Glu Asn Phe Lys Ala Leu Phe Arg Gln Leu Ala Gly Glu Asp Met Glu
545                 550                 555                 560

Ile Ser Val Lys Glu Leu Arg Thr Ile Leu Asn Arg Ile Ile Ser Lys
                565                 570                 575

His Lys Asp Leu Arg Thr Lys Gly Phe Ser Leu Glu Ser Cys Arg Ser
            580                 585                 590

Met Val Asn Leu Met Asp Arg Asp Gly Asn Gly Lys Leu Gly Leu Val
        595                 600                 605

Glu Phe Asn Ile Leu Trp Asn Arg Ile Arg Asn Tyr Leu Ser Ile Phe
    610                 615                 620

Arg Lys Phe Asp Leu Asp Lys Ser Gly Ser Met Ser Ala Tyr Glu Met
625                 630                 635                 640

Arg Met Ala Ile Glu Ser Ala Gly Phe Lys Leu Asn Lys Lys Leu Tyr
                645                 650                 655

Glu Leu Ile Ile Thr Arg Tyr Ser Glu Pro Asp Leu Ala Val Asp Phe
            660                 665                 670

Asp Asn Phe Val Cys Cys Leu Val Arg Leu Glu Thr Met Phe Arg Phe
        675                 680                 685

Phe Lys Thr Leu Asp Thr Asp Leu Asp Gly Val Val Thr Phe Asp Leu
    690                 695                 700
```

Phe Lys Trp Leu Gln Leu Thr Met Phe Ala
705 710

<210> 11118
<211> 163
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000435847"

<400> 11118
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1 5 10 15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
20 25 30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
35 40 45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
50 55 60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65 70 75 80

Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
85 90 95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
100 105 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp

115 120 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
130 135 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145 150 155 160

Asp Val Val

<210> 11119
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436002"

<400> 11119
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
1 5 10 15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
20 25 30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
35 40 45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro Val
50 55 60

Pro Gln Ser Leu Gly Tyr Lys Asp Leu Gly Pro Asn Ser Ser Lys Thr
65 70 75 80

```
Tyr Gly Ile Lys Trp Lys Arg Pro Thr Glu Leu Leu Ser Asn Pro Gln
                85                  90                  95

Phe Ile Val Asp Gly Ala Thr Arg Thr Asp Ile Cys Gln Gly Ala Leu
            100                 105                 110

Gly Asp Cys Trp Leu Leu Ala Ala Ile Ala Ser Leu Thr Leu Asn Asp
        115                 120                 125

Thr Leu Leu His Arg Val Val Pro His Gly Gln Ser Phe Gln Asn Gly
    130                 135                 140

Tyr Ala Gly Ile Phe His Phe Gln Leu Trp Gln Phe Gly Glu Trp Val
145                 150                 155                 160

Asp Val Val Val Asp Asp Leu Leu Pro Ile Lys Asp Gly Lys Leu Val
                165                 170                 175

Phe Val His Ser Ala Glu Gly Asn Glu Phe Trp Ser Ala Leu Leu Glu
            180                 185                 190

Lys Ala Tyr Ala Lys Ser Pro Ala Phe
        195                 200


<210> 11120
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2196; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN1; "

<220>
<221> source
<223> /note="Gene Name: calpain 1, (mu/I) large
      subunit; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000436693"

<400> 11120
Met Ser Glu Glu Ile Ile Thr Pro Val Tyr Cys Thr Gly Val Ser Ala
```

1 5 10 15

Gln Val Gln Lys Gln Arg Ala Arg Glu Leu Gly Leu Gly Arg His Glu
20 25 30

Asn Ala Ile Lys Tyr Leu Gly Gln Asp Tyr Glu Gln Leu Arg Val Arg
35 40 45

Cys Leu Gln Ser Gly Thr Leu Phe Arg Asp Glu Ala Phe Pro Pro
50 55 60

<210> 11121
<211> 274
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2197; "

<220>
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<223> /note="Gene Symbol: CAPN10; "

<220>
<221> source
<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HC96; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000270361"

<400> 11121
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1 5 10 15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
20 25 30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
35 40 45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
50 55 60

```
Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65                  70                  75                  80

Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ile Pro Pro Gly
                85                  90                  95

Gln Pro Ser Trp Ala Asp Gln Glu Tyr Arg Gly Ser Phe Thr Cys Arg
            100                 105                 110

Ile Trp Gln Phe Gly Arg Trp Val Glu Val Thr Thr Asp Asp Arg Leu
        115                 120                 125

Pro Cys Leu Ala Gly Arg Leu Cys Phe Ser Arg Cys Gln Arg Glu Asp
    130                 135                 140

Val Phe Trp Leu Pro Leu Leu Glu Lys Gly Pro Trp Val Leu Arg Ala
145                 150                 155                 160

Pro Val Gly Arg Ala Gly Gly Gly Cys Pro Gly Gly Pro Asp Arg Arg
                165                 170                 175

Pro Gly Arg Lys Met Glu Pro Glu Gly Arg Ser Arg Lys Arg Arg Pro
            180                 185                 190

Ala Gly Gln Ala Arg Pro Leu Gly Ala Gln Asp Leu Ser Ala Ala Ala
        195                 200                 205

Pro Pro Glu Gly Pro Val Ser Asp Gln Leu Leu Arg Ala Gln Pro Gln
    210                 215                 220

Ser Arg Cys Pro Gly Ala Gly Gly Val Pro Cys Leu His Cys Leu Gly
225                 230                 235                 240

Pro Ala Gly Ala Pro Gly Ser Gly Gly Pro Val His Pro Ala Ala Ala
                245                 250                 255

Asp Pro Glu Pro Leu Gly Pro Ala Val Leu Ala Gly Ala Leu Glu Arg
            260                 265                 270

Gly Gly
```

<210> 11122

<211> 517
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2197; "

<220>
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<223> /note="Gene Symbol: CAPN10; "

<220>
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<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HC96; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000270362"

<400> 11122
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1   5   10   15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20   25   30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
        35   40   45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
    50   55   60

Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65   70   75   80

Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ile Pro Pro Gly
                85   90   95

Gln Pro Ser Trp Ala Asp Gln Glu Tyr Arg Gly Ser Phe Thr Cys Arg
            100   105   110

Ile Trp Gln Phe Gly Arg Trp Val Glu Val Thr Thr Asp Asp Arg Leu
        115   120   125

```
Pro Cys Leu Ala Gly Arg Leu Cys Phe Ser Arg Cys Gln Arg Glu Asp
    130                 135                 140

Val Phe Trp Leu Pro Leu Leu Glu Lys Val Tyr Ala Lys Val His Gly
145                 150                 155                 160

Ser Tyr Glu His Leu Trp Ala Gly Gln Val Ala Asp Ala Leu Val Asp
                165                 170                 175

Leu Thr Gly Gly Leu Ala Glu Arg Trp Asn Leu Lys Gly Val Ala Gly
            180                 185                 190

Ser Gly Gly Gln Gln Asp Arg Pro Gly Arg Trp Glu His Arg Thr Cys
        195                 200                 205

Arg Gln Leu Leu His Leu Lys Asp Gln Cys Leu Ile Ser Cys Cys Val
    210                 215                 220

Leu Ser Pro Arg Ala Gly Ala Arg Glu Leu Gly Glu Phe His Ala Phe
225                 230                 235                 240

Ile Val Ser Asp Leu Arg Glu Leu Gln Gly Gln Ala Gly Gln Cys Ile
                245                 250                 255

Leu Leu Leu Arg Ile Gln Asn Pro Trp Gly Arg Arg Cys Trp Gln Gly
            260                 265                 270

Leu Trp Arg Glu Gly Gly Glu Gly Trp Ser Gln Val Asp Ala Ala Val
        275                 280                 285

Ala Ser Glu Leu Leu Ser Gln Leu Gln Glu Gly Glu Phe Trp Val Glu
    290                 295                 300

Glu Glu Glu Phe Leu Arg Glu Phe Asp Glu Leu Thr Val Gly Tyr Pro
305                 310                 315                 320

Val Thr Glu Ala Gly His Leu Gln Ser Leu Tyr Thr Glu Arg Leu Leu
                325                 330                 335

Cys His Thr Arg Ala Leu Pro Gly Ala Trp Val Lys Gly Gln Ser Ala
            340                 345                 350

Gly Gly Cys Arg Asn Asn Ser Gly Phe Pro Ser Asn Pro Lys Phe Trp
```

```
        355                 360                 365

Leu Arg Val Ser Glu Pro Ser Glu Val Tyr Ile Ala Val Leu Gln Arg
    370                 375                 380

Ser Arg Leu His Ala Ala Asp Trp Ala Gly Arg Ala Arg Ala Leu Val
385                 390                 395                 400

Gly Asp Ser His Thr Ser Trp Ser Pro Ala Ser Ile Pro Gly Lys His
                405                 410                 415

Tyr Gln Ala Val Gly Leu His Leu Trp Lys Val Pro Glu Gly Gly Arg
            420                 425                 430

Ser Gln Asp Ala Pro Pro Leu Leu Leu Gln Glu Pro Leu Leu Ser Cys
        435                 440                 445

Val Pro His Arg Tyr Ala Gln Glu Val Ser Arg Leu Cys Leu Leu Pro
    450                 455                 460

Ala Gly Thr Tyr Lys Val Val Pro Ser Thr Tyr Leu Pro Asp Thr Glu
465                 470                 475                 480

Gly Ala Phe Thr Val Thr Ile Ala Thr Arg Ile Asp Arg Pro Ser Ile
                485                 490                 495

His Ser Gln Glu Met Leu Gly Gln Phe Leu Gln Glu Val Ser Ile Met
            500                 505                 510

Ala Val Met Lys Thr
        515


<210> 11123
<211> 139
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2197; "

<220>
<221> source
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<220>
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<221> source
<223> /note="Gene Name: calpain 10; "

<220>
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<223> /note="Uniprot ID: Q9HC96; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000270364"

<400> 11123
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1   5   10   15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20   25   30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
        35   40   45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
    50   55   60

Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65   70   75   80

Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ser Cys Pro Val
                85   90   95

Gln Leu Pro Ala Asp Trp Thr Cys Lys Val Gln Pro Val Trp Leu Glu
            100   105   110

Phe Pro Cys Leu Pro Ile Ser Cys Arg Leu Arg Val Ser Ser Asp Thr
        115   120   125

Ser Pro Asp Ser Ala Thr Trp Gly Ser Trp Lys
    130   135

<210> 11124
<211> 138
<212> PRT
<213> Homo sapiens

<220>
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<220>
<221> source
<223> /note="Gene Symbol: CAPN10; "

<220>
<221> source
<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HC96; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000289381"

<400> 11124
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1   5   10   15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20   25   30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Val
        35   40   45

Pro Glu Gly Gly Arg Ser Gln Asp Ala Pro Pro Leu Leu Leu Gln Glu
    50   55   60

Pro Leu Leu Ser Cys Val Pro His Arg Tyr Ala Gln Glu Val Ser Arg
65   70   75   80

Leu Cys Leu Leu Pro Ala Gly Thr Tyr Lys Val Val Pro Ser Thr Tyr
                85   90   95

Leu Pro Asp Thr Glu Gly Ala Phe Thr Val Thr Ile Ala Thr Arg Ile
            100   105   110

Asp Arg Pro Ser Ile His Ser Gln Glu Met Leu Gly Gln Phe Leu Gln
        115   120   125

Glu Val Ser Ile Met Ala Val Met Lys Thr
    130   135

<210> 11125
<211> 513
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2197; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN10; "

<220>
<221> source
<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HC96; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000349556"

<400> 11125
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1   5   10   15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20   25   30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
        35   40   45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
    50   55   60

Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65   70   75   80

Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ile Pro Pro Gly
                85   90   95

Gln Pro Ser Trp Ala Asp Gln Glu Tyr Arg Gly Ser Phe Thr Cys Arg
            100   105   110

Ile Trp Gln Phe Gly Arg Trp Val Glu Val Thr Thr Asp Asp Arg Leu
        115   120   125

Pro Cys Leu Ala Gly Arg Leu Cys Phe Ser Arg Cys Gln Arg Glu Asp
    130   135   140

```
Val Phe Trp Leu Pro Leu Leu Glu Lys Val Tyr Ala Lys Val His Gly
145                 150                 155                 160

Ser Tyr Glu His Leu Trp Ala Gly Gln Val Ala Asp Ala Leu Val Asp
                165                 170                 175

Leu Thr Gly Gly Leu Ala Glu Arg Trp Asn Leu Lys Gly Val Ala Gly
            180                 185                 190

Ser Gly Gly Gln Gln Asp Arg Pro Gly Arg Trp Glu His Arg Thr Cys
        195                 200                 205

Arg Gln Leu Leu His Leu Lys Asp Gln Cys Leu Ile Ser Cys Cys Val
    210                 215                 220

Leu Ser Pro Arg Ala Gly Ala Arg Glu Leu Gly Glu Phe His Ala Phe
225                 230                 235                 240

Ile Val Ser Asp Leu Arg Glu Leu Gln Gly Gln Ala Gly Gln Cys Ile
                245                 250                 255

Leu Leu Leu Arg Ile Gln Asn Pro Trp Gly Arg Arg Cys Trp Gln Gly
            260                 265                 270

Leu Trp Arg Glu Gly Gly Glu Gly Trp Ser Gln Val Asp Ala Ala Val
        275                 280                 285

Ala Ser Glu Leu Leu Ser Gln Leu Gln Glu Gly Glu Phe Trp Val Glu
    290                 295                 300

Glu Glu Glu Phe Leu Arg Glu Phe Asp Glu Leu Thr Val Gly Tyr Pro
305                 310                 315                 320

Val Thr Glu Ala Gly His Leu Gln Ser Leu Tyr Thr Glu Arg Leu Leu
                325                 330                 335

Cys His Thr Arg Ala Leu Pro Gly Ala Trp Val Lys Gly Gln Ser Ala
            340                 345                 350

Gly Gly Cys Arg Asn Asn Ser Gly Phe Pro Ser Asn Pro Lys Phe Trp
        355                 360                 365
```

```
Leu Arg Val Ser Glu Pro Ser Glu Val Tyr Ile Ala Val Leu Gln Arg
    370                 375                 380

Ser Arg Leu His Ala Ala Asp Trp Ala Gly Arg Ala Arg Ala Leu Val
385                 390                 395                 400

Gly Asp Ser His Thr Ser Trp Ser Pro Ala Ser Ile Pro Gly Lys His
                405                 410                 415

Tyr Gln Ala Val Gly Leu His Leu Trp Lys Val Glu Lys Arg Arg Val
            420                 425                 430

Asn Leu Pro Arg Val Leu Ser Met Pro Pro Val Ala Gly Thr Ala Cys
        435                 440                 445

His Ala Tyr Asp Arg Glu Val His Leu Arg Cys Glu Leu Ser Pro Gly
    450                 455                 460

Tyr Tyr Leu Ala Val Pro Ser Thr Phe Leu Lys Asp Ala Pro Gly Glu
465                 470                 475                 480

Phe Leu Leu Arg Val Phe Ser Thr Gly Arg Val Ser Leu Arg Ser Gln
                485                 490                 495

Arg Val Glu Gly Ala Arg Thr His Pro His Cys Cys Cys Arg Ser Arg
            500                 505                 510

Cys
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<210> 11126
<211> 544
<212> PRT
<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2197; "

<220>
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<223> /note="Gene Symbol: CAPN10; "

<220>
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<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="Uniprot ID: Q9HC96; "

<220>
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<223> /note="ENSP ID: ENSP00000375843"

<400> 11126
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1   5   10   15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20   25   30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
        35   40   45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
    50   55   60

Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65   70   75   80

Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ile Pro Pro Gly
                85   90   95

Gln Pro Ser Trp Ala Asp Gln Glu Tyr Arg Gly Ser Phe Thr Cys Arg
            100   105   110

Ile Trp Gln Phe Gly Arg Trp Val Glu Val Thr Thr Asp Asp Arg Leu
        115   120   125

Pro Cys Leu Ala Gly Arg Leu Cys Phe Ser Arg Cys Gln Arg Glu Asp
    130   135   140

Val Phe Trp Leu Pro Leu Leu Glu Lys Val Tyr Ala Lys Val His Gly
145   150   155   160

Ser Tyr Glu His Leu Trp Ala Gly Gln Val Ala Asp Ala Leu Val Asp
                165   170   175

Leu Thr Gly Gly Leu Ala Glu Arg Trp Asn Leu Lys Gly Val Ala Gly
            180   185   190

```
Ser Gly Gly Gln Gln Asp Arg Pro Gly Arg Trp Glu His Arg Thr Cys
        195                 200                 205

Arg Gln Leu Leu His Leu Lys Asp Gln Cys Leu Ile Ser Cys Cys Val
    210                 215                 220

Leu Ser Pro Arg Ala Gly Ala Arg Glu Leu Gly Glu Phe His Ala Phe
225                 230                 235                 240

Ile Val Ser Asp Leu Arg Glu Leu Gln Gly Gln Ala Gly Gln Cys Ile
                245                 250                 255

Leu Leu Leu Arg Ile Gln Asn Pro Trp Gly Arg Arg Cys Trp Gln Gly
            260                 265                 270

Leu Trp Arg Glu Gly Gly Glu Gly Trp Ser Gln Val Asp Ala Ala Val
        275                 280                 285

Ala Ser Glu Leu Leu Ser Gln Leu Gln Glu Gly Glu Phe Trp Val Glu
    290                 295                 300

Glu Glu Glu Phe Leu Arg Glu Phe Asp Glu Leu Thr Val Gly Tyr Pro
305                 310                 315                 320

Val Thr Glu Ala Gly His Leu Gln Ser Leu Tyr Thr Glu Arg Leu Leu
                325                 330                 335

Cys His Thr Arg Ala Leu Pro Gly Ala Trp Val Lys Gly Gln Ser Ala
            340                 345                 350

Gly Gly Cys Arg Asn Asn Ser Gly Phe Pro Ser Asn Pro Lys Phe Trp
        355                 360                 365

Leu Arg Val Ser Glu Pro Ser Glu Val Tyr Ile Ala Val Leu Gln Arg
    370                 375                 380

Ser Arg Leu His Ala Ala Asp Trp Ala Gly Arg Ala Arg Ala Leu Val
385                 390                 395                 400

Gly Asp Ser His Thr Ser Trp Ser Pro Ala Ser Ile Pro Gly Lys His
                405                 410                 415

Tyr Gln Ala Val Gly Leu His Leu Trp Lys Val Glu Lys Arg Arg Val
```

```
            420                 425                 430

Asn Leu Pro Arg Val Leu Ser Met Pro Pro Val Ala Gly Thr Ala Cys
        435                 440                 445

His Ala Tyr Asp Arg Glu Val His Leu Arg Cys Glu Leu Ser Pro Gly
    450                 455                 460

Tyr Tyr Leu Ala Val Pro Ser Thr Phe Leu Lys Asp Ala Pro Gly Glu
465                 470                 475                 480

Phe Leu Leu Arg Val Phe Ser Thr Gly Arg Val Ser Leu Arg Ala Leu
                485                 490                 495

Ala Pro Ala Ala Ser Ala Ser Leu Cys Ile Ser Thr Ala Gly Pro Val
            500                 505                 510

Thr Pro Ser Ser Thr Pro Ser Ala Ser Ile Ser Ser Arg Ser Gln Arg
        515                 520                 525

Val Glu Gly Ala Arg Thr His Pro His Cys Cys Cys Arg Ser Arg Cys
    530                 535                 540


<210> 11127
<211> 672
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<223> /note="Uniprot ID:  Q9HC96; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000375844"

<400> 11127
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Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1               5                  10                  15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20                  25                  30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
        35                  40                  45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
    50                  55                  60

Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65                  70                  75                  80

Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ile Pro Pro Gly
                85                  90                  95

Gln Pro Ser Trp Ala Asp Gln Glu Tyr Arg Gly Ser Phe Thr Cys Arg
            100                 105                 110

Ile Trp Gln Phe Gly Arg Trp Val Glu Val Thr Thr Asp Asp Arg Leu
        115                 120                 125

Pro Cys Leu Ala Gly Arg Leu Cys Phe Ser Arg Cys Gln Arg Glu Asp
    130                 135                 140

Val Phe Trp Leu Pro Leu Leu Glu Lys Val Tyr Ala Lys Val His Gly
145                 150                 155                 160

Ser Tyr Glu His Leu Trp Ala Gly Gln Val Ala Asp Ala Leu Val Asp
                165                 170                 175

Leu Thr Gly Gly Leu Ala Glu Arg Trp Asn Leu Lys Gly Val Ala Gly
            180                 185                 190

Ser Gly Gly Gln Gln Asp Arg Pro Gly Arg Trp Glu His Arg Thr Cys
        195                 200                 205

Arg Gln Leu Leu His Leu Lys Asp Gln Cys Leu Ile Ser Cys Cys Val
    210                 215                 220

Leu Ser Pro Arg Ala Gly Ala Arg Glu Leu Gly Glu Phe His Ala Phe
```

225 230 235 240

Ile Val Ser Asp Leu Arg Glu Leu Gln Gly Gln Ala Gly Gln Cys Ile
245 250 255

Leu Leu Leu Arg Ile Gln Asn Pro Trp Gly Arg Arg Cys Trp Gln Gly
260 265 270

Leu Trp Arg Glu Gly Gly Glu Gly Trp Ser Gln Val Asp Ala Ala Val
275 280 285

Ala Ser Glu Leu Leu Ser Gln Leu Gln Glu Gly Glu Phe Trp Val Glu
290 295 300

Glu Glu Glu Phe Leu Arg Glu Phe Asp Glu Leu Thr Val Gly Tyr Pro
305 310 315 320

Val Thr Glu Ala Gly His Leu Gln Ser Leu Tyr Thr Glu Arg Leu Leu
325 330 335

Cys His Thr Arg Ala Leu Pro Gly Ala Trp Val Lys Gly Gln Ser Ala
340 345 350

Gly Gly Cys Arg Asn Asn Ser Gly Phe Pro Ser Asn Pro Lys Phe Trp
355 360 365

Leu Arg Val Ser Glu Pro Ser Glu Val Tyr Ile Ala Val Leu Gln Arg
370 375 380

Ser Arg Leu His Ala Ala Asp Trp Ala Gly Arg Ala Arg Ala Leu Val
385 390 395 400

Gly Asp Ser His Thr Ser Trp Ser Pro Ala Ser Ile Pro Gly Lys His
405 410 415

Tyr Gln Ala Val Gly Leu His Leu Trp Lys Val Glu Lys Arg Arg Val
420 425 430

Asn Leu Pro Arg Val Leu Ser Met Pro Pro Val Ala Gly Thr Ala Cys
435 440 445

His Ala Tyr Asp Arg Glu Val His Leu Arg Cys Glu Leu Ser Pro Gly
450 455 460

Tyr Tyr Leu Ala Val Pro Ser Thr Phe Leu Lys Asp Ala Pro Gly Glu
465 470 475 480

Phe Leu Leu Arg Val Phe Ser Thr Gly Arg Val Ser Leu Ser Ala Ile
485 490 495

Arg Ala Val Ala Lys Asn Thr Thr Pro Gly Ala Ala Leu Pro Ala Gly
500 505 510

Glu Trp Gly Thr Val Gln Leu Arg Gly Ser Trp Arg Val Gly Gln Thr
515 520 525

Ala Gly Gly Ser Arg Asn Phe Ala Ser Tyr Pro Thr Asn Pro Cys Phe
530 535 540

Pro Phe Ser Val Pro Glu Gly Pro Gly Pro Arg Cys Val Arg Ile Thr
545 550 555 560

Leu His Gln His Cys Arg Pro Ser Asp Thr Glu Phe His Pro Ile Gly
565 570 575

Phe His Ile Phe Gln Val Pro Glu Gly Gly Arg Ser Gln Asp Ala Pro
580 585 590

Pro Leu Leu Leu Gln Glu Pro Leu Leu Ser Cys Val Pro His Arg Tyr
595 600 605

Ala Gln Glu Val Ser Arg Leu Cys Leu Leu Pro Ala Gly Thr Tyr Lys
610 615 620

Val Val Pro Ser Thr Tyr Leu Pro Asp Thr Glu Gly Ala Phe Thr Val
625 630 635 640

Thr Ile Ala Thr Arg Ile Asp Arg Pro Ser Ile His Ser Gln Glu Met
645 650 655

Leu Gly Gln Phe Leu Gln Glu Val Ser Ile Met Ala Val Met Lys Thr
660 665 670

<210> 11128
<211> 653
<212> PRT

<213> Homo sapiens

<220>
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<223> /note="Payload ID: 2197; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN10; "

<220>
<221> source
<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000384422"

<400> 11128
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1   5   10   15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20   25   30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
        35   40   45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
    50   55   60

Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65   70   75   80

Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ile Pro Pro Gly
                85   90   95

Gln Pro Ser Trp Ala Asp Gln Glu Tyr Arg Gly Ser Phe Thr Cys Arg
            100   105   110

Ile Trp Gln Phe Gly Arg Trp Val Glu Val Thr Thr Asp Asp Arg Leu
        115   120   125

Pro Cys Leu Ala Gly Arg Leu Cys Phe Ser Arg Cys Gln Arg Glu Asp
    130   135   140

Val Phe Trp Leu Pro Leu Leu Glu Lys Val Tyr Ala Lys Val His Gly
145   150   155   160

```
Ser Tyr Glu His Leu Trp Ala Gly Gln Val Ala Asp Ala Leu Val Asp
                165                 170                 175

Leu Thr Gly Gly Leu Ala Glu Arg Trp Asn Leu Lys Gly Val Ala Gly
            180                 185                 190

Ser Gly Gly Gln Gln Asp Arg Pro Gly Arg Trp Glu His Arg Thr Cys
        195                 200                 205

Arg Gln Leu Leu His Leu Lys Asp Gln Cys Leu Ile Ser Cys Cys Val
    210                 215                 220

Leu Ser Pro Arg Ala Gly Ala Arg Glu Leu Gly Glu Phe His Ala Phe
225                 230                 235                 240

Ile Val Ser Asp Leu Arg Glu Leu Gln Gly Gln Ala Gly Gln Cys Ile
                245                 250                 255

Leu Leu Leu Arg Ile Gln Asn Pro Trp Gly Arg Arg Cys Trp Gln Gly
            260                 265                 270

Leu Trp Arg Glu Gly Gly Glu Gly Trp Ser Gln Val Asp Ala Ala Val
        275                 280                 285

Ala Ser Glu Leu Leu Ser Gln Leu Gln Glu Gly Glu Phe Trp Val Glu
    290                 295                 300

Glu Glu Glu Phe Leu Arg Glu Phe Asp Glu Leu Thr Val Gly Tyr Pro
305                 310                 315                 320

Val Thr Glu Ala Gly His Leu Gln Ser Leu Tyr Thr Glu Arg Leu Leu
                325                 330                 335

Cys His Thr Arg Ala Leu Pro Gly Ala Trp Val Lys Gly Gln Ser Ala
            340                 345                 350

Gly Gly Cys Arg Asn Asn Ser Gly Phe Pro Ser Asn Pro Lys Phe Trp
        355                 360                 365

Leu Arg Val Ser Glu Pro Ser Glu Val Tyr Ile Ala Val Leu Gln Arg
    370                 375                 380
```

Ser Arg Leu His Ala Ala Asp Trp Ala Gly Arg Ala Arg Ala Leu Val
385 390 395 400

Gly Asp Ser His Thr Ser Trp Ser Pro Ala Ser Ile Pro Gly Lys His
405 410 415

Tyr Gln Ala Val Gly Leu His Leu Trp Lys Val Glu Lys Arg Arg Val
420 425 430

Asn Leu Pro Arg Val Leu Ser Met Pro Pro Val Ala Gly Thr Ala Cys
435 440 445

His Ala Tyr Asp Arg Glu Val His Leu Arg Cys Glu Leu Ser Pro Gly
450 455 460

Tyr Tyr Leu Ala Val Pro Ser Thr Phe Leu Lys Asp Ala Pro Gly Glu
465 470 475 480

Phe Leu Leu Arg Val Phe Ser Thr Gly Arg Val Ser Leu Ser Ala Ile
485 490 495

Arg Ala Val Ala Lys Asn Thr Thr Pro Gly Ala Ala Leu Pro Ala Gly
500 505 510

Glu Trp Gly Thr Val Gln Leu Arg Gly Ser Trp Arg Val Gly Gln Thr
515 520 525

Ala Gly Gly Ser Arg Asn Phe Ala Ser Tyr Pro Thr Asn Pro Cys Phe
530 535 540

Pro Phe Ser Val Pro Glu Gly Pro Gly Pro Arg Cys Val Arg Ile Thr
545 550 555 560

Leu His Gln His Cys Arg Pro Ser Asp Thr Glu Phe His Pro Ile Gly
565 570 575

Phe His Ile Phe Gln Val Pro Glu Gly Gly Arg Ser Gln Asp Ala Pro
580 585 590

Pro Leu Leu Leu Gln Glu Pro Leu Leu Ser Cys Val Pro His Arg Tyr
595 600 605

```
Ala Gln Glu Val Ser Arg Leu Cys Leu Leu Pro Ala Gly Thr Tyr Lys
    610                 615                 620

Val Val Pro Ser Thr Tyr Leu Pro Asp Thr Glu Gly Ala Phe Thr Val
625                 630                 635                 640

Thr Ile Ala Thr Arg Ile Asp Arg Ser Pro Ser Trp Gln
                645                 650


<210> 11129
<211> 444
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2197; "

<220>
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<223> /note="Gene Symbol: CAPN10; "

<220>
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<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="Uniprot ID:  Q9HC96; "

<220>
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<223> /note="ENSP ID: ENSP00000400144"

<400> 11129
Met Arg Ala Gly Arg Gly Ala Thr Pro Ala Arg Glu Leu Phe Arg Asp
1               5                   10                  15

Ala Ala Phe Pro Ala Ala Asp Ser Ser Leu Phe Cys Asp Leu Ser Thr
            20                  25                  30

Pro Leu Ala Gln Phe Arg Glu Asp Ile Thr Trp Arg Arg Pro Gln Glu
        35                  40                  45

Ile Cys Ala Thr Pro Arg Leu Phe Pro Asp Asp Pro Arg Glu Gly Gln
    50                  55                  60

Val Lys Gln Gly Leu Leu Gly Asp Cys Trp Phe Leu Cys Ala Cys Ala
65                  70                  75                  80
```

```
Ala Leu Gln Lys Ser Arg His Leu Leu Asp Gln Val Ile Pro Pro Gly
                85                  90                  95

Gln Pro Ser Trp Ala Asp Gln Glu Tyr Arg Gly Ser Phe Thr Cys Arg
            100                 105                 110

Ile Trp Gln Phe Gly Arg Trp Val Glu Val Thr Thr Asp Asp Arg Leu
        115                 120                 125

Pro Cys Leu Ala Gly Arg Leu Cys Phe Ser Arg Cys Gln Arg Glu Asp
    130                 135                 140

Val Phe Trp Leu Pro Leu Leu Glu Lys Val Tyr Ala Lys Val His Gly
145                 150                 155                 160

Ser Tyr Glu His Leu Trp Ala Gly Gln Val Ala Asp Ala Leu Val Asp
                165                 170                 175

Leu Thr Gly Gly Leu Ala Glu Arg Trp Asn Leu Lys Gly Val Ala Gly
            180                 185                 190

Ser Gly Gly Gln Gln Asp Arg Pro Gly Arg Trp Glu His Arg Thr Cys
        195                 200                 205

Arg Gln Leu Leu His Leu Lys Asp Gln Cys Leu Ile Ser Cys Cys Val
    210                 215                 220

Leu Ser Pro Arg Ala Gly Ala Arg Glu Leu Gly Glu Phe His Ala Phe
225                 230                 235                 240

Ile Val Ser Asp Leu Arg Glu Leu Gln Gly Gln Ala Gly Gln Cys Ile
                245                 250                 255

Leu Leu Leu Arg Ile Gln Asn Pro Trp Gly Arg Arg Cys Trp Gln Gly
            260                 265                 270

Leu Trp Arg Glu Gly Gly Glu Gly Trp Ser Gln Val Asp Ala Ala Val
        275                 280                 285

Ala Ser Glu Leu Leu Ser Gln Leu Gln Glu Gly Glu Phe Trp Val Glu
    290                 295                 300
```

```
Glu Glu Glu Phe Leu Arg Glu Phe Asp Glu Leu Thr Val Gly Tyr Pro
305                 310                 315                 320

Val Thr Glu Ala Gly His Leu Gln Ser Leu Tyr Thr Glu Arg Leu Leu
                325                 330                 335

Cys His Thr Arg Ala Leu Pro Gly Ala Trp Val Lys Gly Gln Ser Ala
            340                 345                 350

Gly Gly Cys Arg Asn Asn Ser Gly Phe Pro Ser Asn Pro Lys Phe Trp
        355                 360                 365

Leu Arg Val Ser Glu Pro Ser Glu Val Tyr Ile Ala Val Leu Gln Arg
    370                 375                 380

Ser Arg Leu His Ala Ala Asp Trp Ala Gly Arg Ala Arg Ala Leu Val
385                 390                 395                 400

Gly Asp Ser His Thr Ser Trp Ser Pro Ala Ser Ile Pro Gly Lys His
                405                 410                 415

Tyr Gln Ala Val Gly Leu His Leu Trp Lys Gly Val Thr Leu Gly Thr
            420                 425                 430

Thr Leu Phe Pro Val Pro Ser Trp Met Trp Pro Thr
        435                 440


<210> 11130
<211> 46
<212> PRT
<213> Homo sapiens

<220>
<221> source
<223> /note="Payload ID: 2197; "

<220>
<221> source
<223> /note="Gene Symbol: CAPN10; "

<220>
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<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000404064"
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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 11130
Xaa Ser Thr Tyr Leu Pro Asp Thr Glu Gly Ala Phe Thr Val Thr Ile
1 5 10 15

Ala Thr Arg Ile Asp Arg Pro Ser Ile His Ser Gln Glu Met Leu Gly
20 25 30

Gln Phe Leu Gln Glu Val Ser Ile Met Ala Val Met Lys Thr
35 40 45

<210> 11131
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> source
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<220>
<221> source
<223> /note="Gene Symbol: CAPN10; "

<220>
<221> source
<223> /note="Gene Name: calpain 10; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000407090"

<400> 11131
Leu Glu Lys Val Tyr Ala Lys Val His Gly Ser Tyr Glu His Leu Trp
1 5 10 15

Ala Gly Gln Val Ala Asp Ala Leu Val Asp Leu Thr Gly Gly Leu Ala
20 25 30

Glu Arg Trp Asn Leu Lys Gly Val Ala Gly Ser Gly Gly Gln Gln Asp
35 40 45

Arg Pro Gly Arg Trp Glu His Arg Thr Cys Arg Gln Leu Leu His Leu
50 55 60

Lys Asp Gln Cys Leu Ile Ser Cys Cys Val Leu Ser Pro Arg Ala Val
65 70 75 80

Ile Asp Asn Ile Arg
85

<210> 11132
<211> 739
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> /note="Gene Name: calpain 11; "

<220>
<221> source
<223> /note="Uniprot ID: Q9UMQ6; "

<220>
<221> source
<223> /note="ENSP ID: ENSP00000381758"

<400> 11132
Met Leu Tyr Ser Pro Gly Pro Ser Leu Pro Glu Ser Ala Glu Ser Leu
1 5 10 15

Asp Gly Ser Gln Glu Asp Lys Pro Arg Gly Ser Cys Ala Glu Pro Thr
20 25 30

Phe Thr Asp Thr Gly Met Val Ala His Ile Asn Asn Ser Arg Leu Lys
35 40 45

Ala Lys Gly Val Gly Gln His Asp Asn Ala Gln Asn Phe Gly Asn Gln
50 55 60

Ser Phe Glu Glu Leu Arg Ala Ala Cys Leu Arg Lys Gly Glu Leu Phe
65 70 75 80

Glu Asp Pro Leu Phe Pro Ala Glu Pro Ser Ser Leu Gly Phe Lys Asp
85 90 95

```
Leu Gly Pro Asn Ser Lys Asn Val Gln Asn Ile Ser Trp Gln Arg Pro
            100                 105                 110

Lys Asp Ile Ile Asn Asn Pro Leu Phe Ile Met Asp Gly Ile Ser Pro
        115                 120                 125

Thr Asp Ile Cys Gln Gly Ile Leu Gly Asp Cys Trp Leu Leu Ala Ala
    130                 135                 140

Ile Gly Ser Leu Thr Thr Cys Pro Lys Leu Leu Tyr Arg Val Val Pro
145                 150                 155                 160

Arg Gly Gln Ser Phe Lys Lys Asn Tyr Ala Gly Ile Phe His Phe Gln
                165                 170                 175

Ile Trp Gln Phe Gly Gln Trp Val Asn Val Val Val Asp Asp Arg Leu
            180                 185                 190

Pro Thr Lys Asn Asp Lys Leu Val Phe Val His Ser Thr Glu Arg Ser
        195                 200                 205

Glu Phe Trp Ser Ala Leu Leu Glu Lys Ala Tyr Ala Lys Leu Ser Gly
    210                 215                 220

Ser Tyr Glu Ala Leu Ser Gly Gly Ser Thr Met Glu Gly Leu Glu Asp
225                 230                 235                 240

Phe Thr Gly Gly Val Ala Gln Ser Phe Gln Leu Gln Arg Pro Pro Gln
                245                 250                 255

Asn Leu Leu Arg Leu Leu Arg Lys Ala Val Glu Arg Ser Ser Leu Met
            260                 265                 270

Gly Cys Ser Ile Glu Val Thr Ser Asp Ser Glu Leu Glu Ser Met Thr
        275                 280                 285

Asp Lys Met Leu Val Arg Gly His Ala Tyr Ser Val Thr Gly Leu Gln
    290                 295                 300

Asp Val His Tyr Arg Gly Lys Met Glu Thr Leu Ile Arg Val Arg Asn
305                 310                 315                 320
```

```
Pro Trp Gly Arg Ile Glu Trp Asn Gly Ala Trp Ser Asp Ser Ala Arg
                325                 330                 335

Glu Trp Glu Glu Val Ala Ser Asp Ile Gln Met Gln Leu Leu His Lys
            340                 345                 350

Thr Glu Asp Gly Glu Phe Trp Met Ser Tyr Gln Asp Phe Leu Asn Asn
        355                 360                 365

Phe Thr Leu Leu Glu Ile Cys Asn Leu Thr Pro Asp Thr Leu Ser Gly
    370                 375                 380

Asp Tyr Lys Ser Tyr Trp His Thr Thr Phe Tyr Glu Gly Ser Trp Arg
385                 390                 395                 400

Arg Gly Ser Ser Ala Gly Gly Cys Arg Asn His Pro Gly Thr Phe Trp
                405                 410                 415

Thr Asn Pro Gln Phe Lys Ile Ser Leu Pro Glu Gly Asp Asp Pro Glu
            420                 425                 430

Asp Asp Ala Glu Gly Asn Val Val Val Cys Thr Cys Leu Val Ala Leu
        435                 440                 445

Met Gln Lys Asn Trp Arg His Ala Arg Gln Gln Gly Ala Gln Leu Gln
    450                 455                 460

Thr Ile Gly Phe Val Leu Tyr Ala Val Pro Lys Glu Phe Gln Asn Ile
465                 470                 475                 480

Gln Asp Val His Leu Lys Lys Glu Phe Phe Thr Lys Tyr Gln Asp His
                485                 490                 495

Gly Phe Ser Glu Ile Phe Thr Asn Ser Arg Glu Val Ser Ser Gln Leu
            500                 505                 510

Arg Leu Pro Pro Gly Glu Tyr Ile Ile Ile Pro Ser Thr Phe Glu Pro
        515                 520                 525

His Arg Asp Ala Asp Phe Leu Leu Arg Val Phe Thr Glu Lys His Ser
    530                 535                 540

Glu Ser Trp Glu Leu Asp Glu Val Asn Tyr Ala Glu Gln Leu Gln Glu
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